TEST REPORT

EN 60950-1

Safety of information technology equipment

Part 1-General requirements

Report reference No ..... :	R2XM180207051-03
Compiled by (+ signature) ..... :	Test Engineer: Acan Liang
Approved by (+ signature) ..... :	Team Leader: Robin He
Date of issue ..... :	2018-05-02
Testing laboratory ..... :	Bay Area Compliance Laboratories Corp. (Dongguan)
Address ..... :	No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
Testing location ..... :	As above
Applicant's name ..... :	United GULF GATE Co.
Address ..... :	Aladel Tower, F21, Fahad Al Salem St., State of KUWAIT
Manufacturer's name..... :	Same as applicant
Address ..... :	Same as applicant
Factory's name..... :	N/A
Address ..... :	N/A
Standard ..... :	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Test sample(s) received..... :	2018-04-02
Test in period..... :	2018-04-03 to 2018-04-28
Procedure deviation ..... :	N/A
Non-standard test method ..... :	N/A

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the specific product described herein. It must not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

Test item description	IP PBX
Trademark	XonTel
Model/type reference	XT-120 IP-PBX
Manufacturer	Same as applicant
Rating	EUT input: 100-240V~, 50/60Hz, 0.5A Max.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Note:
- The CE marking and WEEE symbol (if any) should be at least 5.0mm and 7.0mm respectively in height.
- Manufacturers shall ensure that the equipment bears a type, batch or serial number or other element allowing its identification.
- Manufacturers shall indicate on the electrical equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted.
- Importers shall indicate on the electrical equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted.

Test item particulars .....:	
Equipment mobility .....:	☐ movable ☐ hand-held ☐ transportable ☒ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains.....:	☒ pluggable equipment ☒ type A ☐ type B ☐ detachable power supply cord ☐ non-detachable power supply cord ☐ permanent connection ☐ not directly connected to the mains
Operating condition .....:	☒ continuous ☐ rated operating / resting time:
Access location .....:	☒ operator accessible ☐ restricted access location
Over voltage category (OVC) .....:	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other
Mains supply tolerance (%).....:	+10%, -10% (requested by applicant)
Tested for IT power systems.....:	☒ Yes ☐ No
IT testing, phase-phase voltage (V) .....:	230V (only for Norway)
Class of equipment .....:	☒ Class I ☐ Class II ☐ Class III ☐ Not classified
Considered current rating of protective device as part of the building installlation (A) .....:	16A
Pollution degree (PD) .....:	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class .....:	IPX0
Altitude during operation (m) .....:	Up to 2000m
Altitude of test laboratory (m) .....:	Below 2000m
Max. Specified ambient temperature(°C) .....:	40°C
Mass of equipment (kg).....:	2.75kg
Possible test case verdicts .....:	
- test case does not apply to the test object.....:	N/A(or N)
- test object does meet the requirement.....:	P(ass)
- test object does not meet the requirement.....:	F(ail)

General remarks:

"(see remark #)" refers to a remark appended to the report.

(see appended table)" refers to a table appended to the report.

The test results presented in this report relate only to the object tested.

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

Summary of testing:

All tests were performed on the worst case and all test results complied with the standard on the cover page.

General product information:

1. The product named IP PBX is designed as information technology equipment, for indoor use only.
2. The product is a class I equipment, supplied by a 100-240V AC mains.
3. The equipment is a rack fixed and horizontal installation equipment, specific installation method see the instructions.
4. Before placing the products in the different countries, the manufacturer must ensure that: Operating Instructions, Ratings Labels and Warnings Labels are in an Accepted or Official Language of the country in question; The equipment complies with the National Standards and/or Electrical Codes of the country, province or city or in question.

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	Components that were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard. Components not certified are used in accordance with their ratings and they comply with IEC 60950-1 and the relevant component Standard. Components, for which no relevant IEC Standard exist, have been tested under the condition occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No such component	N
1.5.4	Transformers		N
1.5.5	Interconnecting cables	Comply with the relevant requirements of this standard	P
1.5.6	Capacitors bridging insulation		N
1.5.7	Resistors bridging insulation		N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power systems	Only for Norway	P
1.5.9	Surge suppressors		P
1.5.9.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
1.5.9.2	Protection of VDRs	By fuse FS1 for switching power supply	P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	**Power interface**		P
1.6.1	AC power distribution systems	TN and IT(Only for Norway)	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment	N
1.6.4	Neutral conductor		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
	Rated voltage(s) or voltage range(s) (V) ..... :	100-240	P
	Symbol for nature of supply, for d.c. only ..... :		N
	Rated frequency or rated frequency range (Hz) ... :	50/60	P
	Rated current (mA or A) ..... :	0.5A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark ..... :	See the label	P
	Model identification or type reference ..... :	See the label	P
	Symbol for Class II equipment only ..... :	Class I equipment	N
	Other markings and symbols ..... :	Others marking can be added, which not misunderstand.	P
1.7.1.3	Use of graphical symbols	Considered	P
1.7.2	Safety instructions and marking	In user manual	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Appliance inlet is intended to serve as the disconnect device	P
	-for permanently connected equipment, a readily accessible disconnect device shall be incorporated in the building installation wiring	Not permanently connected equipment	N

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Clause	Requirement + Test	Result - Remark	Verdict
	-for pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible	Appliance inlet used as disconneted device	P
1.7.2.3	Overcurrent protective device	Pluggable equipment Type A	N
1.7.2.4	IT power distribution systems	The following or similar information was given in the user manual. “The product is designed for IT power distribution system.”	P
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone	The equipment does not produce ozone.	N
1.7.3	Short duty cycles	Continuous operation.	N
1.7.4	Supply voltage adjustment ..... :	No voltage selector	N
	Methods and means of adjustment; reference to installation instructions ..... :		N
1.7.5	Power outlets on the equipment ..... :	No standard power outlet.	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ..... :		N
1.7.7	Wiring terminals		P
1.7.7.1	Protective earthing and bonding terminals ..... :		P
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment not for permanent connection or not provided with a non-detachable power supply cord	N
1.7.7.3	Terminals for d.c. mains supply conductors	No connection to d.c. mains supply	N
1.7.8	Controls and indicators	See below.	P
1.7.8.1	Identification, location and marking ..... :	The correct marking are used adjacent to the switch.	P
1.7.8.2	Colours ..... :	Safety is not involved.	N
1.7.8.3	Symbols according to IEC 60417 ..... :	”I”and indicate the ”ON”, and ”O” indicate the "OFF"	P
1.7.8.4	Markings using figures ..... :		N
1.7.9	Isolation of multiple power sources ..... :		N
1.7.10	Thermostats and other regulating devices ..... :		N
1.7.11	Durability	Rubbed with a cloth soaked with water for 15s then again for 15s with cloth soaked with petroleum spirit, after this test, the marking on the label did not fade there are no curling nor lifting of the label edge.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.12	Removable parts	No such removable parts.	N
1.7.13	Replaceable batteries ..... :	See below	P
	Language(s) ..... :	CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS	—
1.7.14	Equipment for restricted access locations..... :		N
2	**PROTECTION FROM HAZARDS**		P
2.1	**Protection from electric shock and energy hazards**		P
2.1.1	Protection in operator access areas	See below.	P
2.1.1.1	Access to energized parts		P
	Test by inspection ..... :	No hazardous live parts can be accessed	P
	Test with test finger (Figure 2A) ..... :	No hazardous live parts can be accessed	P
	Test with test pin (Figure 2B) ..... :	No hazardous live parts can be accessed	P
	Test with test probe (Figure 2C) ..... :	TNV circuits can not be accessed	P
2.1.1.2	Battery compartments	No such component	N
2.1.1.3	Access to ELV wiring	No ELV wring	N
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring		N
2.1.1.5	Energy hazards ..... :	(see appended table 2.1.1.5)	P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s) ..... :	Been evaluated in approved switching power supply	—
2.1.1.8	Energy hazards - d.c. mains supply	No connection to d.c. mains supply	N
	a) Capacitor connected to the d.c. mains supply . :		N
	b) Internal battery connected to the d.c. mains supply ..... :		N
2.1.1.9	Audio amplifiers ..... :	No audio amplifiers	N

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Clause	Requirement + Test	Result - Remark	Verdict
2.1.2	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in a service access area	N
2.1.3	Protection in restricted access locations	Equipment not intended for installation in restricted access locations	N
2.2	**SELV circuits**		P
2.2.1	General requirements	See below.	P
2.2.2	Voltages under normal conditions (V) ..... :	42.4V peak or 60V d.c. are not exceeded in SELV circuits.	P
2.2.3	Voltages under fault conditions (V) ..... :	Not exceed 42.4V peak or 60V d.c. for longer than 0.2s, and under limit of 71V peak or 120V d.c. within 0.2s.	P
2.2.4	Connection of SELV circuits to other circuits ..... :	Only connection to SELV circuit	P
2.3	**TNV circuits**		P
2.3.1	Limits	- When telephone ringing signals are present: see Annex M; - When telephone ringing signals are not present: Port 5 TIP5 to RING5: a. The max. U under normal operating conditions: 48Vdc; b. The max. U across 5K ohm resistor in the event of a single fault: R5 short circuit: 20Vdc; C1 short circuit: 48Vdc; U2 pin (4-5) short circuit: 20Vdc; All value measured on fault condition not exceed 120Vdc.	P
	Type of TNV circuits..... :	TNV-3 circuits	—
2.3.2	Separation from other circuits and from accessible parts	See below	P
2.3.2.1	General requirements	Complied	P
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions ..... :	After test, no hazards	P
2.3.3	Separation from hazardous voltages	See clause 2.3.4	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Insulation employed ..... :		—
2.3.4	Connection of TNV circuits to other circuits	TNV circuit is separated from primary circuit by double insulation or reinforced insulation	P
	Insulation employed ..... :	Double insulation or reinforced insulation	—
2.3.5	Test for operating voltages generated externally		N
2.4	**Limited current circuits**		P
2.4.1	General requirements		P
2.4.2	Limit values	LCC be evaluated in approved switching power supplies, see appended table 1.5.1	P
	Frequency (Hz) ..... :		—
	Measured current (Ma) ..... :		—
	Measured voltage (V) ..... :		—
	Measured circuit capacitance (nF or µF)..... :		—
2.4.3	Connection of limited current circuits to other circuits	LCC be evaluated in approved switching power supplies, see appended table 1.5.1	P
2.5	**Limited power sources**		P
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition	(See appended table 2.5)	P
	Use of integrated circuit (IC) current limiters		N
	d) Overcurrent protective device limited output		—
	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**		P
2.6.1	Protective earthing	Reliable earthing terminal	P
2.6.2	Functional earthing	No functional earthing.	N
	Use of symbol for functional earthing .....:		N

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors		P
	Rated current (A), cross-sectional area (mm^2), AWG ..... :	Assessment by test	—
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm^2), AWG ..... :	Assessment by test	—
	Protective current rating (A), cross-sectional area (mm^2), AWG..... :	Assessment by test	—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)..... :	The earth terminal of AC inlet to the farthest metal enclosure: Resistance: 0.01Ω; Voltage drop: 0.32V; Test current: 32A; Duration: 2min.	P
2.6.3.5	Colour of insulation ..... :	Green-and-Yellow wire used	P
2.6.4	Terminals	See below.	P
2.6.4.1	General	The earthing terminal in approved AC inlet is used as protective earthing terminal. And a separate protective earthing terminal permanently connected to earth.	P
2.6.4.2	Protective earthing and bonding terminals	Reliable earthing terminal	P
	Rated current (A), type, nominal thread diameter (mm)..... :	1.5A, Screw type, 2.9mm	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	The earthing terminal in approved AC inlet is used as protective earthing terminal.	P
2.6.5	Integrity of protective earthing	See below.	P
2.6.5.1	Interconnection of equipment		P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth	Protective earthing connections be disconnected after the relevant hazard is removed at the same time	P
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance	Complied.	P
2.6.5.7	Screws for protective bonding	Complied.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.8	Reliance on telecommunication network or cable distribution system	Not reliance on telecommunication network or cable distribution system	N
2.7	**Overcurrent and earth fault protection in primary circuits**		P
2.7.1	Basic requirements	Protection in primary circuits against over currents provided as an integral part of the equipment.	P
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7	Considered.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A	P
2.7.4	Number and location of protective devices ..... :	Case A, Fuse link FS1 is provided which protects against overcurrent	P
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel ..... :		N
2.8	**Safety interlocks**		N
2.8.1	General principles	No safety interlocks	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
	Protection against extreme hazard		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) ..... :		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test		N
2.8.8	Mechanical actuators		N
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	Electric strength test was conducted after humidity test.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Relative humidity (%), temperature (°C) ..... :	RH: 93-95%, 39-40°C, 120hrs (requested by client)	—
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		P
	Method(s) used ..... :	Method 1 and Method 3	—
2.10	**Clearances, creepage distances and distances through insulation**		P
2.10.1	General	Internal power supply board has been approved, see table 1.5.1, other parts see below.	P
2.10.1.1	Frequency ..... :	The frequency does not exceed 30kHz.	P
2.10.1.2	Pollution degrees ..... :	This report considered the pollution degree II.	P
2.10.1.3	Reduced values for functional insulation	The functional insulation comply with 5.3.4 c)	P
2.10.1.4	Intervening unconnected conductive parts		P
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage		P
2.10.2.1	General		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		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply ..... :	2500Vp	P
	b) Earthed d.c. mains supplies ..... :		N
	c) Unearthed d.c. mains supplies ..... :		N
	d) Battery operation ..... :		N
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply ..... :		N
2.10.3.7	Transients from d.c. mains supply ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.8	Transients from telecommunication networks and cable distribution systems ..... :		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply ..... :		N
	For a d.c. mains supply ..... :		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	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	See below	P
2.10.5.1	General	The insulation slices only used as basic insulation	P
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5	Cemented joints		N
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs) ..... :		—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		—
2.10.5.11	Insulation in wound components		N
2.10.5.12	Wire in wound components		N
	Working voltage ..... :		N
	a) Basic insulation not under stress ..... :		N
	b) Basic, supplementary, reinforced insulation ..... :		N
	c) Compliance with Annex U ..... :		N
	Two wires in contact inside wound component; angle between 45° and 90° ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		N
2.10.5.14	Additional insulation in wound components		N
	Working voltage ..... :		N
	- Basic insulation not under stress ..... :		N
	- Supplementary, reinforced insulation ..... :		N
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs) ..... :		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

3	**WIRING, CONNECTIONS AND SUPPLY**		P
3.1	**General**		P
3.1.1	Current rating and overcurrent protection	All the interconnecting cables and internal wires are adequate for the current they are intended to carry.	P
3.1.2	Protection against mechanical damage	Wireways are smooth and free from sharp edges	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure	A screw engage at least two completethreads into a metal plate.	P
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws	No such screws	N
3.1.9	Termination of conductors	See below.	P
	10 N pull test	10N	P
3.1.10	Sleeving on wiring		P
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	An appliance inlet for connection of a DETACHABLE POWER SUPPLY CORD	P
3.2.1.2	Connection to a d.c. mains supply	No connection to d.c. mains supply	N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment	Not permanently connected equipment	N
	Number of conductors, diameter of cable and conduits (mm) .....:		—
3.2.4	Appliance inlets	Approved AC inlet, (see appended table 1.5.1)	P
3.2.5	Power supply cords	See below.	P
3.2.5.1	AC power supply cords		P
	Type .....:	(see appended table 1.5.1)	—
	Rated current (A), cross-sectional area (mm^2), AWG .....:	(see appended table 1.5.1)	—
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.2.7	Protection against mechanical damage		P
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm) .....:		—
3.2.9	Supply wiring space		N
3.3	**Wiring terminals for connection of external conductors**		N
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2) .....:		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	**Disconnection from the mains supply**		P
3.4.1	General requirement	See below.	P
3.4.2	Disconnect devices	Appliace inlet as the disconnect device	P
3.4.3	Permanently connected equipment	Not permanently connected equipment	N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords	No such switch in flexible cords	N
3.4.6	Number of poles – single-phase and d.c. equipment	Disconnect both poles simultaneously	P
3.4.7	Number of poles – three-phase equipment		N
3.4.8	Switches as disconnect devices	Complied	P
3.4.9	Plugs as disconnect devices	Complied	P
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N
3.5	**Interconnection of equipment**		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.5.1	General requirements	Considered.	P
3.5.2	Types of interconnection circuits ..... :	Interconnection circuits of SELV through the connector. No ELV interconnection circuits.	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuits.	N
3.5.4	Data ports for additional equipment	Complied.	P
4	**PHYSICAL REQUIREMENTS**		P
4.1	**Stability**		N
	Angle of 10°	Mass < 7kg	N
	Test force (N) ..... :	The unit is not floor-standing.	N
4.2	**Mechanical strength**		P
4.2.1	General	See below	P
	Rack-mounted equipment.	Mass < 7kg	N
4.2.2	Steady force test, 10 N	For internal components.	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N
4.2.4	Steady force test, 250 N	For external enclosure.	P
4.2.5	Impact test	500g, 1.3m, no hazard.	P
	Fall test	Top side and bottom side of enclosure	P
	Swing test	Four vertical side of enclosure	P
4.2.6	Drop test; height (mm) ..... :		N
4.2.7	Stress relief test		N
4.2.8	Cathode ray tubes	No such tubes	N
	Picture tube separately certified ..... :		N
4.2.9	High pressure lamps	No high pressure lamps	N
4.2.10	Wall or ceiling mounted equipment; force (N) ..... :		N
4.3	**Design and construction**		P
4.3.1	Edges and corners	All coners are smooth and rounded	P
4.3.2	Handles and manual controls; force (N)..... :	No such device	N
4.3.3	Adjustable controls	No adjustable controls.	N
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.5	Connection by plugs and sockets	Employed in a manner not likely to creeate a hazard due to misconnection	P
4.3.6	Direct plug-in equipment	Not direct plug-in equipment	N
	Torque ..... :		—
	Compliance with the relevant mains plug standard ..... :		N
4.3.7	Heating elements in earthed equipment	No such component	N
4.3.8	Batteries	Button cell	P
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery	(See appended table 4.3.8)	P
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery	Consumer grade battery.	P
4.3.9	Oil and grease	No oil and grease	N
4.3.10	Dust, powders, liquids and gases		N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids ..... :		N
	Quantity of liquid (l) ..... :		N
	Flash point (°C) ..... :		N
4.3.13	Radiation	See below.	P
4.3.13.1	General	LEDs only for indication.	P
4.3.13.2	Ionizing radiation		N
	Measured radiation (Pa/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification ..... :		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :		N
4.3.13.5	Lasers (including laser diodes) and LEDs	LEDs only for indication.	P
4.3.13.5.1	Lasers (including laser diodes)		N
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)	LEDs only for indication.	P
4.3.13.6	Other types ..... :		N

4.4	**Protection against hazardous moving parts**	N

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.1	General	No moving parts	N
4.4.2	Protection in operator access areas ..... :		N
	Household and home/office document/media shredders		N
4.4.3	Protection in restricted access locations ..... :		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. A)…….:		N
	Is considered to cause pain, not injury. B) …….:		N
	Considered to cause injury. C) …….:		N
4.4.5.2	Protection for users		N
	Use of symbol or warning ……..……:		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning ……..……:		N
4.5	**Thermal requirements**		P
4.5.1	General	See below	P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L ..... :		—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat ..... :	(see appended table 4.5.5)	P
4.6	**Openings in enclosures**		P
4.6.1	Top and side openings	Side openings	P
	Dimensions (mm) ..... :	The any dimensions of openings are less than 5 mm.	—
4.6.2	Bottoms of fire enclosures	No opening	N
	Construction of the bottomm, dimensions (mm) .. :		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		N
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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	Materials with the required flammability classes are used- see appended table 1.5.1 and 4.7	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General	See below.	P
4.7.3.2	Materials for fire enclosures	Metal enclosure	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures	(see appended table 1.5.1)	P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N
5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		**P**
5.1	**Touch current and protective conductor current**		P
5.1.1	General	See below.	P
5.1.2	Configuration of equipment under test (EUT)	See below.	P
5.1.2.1	Single connection to an a.c. mains supply	Considered.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit	Figure 5A.	P
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V) ..... :	264V, 60Hz	—
	Measured touch current (mA) ..... :	(see appended table 5.1)	—
	Max. Allowed touch current (mA) ..... :	(see appended table 5.1)	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Measured protective conductor current (mA) ..... :		—
	Max. Allowed protective conductor current (mA).. :		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N
5.1.7.1	General ..... :		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	Supply voltage (V) ..... :		—
	Measured touch current (Ma) ..... :		—
	Max. Allowed touch current (Ma) ..... :		—
5.1.8.2	Summation of touch currents from telecommunication networks		N
	a) EUT with earthed telecommunication ports .... :		N
	b) EUT whose telecommunication ports have no reference to protective earth		N
5.2	**Electric strength**		P
5.2.1	General		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 such component.	N
5.3.3	Transformers	Transformers be evaluated in approved switching power supply	P
5.3.4	Functional insulation ..... :	Complies with c).	P
5.3.5	Electromechanical components	No such component.	N
5.3.6	Audio amplifiers in ITE ..... :		N
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment		N
5.3.9	Compliance criteria for abnormal operating and fault conditions	(see appended table 5.3)	P
5.3.9.1	During the tests	No hazard.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.9.2	After the tests	No hazard.	P
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		P
6.1	**Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment**		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V) ..... :		—
	Current in the test circuit (Ma) ..... :		—
6.1.2.2	Exclusions ..... :		N
6.2	**Protection of equipment users from overvoltages on telecommunication networks**		P
6.2.1	Separation requirements		P
6.2.2	Electric strength test procedure	See below	P
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test	See appended table 5.2	P
6.2.2.3	Compliance criteria		N
6.3	**Protection of the telecommunication wiring system from overheating**		N
	Max. Output current (A) ..... :		—
	Current limiting method ..... :		—
7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		N
7.1	**General**	No connected to cable distribution system.	N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N

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

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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
B.1	**General requirements**		N
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
B.2	**Test conditions**		N
B.3	**Maximum temperatures**		N
B.4	**Running overload test**		N
B.5	**Locked-rotor overload test**		N
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	**Running overload test for d.c. motors in secondary circuits**		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) .....:		N
B.7	**Locked-rotor overload test for d.c. motors in secondary circuits**		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V) .....:		N
B.8	**Test for motors with capacitors**		N
B.9	**Test for three-phase motors**		N
B.10	**Test for series motors**		N
	Operating voltage (V) .....:		—
C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		P
	Position .....:	Transformer have been evaluated in approved switching power supply, see appended table 1.5.1	—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—

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

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Clause	Requirement + Test	Result - Remark	Verdict
G.6	**Determination of minimum clearances ..... :**		N
H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		N
J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		P
	Metal(s) used .....:	1018A carbon steel	—
K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)**		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V) .....:		N
K.3	Thermostat endurance test; operating voltage (V) .....:		N
K.4	Temperature limiter endurance; operating voltage (V) .....:		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		P
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment	(See appended table 1.6.2)	P
M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		P
M.1	Introduction	Method A is used	P

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Clause	Requirement + Test	Result - Remark	Verdict
M.2	Method A	Test Data: Port 1 TIP1 to RING1: t1=2s, t2=6s, Vpp=172V, Ipp=172/5000=34.4mA, Vdc=48V, Idc=48/5000=9.6mA, Formula of ITS1, ITS2 $I_{TS1}=\frac{I_{pp}}{2\sqrt{2}}$ (for t1≧1.2s) ITS1=12.164mA $I_{TS2}=\left[\frac{t_1}{t_2}\times I_{TS1}^2+\frac{t_2-t_1}{t_2}\times\frac{I_{dc}^2}{3{,}75^2}\right]^{1/2}$ ITS2=7.327mA Result: a) For normal operation: ITS1=12.164mA<16mA; b) For normal operation: ITS2=7.327mA<16mA; c) Under single fault conditions: C1 short circuit, U2 pin (4-5) short circuit,: no change, the related value as same as normal condition, ITS1 and/or ITS2<20mA	P
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz) ..... :		—
M.3.1.2	Voltage (V) ..... :		—
M.3.1.3	Cadence; time (s), voltage (V) ..... :		—
M.3.1.4	Single fault current (Ma) ..... :		—
M.3.2	Tripping device and monitoring voltage ..... :		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) ..... :		N
N	**ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)**		N
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	**ANNEX P, NORMATIVE REFERENCES**		—

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Clause	Requirement + Test	Result - Remark	Verdict
Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		P
	- Preferred climatic categories .....:	Complied	P
	- Maximum continuous voltage .....:	Complied	P
	- Combination pulse current .....:	Complied	P
	Body of the VDR Test according to IEC60695-11-5.....:		N
	Body of the VDR. Flammability class of material (min V-1).....:		N
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		N
			—
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		N
			—
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		P
V.1	Introduction		P
V.2	TN power distribution systems		P
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N

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Clause	Requirement + Test	Result - Remark	Verdict
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)**		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)**		N
Y.1	Test apparatus .....:		N
Y.2	Mounting of test samples .....:		N
Y.3	Carbon-arc light-exposure apparatus .....:		N
Y.4	Xenon-arc light exposure apparatus .....:		N
Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**		N
AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**		N
BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**		—
CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		N
CC.1	General		N
CC.2	Test program 1……:		N
CC.3	Test program 2……:		N
CC.4	Test program 3.....:		N
CC.5	Compliance.....:		N
DD	**ANNEX DD, Requirements for the mounting means of rack-mounted equipment**		N
DD.1	General		N
DD.2	Mechanical strength test, variable N……..:		N
DD.3	Mechanical strength test, 250N, including end stops……:		N
DD.4	Compliance……..…..:		N
EE	**ANNEX EE, Household and home/office document/media shredders**		N
EE.1	General		N

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Clause	Requirement + Test	Result - Remark	Verdict
EE.2	Markings and instructions		N
	Use of markings or symbols……:		N
	Information of user instructions, maintenance and/or servicing instructions……:		N
EE.3	Inadvertent reactivation test……:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols……:		N
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A) ……:		N
	Test with wedge probe (Figure EE1 and EE2) ……:		N

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Clause	Requirement + Test	Result - Remark	Verdict

Group differences		
COMMON MODIFICATIONS FOR EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013		
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
Contents (A2:2013)	Add the following: Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
Whole document (A2:2013)	Delete all the “country” notes in the reference document 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 For special national conditions, see Annex ZB.	P
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note 1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6 2.2.3 Note; 2.2.4 Note; 2.3.2 Note 2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3 2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3 3.2.1.1 Note; 3.2.4 Note; 3.2.5.1 Note 2 4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note 4.7.3.1 Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2	P
General (A1:2010)	In IEC 60950-1:2005/A1 delete all the “country” notes 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
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.2.3 (A1:2010)	Add the following definition: **1.2.3.Z1** **PORTABLE SOUND SYSTEM** small battery powered audio equipment: − whose prime purpose is to listen to recorded or broadcasted sound; and − that uses headphones or earphones that can be worn in or on or around the ears; and − that allows the user to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment.		N
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.		N
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss		N

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1 (A1:2010)	Delete NOTE Z1. Add the following paragraph at the end of the subclause: 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.		N
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
2.7.2	This subclause has been declared ‘void’.		P
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N

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Clause	Requirement + Test	Result - Remark	Verdict
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.		P
3.2.5.1 (A2:2013)	Add the following Note: NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD.		P
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: | Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A.		N
4.3.13.6	Add the following NOTE: NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N
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). Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N

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Clause	Requirement + Test	Result - Remark	Verdict
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N
Biblio-graphy	Add the following standards: EN 50332-1:2000, 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” EN 50332-2:2003, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Matching of sets with headphones if either or both are offered separately Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized in EN 60127 series (not modified). IEC 60369-2-1 NOTE Harmonized as HD 60369-2-1:2005 (modified). IEC 60364-4-41 NOTE Harmonized as HD 384.4.41 S2:1996 (modified). IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified). IEC 60664-4 NOTE Harmonized as EN 60664-4:2006 (not modified). IEC 60728-11 NOTE Harmonized as EN 60728-11:2005 (modified). IEC 60896-21 NOTE Harmonized as EN 60896-21:2004 (not modified). IEC 60896-22 NOTE Harmonized as EN 60896-22:2004 (not modified). IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified).		N

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Clause	Requirement + Test	Result - Remark	Verdict
	IEC 61140 NOTE Harmonized as EN 61140:2002 (not modified). IEC 61558-1 NOTE Harmonized as EN 61558-1:2005 (not modified). IEC 61643-21 NOTE Harmonized as EN 61643-21:2001 (not modified). IEC 61643-311 NOTE Harmonized as EN 61643-311:2001 (not modified). IEC 61643-321 NOTE Harmonized as EN 61643-321:2002 (not modified). IEC 61643-331 NOTE Harmonized as EN 61643-331:2003 (not modified). IEC 61965 NOTE Harmonized as EN 61965:2003 (not modified). ISO 4892 NOTE Harmonized in EN ISO 4892 series (not modified).		N
Biblio-graphy (A1:2010)	Add the following note for the standard indicated: IEC 60908 NOTE Harmonized as EN 60908.		N
ZA (A2:2013)	**Normative references to international publications with their corresponding European publications**		P
ZB	**Special national conditions** Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions. NOTE If it affects harmonization, it forms part of the European Standard. For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.		P
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		P
1.2.13.14 (A11:2009)	Add as new SNC: In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1 (A11:2009)	Replace the existing SNC by the following: In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N

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Clause	Requirement + Test	Result - Remark	Verdict
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		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.		N
1.7.2.1 (A2:2013)	In **Denmark**, **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 **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		P
1.7.5 (A2:2013)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		N
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		P

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Clause	Requirement + Test	Result - Remark	Verdict
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.		P
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		P
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		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.		P
2.10.5.13	In **Finland, Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998 Plug Type 25 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	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. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If 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. Justification the Heavy Current Regulations, 6c		P
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		P
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N

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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.		N
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N
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
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	In **Finland, Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	In **Finland, Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In **Finland, Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N
7.2	In **Finland, Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N
7.3 (A11:2009)	Delete the existing SNC for Norway and Sweden (based on NOTE 1 of IEC 60950-1:2005 + corr. 1). Add as new SNC (based on future NOTE 3 of IEC 60950-1:200X): In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N
ZC	**A-deviations** A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC national member. This European Standard falls under Directives RTTED (1999/5/EC) and LVD (2006/95/EC). NOTE (from CEN/CENELEC IR Part 2:2002 , 2.17) Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No C 59, 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted except under the safeguard procedure provided for in the relevant Directive. A-deviations in an EFTA-country are valid instead of the relevant provisions of the European Standard in that country until they have been removed.		P
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.		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
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
(A12:2011)	**Zx. Protection against excessive sound pressure from personal music players**		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: - is designed to allow the user to listen to recorded or broadcast sound or video; and - primarily uses headphones or earphones that can be worn in or on or around the ears; and - allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA$s or similar equipment. 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. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. 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. The requirements do not apply to: - hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		N

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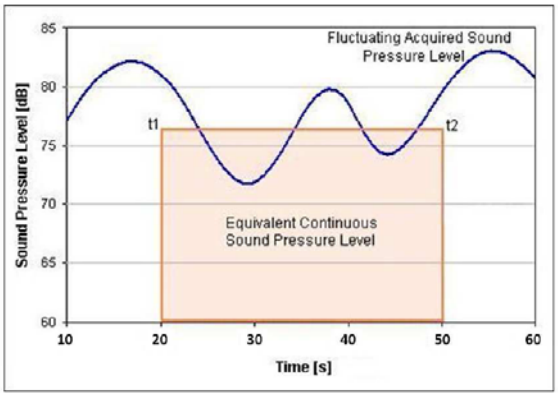
Clause	Requirement + Test	Result - Remark	Verdict
	- analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015 NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: - equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise" as described in EN 50332-1; and - a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise" as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and 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 NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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. d) have a warning as specified in Zx.3; and e) not exceed the following: 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. 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. 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. 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.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: - the symbol of Figure 1 with a minimum height of 5 mm; and - the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”  Figure 1 – Warning label (IEC 60417-6044) Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	Zx.4.1 Wired listening devices with analogue input 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. 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). NOTE The values of 94 dBA - 75 mV correspond with 85dBA - 27 mV and 100 dBA - 150 mV.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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. 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.). NOTE An example of a wired listening device with digital input is a USB headphone.		N
	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 above-mentioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N
	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. NOTE Test method for wireless equipment provided without listening device should be defined.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex Zx (A12:2011)	**Significance of $L_{Aeq,T}$ in EN 50332-1 and additional information** $L_{Aeq,T}$ is derived from the general formula for equivalent sound pressure: $$L_{eq} = 10\log\left[\frac{1}{t_2 - t_1}\int_{t_1}^{t_2}\frac{p_A^2}{p_0^2}dt\right]$$ This can be represented graphically as follows:  In EN 50332-1 the measurement time interval (t2 -t1) is 30 s. In practice, and for the purposes of listening to personal music player content, $L_{Aeq,T}$ has a time interval T (t2 - t1) in the order of minutes / hours and not seconds. 6.5 (Limitation value) of EN 50332-1:2000 acknowledges this fact and states that the 100 dB limit equates to a long time average of 90 dB $L_{Aeq,T}$. By using the IEC 60268-1 “programme simulation noise" test signal, this also takes the spectral content into account. The SCENHIR[1] report states that 80 dBA is considered safe for an exposure time of 40 h/week. Most persons do not listen to 40 h/week to their personal music player. In addition, not all music tracks are at the same level of the simulated noise signal. Whilst modern music tends to be at around the same level, most of the available music is at a lower average level. Therefore, the working group[2] considers a value of 85 dBA to be safe for an overwhelming majority of the users of personal music players.		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	[1] SCENIHR opinion of 23 Sept 2008: Potential health risks of exposure to noise from personal music players and mobile phones including a music playing function [2] CENELEC TC108X/WG03		N

ZD	**IEC and CENELEC code designations for flexible cords**		P
			P

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	60227 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

EN 60950-1			
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 conformity[1])
Plug of power cord	Shangyu Jintao Electron Co., Ltd.	JT006A	AC 250V, 13A	BS 1363-1	BSI Licence No: 1120
Flexible cable of power cord	Shangyu Jintao Electron Co., Ltd.	H05VV-F	3 x 0.75 mm²	EN 50525-2-11	VDE 40013419
Connector of power cord	Shangyu Jintao Electron Co., Ltd.	JT-ST3	AC 250V, 10A	EN 60320-1	VDE 40025292
Appliance inlet	Shenzhen Kangyongda Electronics Co., Ltd.	DE-14	250VAC, 10A, C14	EN 60320-1	VDE 40036820
Power switch	Zhejiang LECI Electronics Co., Ltd	RS601 series	250VAC, 6(4)A	EN 61058-1	VDE 40017430
Metal enclosure	--	--	Min. thickness 0.8mm	--	--
Internal AC input wire	XIAMEN HUILONG CABLE CO LTD	1007	18AWG, 300V, 80°C, VW-1	UL 758	UL E225375
Heat shrinkable tube	DONGGUAN SALIPT CO LTD	SALIPT S-901-300, SALIPT S-901-600, SALIPT S-HPT-600	Min. 300V, 125°C, VW-1	UL 224	UL E209436
Internal AC connector	ZHEJIANG HONGXING ELECTRICAL CO LTD	HX3960X-YYY	250VAC, 1.5A	UL 94, UL 1977	UL E228500
Switching Power Supply	MEAN WELL Enterprises Co., Ltd.	EPS-25-12	Input: 100-240V~, 50/60Hz, 0.6A; Output: 12VDC, 2.1A	IEC/EN 60950-1	TUV RH CB Report No.: 10035879 002; CE Cert. No.: R 50225053
Insulation sheet	--	--	L*W=105.8mm*55.1 mm, Min. thickness 0.35mm	UL 94	UL
Switching Power Supply DC output wires	XIAMEN HUILONG CABLE CO LTD	1007	20AWG, 300V, 105°C, VW-1	UL 758	UL E225375
Button cell	GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO LTD	CR1220	3.0V, 38mAh; Max. Abnormal Charging Current: 2.5mA; Max. Abnormal Charging Voltage: 3.5VDC	UL 1642	UL MH48705
PCB	SHENZHEN MULTILAYER PCB TECHNOLOGY CO LTD	MTL-M	V-0, 130°C	UL 796	UL E307592

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

(Alt.)	SHENZHEN UNIWELL CIRCUITS CO LTD	UW01	V-0, 130°C	UL 796	UL E314500
(Alt.)	--	--	V-0, 130°C	UL 796	UL
1) An asterisk indicates a mark which assures the agreed level of surveillance.					
Supplementary information:					

1.5.1	TABLE: Opto Electronic Devices	N
Manufacturer .....: --		
Type .....: --		
Separately tested .....: --		
Bridging insulation.....: --		
External creepage distance .....: --		
Internal creepage distance .....: --		
Distance through insulation .....: --		
Tested under the following conditions .....: --		
Input .....: --		
Output .....: --		
Supplementary information:		

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90V50Hz	0.231	--	12.89	--	--	Normal operation, rated load.
90V60Hz	0.230	--	13.09	--	--	Ditto
100V50Hz	0.211	0.5	12.91	--	--	Ditto
100V60Hz	0.210	0.5	13.04	--	--	Ditto
240V50Hz	0.107	0.5	12.74	--	--	Ditto
240V60Hz	0.106	0.5	12.80	--	--	Ditto
264V50Hz	0.101	--	12.80	--	--	Ditto
264V60Hz	0.100	--	12.79	--	--	Ditto
Supplementary information: --						

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
--	--	--	--	--	
supplementary information: see appended table 2.5.					

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

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

2.1.1.7	**TABLE: discharge test**				N
Condition	τ calculated (s)	τ measured (s)	t u→0V	Comments	
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.	
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
Supplementary information: see clause 2.2.			

2.5	**TABLE: limited power sources**					P
Circuit output tested: see below						
Measured Uoc (V) with all load circuits disconnected.....: see below						
Conditions:	Uoc (V)	Isc (A)		VA		
		Meas.	Limit	Meas.	Limit	
For lan port						
Normal operating	3.85	0.02	8	0.07	100	
R198 SC	3.85	0.02	8	0.07	100	
R194 SC	0	0	8	0	100	
T1 pin 1-24 SC	0	0	8	0	100	
C417 SC	0	0	8	0	100	
For RJ11 port 1						

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

Normal operating	47.0	0.05	8	2.35	100
F13 SC	47.0	0.05	8	2.35	100
J15 pin A5-B6 SC	0	0	8	0	100
Supplementary information:					

2.10.2	**Table: working voltage measurement**		P
Location	RMS voltage (V)	Peak voltage (V)	Comments
L/N to metal enclosure	250	420	--
L to N	250	420	--
Primary circuits to secondary circuits	250	420	--
TNV-3 circuits to metal enclosure	120	120	--
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)
Functional:						
L to N	420	250	1.5	6.8	2.5	6.8
Basic/supplementary:						
L/N to metal enclosure	420	250	2.0	6.0	2.5	8.0
Internal hazardous live part to metal enclosure	420	250	2.0	3.0	2.5	8.0
TNV-3 circuits to metal enclosure	120	120	1.0	4.0	1.5	4.0
Reinforced:						
Primary circuits to secondary circuits	420	250	4.0	6.0	5.0	>10.0
Supplementary information: the above data were not considered for the power supply board, the clearance and creepage distance of primary circuit, and primary circuit to secondary circuit for power board had been evaluated in approved switching power supplies.						

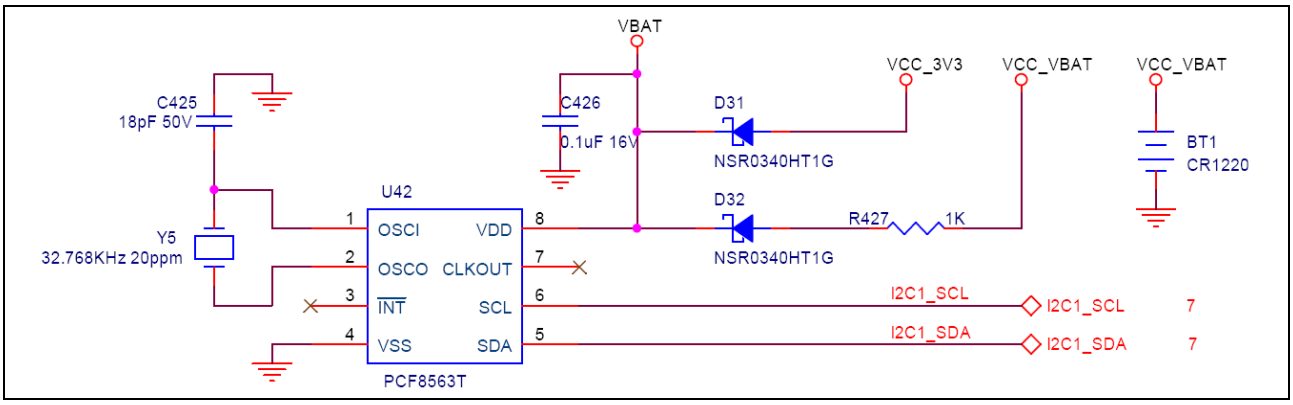
2.10.5	**TABLE: Distance through insulation measurements**				N
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Supplementary information:					

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

4.3.8	TABLE: Batteries								P
The tests of 4.3.8 are applicable only when appropriate battery data is not available						Yes			-
Is it possible to install the battery in a reverse polarity position?						No			-
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging (mA)	Charging		Discharging		Reversed charging	
	Meas. Current (mA)	Manuf. Specs. (mA)		Meas. Current (mA)	Manuf. Specs. (mA)	Meas. Current (mA)	Manuf. Specs. (mA)	Meas. Current (mA)	Manuf. Specs. (mA)
Max. current during normal condition	--	--	0	--	--	--	--	--	--
Max. current during fault condition (D32 SC)	--	--	0.3	--	--	--	--	--	--
Test results:									Verdict
- Chemical leaks						No chemical leaks affecting required insulation.			P
- Explosion of the battery						No explosion.			P
- Emission of flame or expulsion of molten metal						No emission of flame or expulsion of molten metal.			P
- Electric strength tests of equipment after completion of tests									N
Supplementary information: 1. SC=short circuited.									

4.3.8	TABLE: Batteries	P
Battery category.....:	Button cell	
Manufacturer.....:	See appended table 1.5.1	
Type / model.....:	See appended table 1.5.1	
Voltage.....:	See appended table 1.5.1	
Capacity.....:	See appended table 1.5.1	
Tested and Certified by (incl. Ref. No.).....:	See appended table 1.5.1	
Circuit protection diagram:	See below	

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



MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	Inside of enclosure
Language(s) ……:	English
Close to the battery ……:	Yes
In the servicing instructions ……:	Yes
In the operating instructions ……:	Yes

4.5	**TABLE: Thermal requirements**					P
	Supply voltage (V) ……:	90V60Hz		264V50Hz		—
	Ambient T_{min} (°C) ……:	24.8	Adjust to Tma=40.0	24.8	Adjust to Tma=40.0	—
	Ambient T_{max} (°C) ……:	24.9		25.0		—
Maximum measured temperature T of part/at::		T (°C)				Allowed Tmax (°C)
Appliance inlet		28.7	43.8	33.2	48.2	85
Metal enclosure top		30.5	45.6	32.0	47.0	70
Metal enclosure bottom		36.2	51.3	34.5	49.5	70
Internal AC input wire		37.8	52.9	36.4	51.4	80
Internal AC connector		40.6	55.7	41.0	56.0	Ref.
Internal DC output wire		36.7	51.8	37.3	52.3	105
PCB near D3		47.9	63.0	48.4	63.4	130
PCB near U1		49.5	64.6	48.5	63.5	130
Supplementary information:						

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							

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

4.5.5	**TABLE: Ball pressure test of thermoplastic parts**		P
	Allowed impression diameter (mm) ..... :	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
Internal AC connector	125	0.8
Supplementary information:		

4.7	**TABLE: Resistance to fire**				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Supplementary information: see appended table 1.5.1.					

5.1	**TABLE: touch current measurement**			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
L/N to metal enclosure (PE)	1.25	3.50	Switch ”e” opened	
L/N to secondary terminals	0.18	0.25	Switch ”e” closed	
supplementary information:				
1. Test voltage: 264V, 60Hz				

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	
L to N (fuse opened)	AC	1500	No	
L/N to metal enclosure	AC	1500	No	
L/N to secondary terminals	AC	3000	No	
TNV-3 circuits to metal enclosure	AC	1000	No	
TNV-3 circuits to SELV circuits	AC	1000	No	
Supplementary information:				

5.3	**TABLE: Fault condition tests**		P
	Ambient temperature (°C) .....:	24.0-26.0	—
	Power source for EUT: Manufacturer, model/type, output rating .....:	See page 2	—

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

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
One side openings	Blocked	264VAC	3 hrs	FS1	0.101→ 0.101	Unit working normally, no fire or molten metal occured, no hazard. T1 coil: 59.8°C; Ambient: 24.5°C.
C428	SC	264VAC	15 mins	FS1	0.101→ 0.005	Unit shut down immediately, no fire or molten metal occured, no hazard.
U43 pin 8-6	SC	264VAC	15 mins	FS1	0.101→ 0.005	Unit shut down immediately, no fire or molten metal occured, no hazard.
U28 pin 7-6	SC	264VAC	15 mins	FS1	0.101→ 0.005	Unit shut down immediately, no fire or molten metal occured, no hazard.
D3	SC	264VAC	15 mins	FS1	0.101→ 0.101	Unit working normally, no fire or molten metal occured, no hazard.
R314	SC	264VAC	15 mins	FS1	0.101→ 0.101	Unit working normally, no fire or molten metal occured, no hazard.

Supplementary information:

1. SC=Short circuited.

2. All above tests were also performed on 90VAC and got the same results.

C.2	TABLE: transformers	N

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)
--	--	--	--	--	--	--	--

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
--	--	--	--	--	--

supplementary information: --

C.2	TABLE: transformers	N

Appendix A - EUT PHOTOS

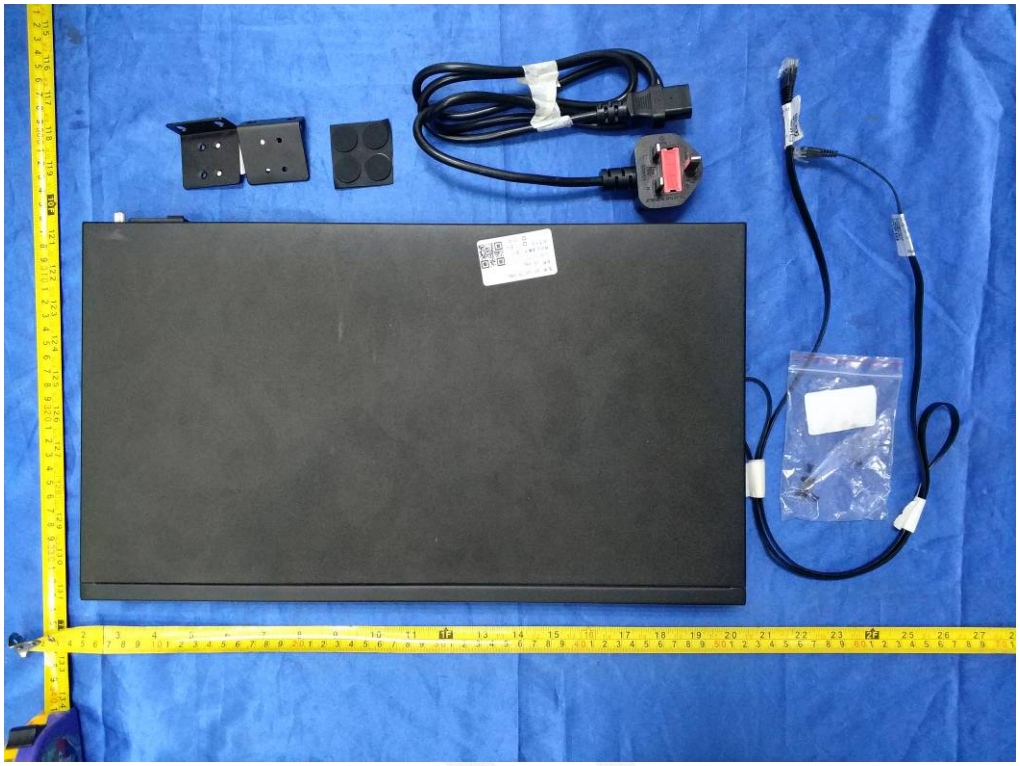


Photo 1 overall view

Photo 2 general view

Photo 3 general view

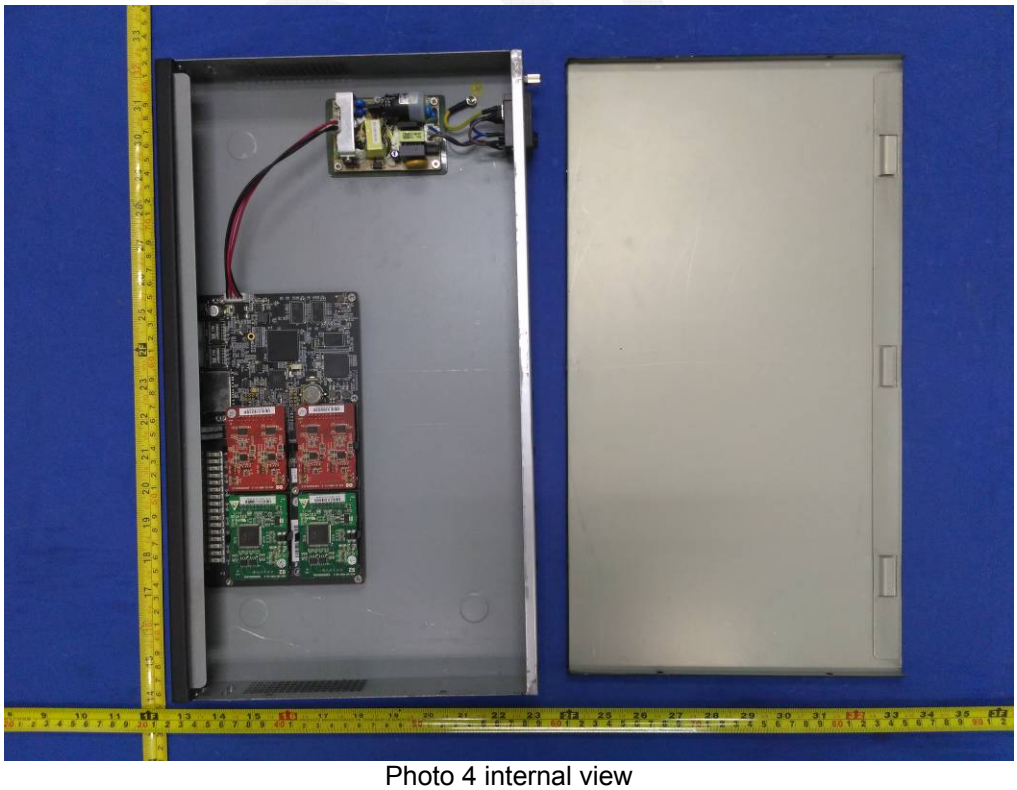


Photo 4 internal view

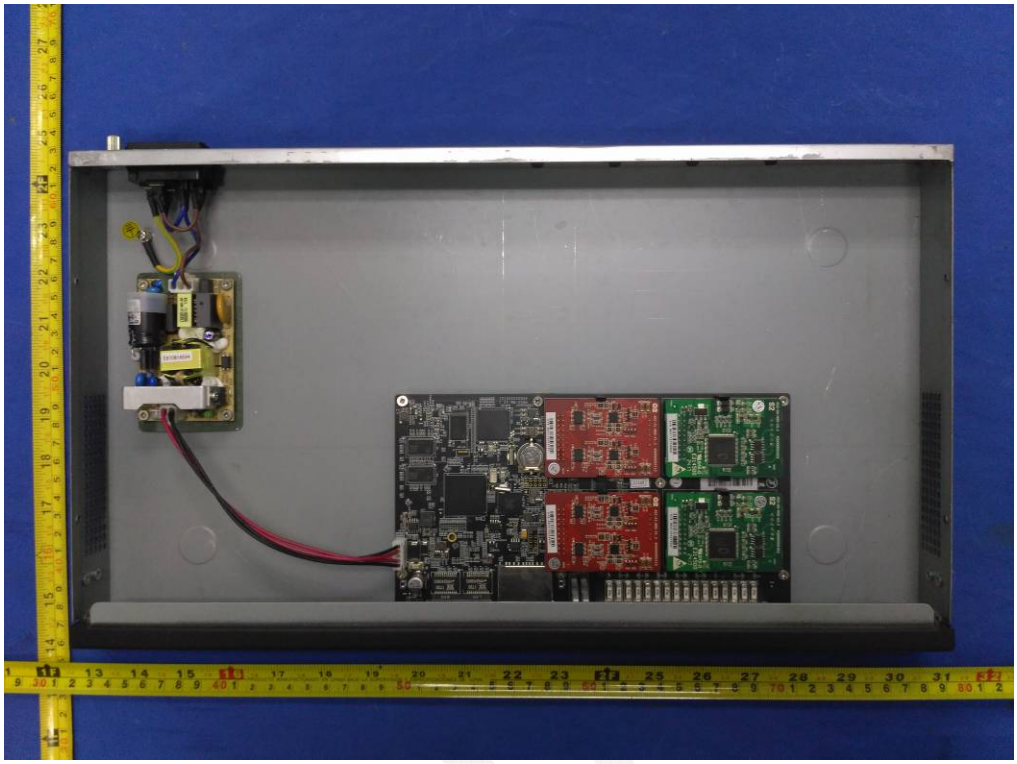


Photo 5 internal view

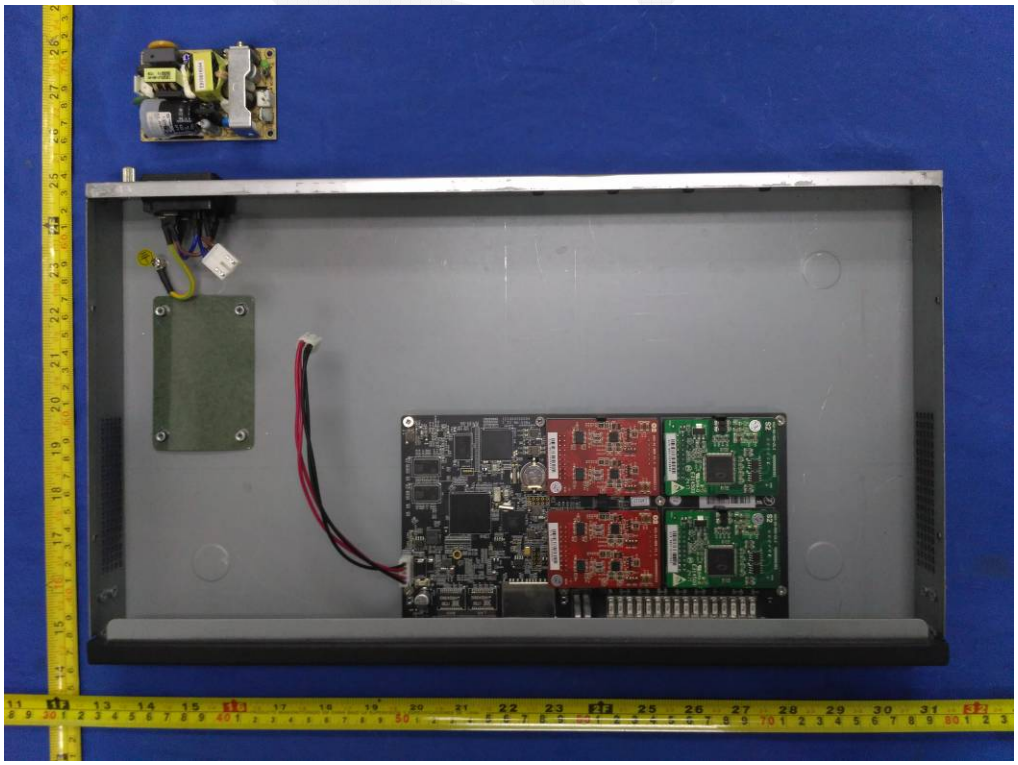


Photo 6 internal view

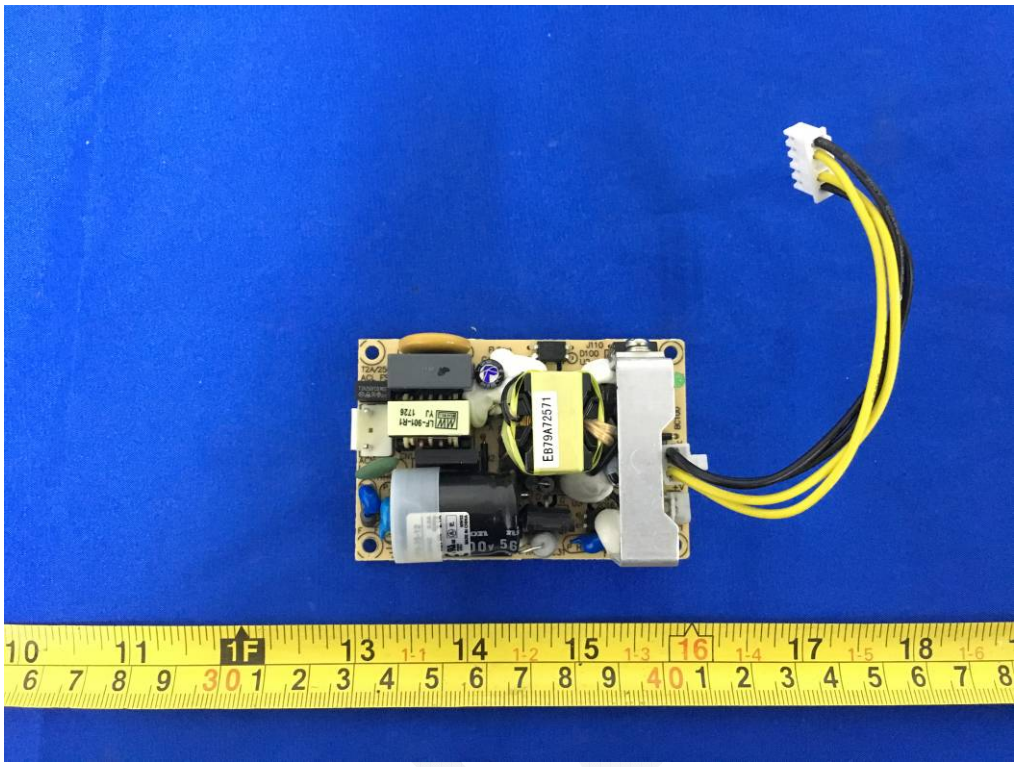


Photo 7 power board top view

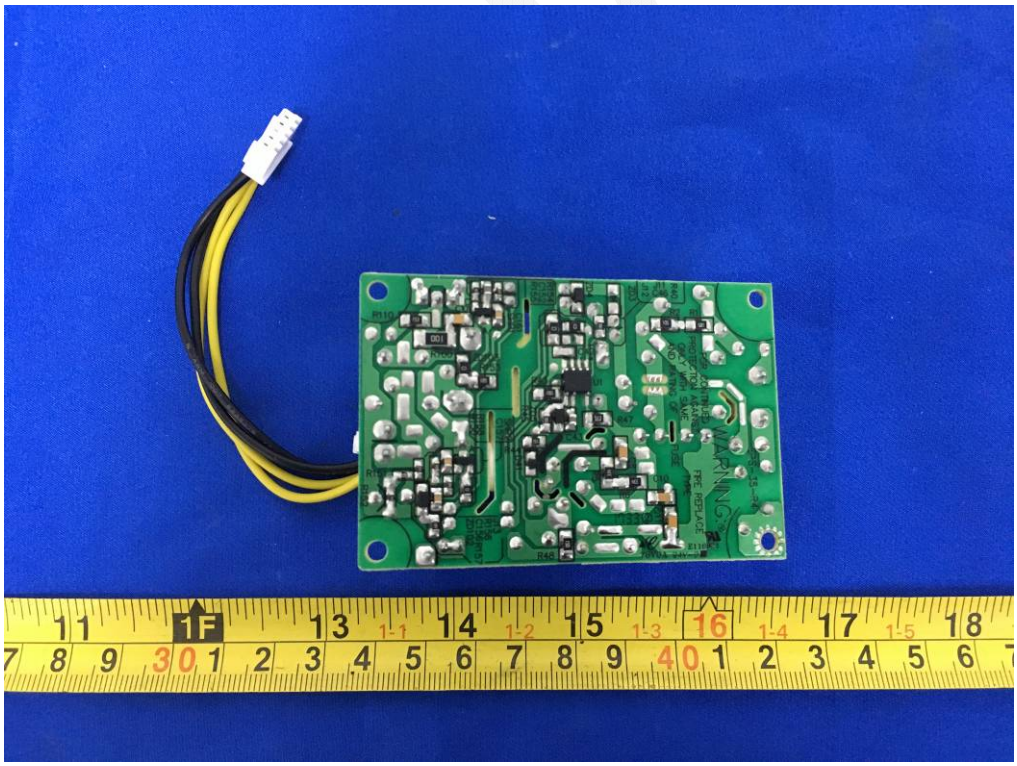


Photo 8 power board bottom view

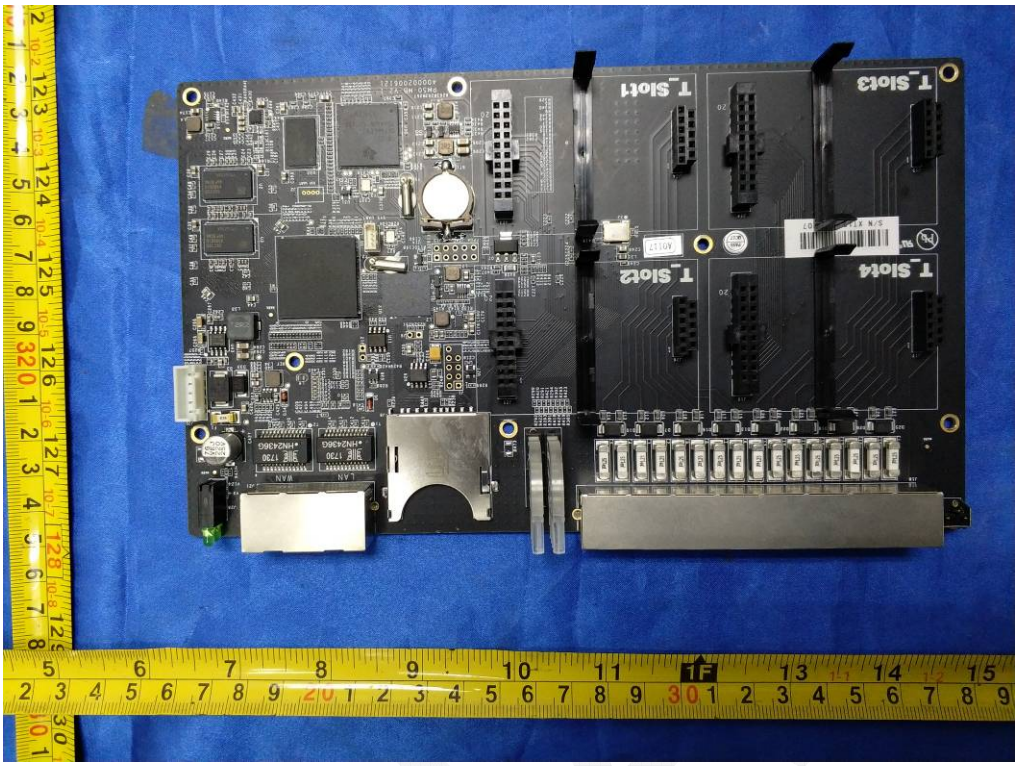


Photo 9 main board top view

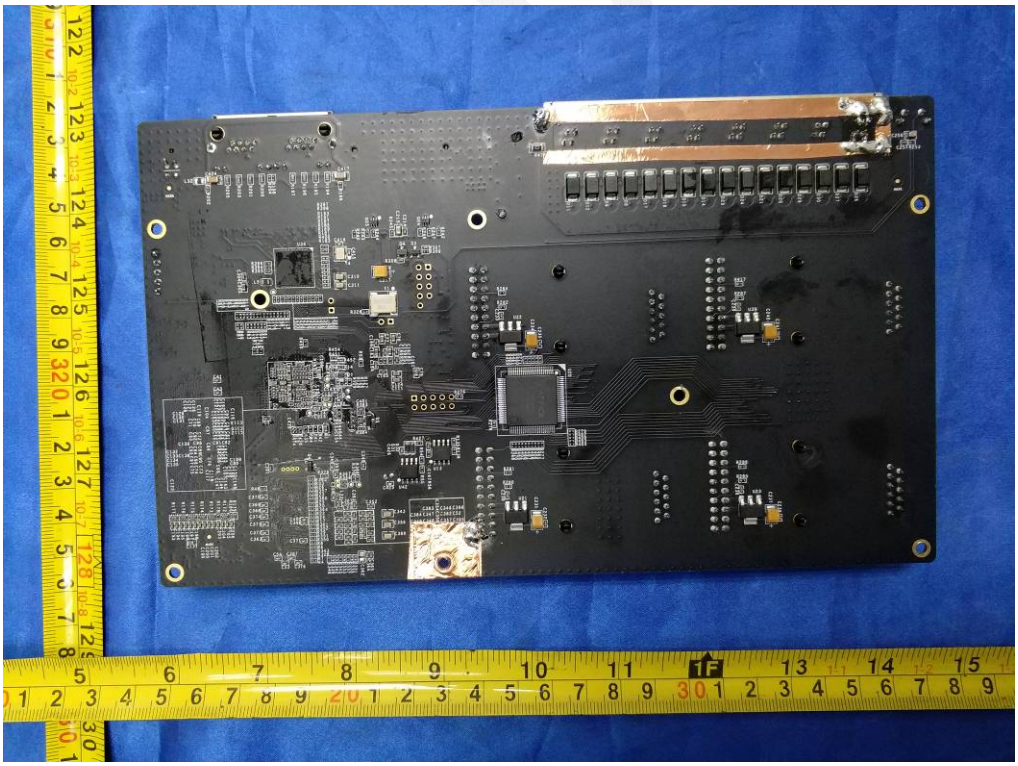


Photo 10 main board bottom view

Appendix B - Test equipments list

Equipment Description	Model No.	Equipment No.	Manufacturer	Last Cal.	Cal. Due
AC power system	HPC3145	T-08-SF191	--	2017-05-05	2018-05-05
Hybrid Recorder	DR240	T-08-SF014	YOKOGAWA	2017-7-7	2018-7-7
Hygrothermograph	JR900	T-08-QA082	--	2017-12-19	2018-12-19
Power meter	AN8721P	T-08-SF036	AINUO	2018-1-5	2019-1-5
Stop Watch	TA228	T-08-PW014	KTJ	2017-8-30	2018-8-30
Digital Multimeter	UT39A	T-08-EM140	--	2017-12-18	2018-12-18
Electric load	3710A	T-08-SF077	ITEK POWER	2017-12-10	2018-12-10
Push-pull Scale	NK-500	T-08-PW019	ANALOG	2017-9-9	2018-9-9
L-shaped Steel Ruler	0-500mm /1mm; 0-250mm /1mm	T-08-PF018	TAJIMA	2013-7-31	2018-7-30
Electron Balance	ME204E	T-08-CH093	METTLER TOLEDO	2018-1-5	2019-1-5
Leaker Current Tester	228	T-08-SF068	SIMPSON	2017-7-13	2018-7-13
Ground Bond Tester	19572	T-08-SF253	--	2017-12-18	2018-12-18
Hi-pot Tester	CS2672C	T-08-SF081	changsheng	2018-3-26	2019-3-26
Joint Test Finger	FZ-1101A	T-08-SF033	Hanyang	2017-5-8	2018-5-8
Humidity tester	ESX-3CW	T-08-SF083	ESPEC	2017-12-18	2018-12-18
Steel ball	50mm	T-02-SF028	--	2017-10-13	2022-10-12
Oven	DHG-9053A	T-08-CH042	--	2017-8-28	2018-8-28
Ball pressure fixture	FTR-9104	T-03-SF261	--	2017-10-13	2018-10-13
Digital Caliper	0-150mm	T-08-SF074	--	2017-10-13	2018-10-13

End of Report