



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

MEASUREMENT AND TEST REPORT

For

Shenzhen Wulian Electronic Co., Limited

Floor 2, Building 3, Masha Industrial Zone, No. 49, Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China

Table with Model: CW1, CW2, CW6, CW7, CW8, CW9, CW10, CW12, EW1, EW2, CQ1, CQ3, CQ5, CQ6, CQ7, CQ8, CQ9, CQ10, CR22, CR22A, CR23, CR23A, CR28, CR29, CR30, CT05, CT06, CT07, CT08, CT09, CT10, CT18, CT19, CT20, CT21, CT29, RE01, CK02, CK05, CK06, DB8, DB9, DB10, DB11, DB12, DB15, DT1, DT2, RC1, RC3, RC11, SA1, SA5, WW1, WW2

May 13, 2019

Form containing report details: This Report Concerns: [X] Original Report; Equipment Type: Calling System; Test By: Angell Liu; Report Number: CTE19ER-514S; Test Date: May 06-13, 2019; Reviewed By: Jason Chen; Prepared By: Coffee-T Electronics Technology Co., Ltd.

This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Coffee-T Electronics Technology Co., Ltd.



TEST REPORT	
EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013	
Information technology equipment – Safety –	
Part 1: General requirements	
Testing Laboratory	Coffee-T Electronics Technology Co., Ltd.
Address.....	4th Floor, Bldg A3, Digital Tech Park, 7th GaoXin South Blvd, Tech Park, NanShan, ShenZhen, China
Applicant's name	Shenzhen Wulian Electronic Co., Limited
Address.....	Floor 2, Building 3, Masha Industrial Zone, No. 49, Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China
Manufacturer's name	Shenzhen Wulian Electronic Co., Limited
Address.....	Floor 2, Building 3, Masha Industrial Zone, No. 49, Jiaoyu Road North, Pingdi, Longgang, Shenzhen, China
Test specification:	
Standard	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Test procedure.....	CE Attestation
Non-standard test method.....	N/A
Test Report Form No.	IEC60950_1D
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF.....	Dated 2013-06

Test item description	Calling System
Trade Mark	None
Manufacturer	Same as applicant.
Model/Type reference	CQ5
Ratings	DC 3.7V




Summary of testing:	
From the result of our tests on the submitted samples, we conclude they comply with the requirements of the standards	
Tests performed (name of test and test clause):	Testing location: 4th Floor, Bldg A3, Digital Tech Park, 7th GaoXin South Blvd, Tech Park, NanShan, ShenZhen, China
Summary of compliance with National Differences	
List of countries addressed:	
1. European group	
<input checked="" type="checkbox"/> The product fulfils the requirements of <u>EN 60950-1: 2006 + A11: 2009 +A1: 2010 +A12: 2011+A2: 2013</u>	

Copy of marking plate

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.

(Representative)

Calling System
Model: CQ5
Output: 3.7V

Importer: XXXXXX;
Address: XXXXXX

Shenzhen Wulian Electronic Co., Limited
 Made in China



Test item particulars	Calling System
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input checked="" type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	<input type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Operating condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	-10%. +6%
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	Below 2000m
Altitude of test laboratory (m)	Below 2000m
Mass of equipment (kg)	Approx.0.10kg
Possible test case verdicts:	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
Testing	
Date of receipt of test item	2019-5-05
Date(s) of performance of tests	2019-5-06 to 2019-5-13



General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

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

Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60385-02:

The application for obtaining a CE Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided : Yes Not applicable

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

Name and address of factory (ies) : **Shenzhen Wulian Electronic Co., Limited**
Floor 2, Building 3, Masha Industrial Zone, No. 49,
Jiaoyu Road North, Pingdi, Longgang, Shenzhen,
China

General product information:

The Calling System is used in information technology equipment.

Abbreviations used in the report:

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

Indicate used abbreviations (if any)



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls.	N
1.5.4	Transformers	No transformers.	N
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation	No such capacitors provided.	N
1.5.7	Resistors bridging insulation	No such resistors.	N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power systems		N
1.5.9	Surge suppressors		N
1.5.9.1	General		—
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	Power interface		P
1.6.1	AC power distribution systems		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.2	Input current	See appended table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	Rated voltage is not exceed 250V	N
1.6.4	Neutral conductor	Class III equipment	N

1.7	Marking and instructions		P
1.7.1	Power rating		P
	Multiple mains supply connections (IEC/EN 60950-1 /A1)		N
	Rated voltage(s) or voltage range(s) (V) :	3.7Vdc	P
	Symbol for nature of supply, for d.c. only:	==	P
	Rated frequency or rated frequency range (Hz) :		N
1.7.1.2	Identification markings (IEC/EN 60950-1 /A1)		P
	Rated current (mA or A) :	5A	P
	Manufacturer's name or trade-mark or identification mark :		P
	Model identification or type reference :	LK-TC01-NB01B5	P
	Symbol for Class II equipment only :	Class III equipment	N
	Other markings and symbols:	Other symbols do not give rise to misunderstanding.	P
1.7.2	Safety instructions and marking	Safety instruction provided	P
1.7.2.1	General	Considered.	—
1.7.2.2	Disconnect devices	No such disconnect device used.	N
1.7.2.3	Overcurrent protective device		N
1.7.2.4	IT power distribution systems	Not connect to IT power distribution system.	N
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone		N
1.7.3	Short duty cycles	Continuous operation	N
1.7.4	Supply voltage adjustment:	No voltage adjustment	N
	Methods and means of adjustment; reference to installation instructions:		N
1.7.5	Power outlets on the equipment:	No standard outlets	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference):	No fuse used.	N
1.7.7	Wiring terminals	No such terminals provided.	N
1.7.7.1	Protective earthing and bonding terminals:	Class III equipment	N
1.7.7.2	Terminals for a.c. mains supply conductors		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7.3	Terminals for d.c. mains supply conductors	The charger was approved.	N
1.7.8	Controls and indicators		P
1.7.8.1	Identification, location and marking	No control.	N
1.7.8.2	Colours		P
1.7.8.3	Symbols according to IEC 60417.....	There are no switches in the equipment.	N
1.7.8.4	Markings using figures	No controls.	N
1.7.9	Isolation of multiple power sources	No multiple power sources	N
1.7.10	Thermostats and other regulating devices	Class III equipment	N
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	P
1.7.12	Removable parts	There is do not give rise to misunderstanding.	P
1.7.13	Replaceable batteries		N
	Language(s)	English	—
1.7.14	Equipment for restricted access locations.....	Equipment not intended for intallation in restricted access location	N

2	PROTECTION FROM HAZARDS		N
2.1	Protection from electric shock and energy hazards		N
2.1.1	Protection in operator access areas	No hazardous parts in operator access areas.	N
2.1.1.1	Access to energized parts		N
	Test by inspection	Cannot touch live part or basic insulation	P
	Test with test finger (Figure 2A)		N
	Test with test pin (Figure 2B)		N
	Test with test probe (Figure 2C)		N
2.1.1.2	Battery compartments	No such battery compartments.	N
2.1.1.3	Access to ELV wiring	No internal wiring at ELV accessible to the operator.	N
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.4	Access to hazardous voltage circuit wiring	No such accessible hazardous voltage circuit wiring	N
2.1.1.5	Energy hazards	No accessible energy hazards	N
2.1.1.6	Manual controls	No such controls	N
2.1.1.7	Discharge of capacitors in equipment		N
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply	Not connected 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 amplifier.	N
2.1.2	Protection in service access areas	No such service access areas	N
2.1.3	Protection in restricted access locations	No such restricted access locations	N
2.2	SELV circuits		N
2.2.1	General requirements		N
2.2.2	Voltages under normal conditions (V)		N
2.2.3	Voltages under fault conditions (V)		N
2.2.4	Connection of SELV circuits to other circuits		P
2.3	TNV circuits		N
2.3.1	Limits		N
	Type of TNV circuits	No TNV circuit.	—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed.....		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed.....		—
2.3.5	Test for operating voltages generated externally		N
2.4	Limited current circuits		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.4.1	General requirements	The adaptor was approved.	N
2.4.2	Limit values		N
	Frequency (KHz).....:		—
	Measured current (Ma)		—
	Measured voltage (V)		—
	Measured circuit capacitance (Nf or μF)		—
2.4.3	Connection of limited current circuits to other circuits		N
2.5	Limited power sources		N
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		N
	d) Overcurrent protective device limited output		N
	Max. Output voltage (V), max. Output current (A), max. Apparent power (VA).....:		—
	Current rating of overcurrent protective device (A) .:		—
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing	Class III equipment	N
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....:		N
2.6.3.5	Colour of insulation		N
2.6.4	Terminals		N
2.6.4.1	General		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N

2.7	Overcurrent and earth fault protection in primary circuits		N
2.7.1	Basic requirements		N
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices		N
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 (IEC/EN 60950-1 /A1)		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Switches and relays and their related circuits (IEC/EN 60950-1 /A1)		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) (IEC/EN 60950-1 /A1).....:		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		N
2.9.1	Properties of insulating materials	Class III equipment.	N
2.9.2	Humidity conditioning		N
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation		N
2.9.4	Separation from hazardous voltages		N
	Method(s) used		—

2.10	Clearances, creepage distances and distances through insulation		N
2.10.1	General	Only SELV circuits inside the EUT. Functional insulation evaluated in accordance with clause 5.3.4. b).	N
2.10.1.1	Frequency		N
2.10.1.2	Pollution degrees		N
2.10.1.3	Reduced values for functional insulation		N
2.10.1.4	Intervening unconnected conductive parts		—
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		N
2.10.2.1	General		N
2.10.2.2	RMS working voltage		N
2.10.2.3	Peak working voltage		N
2.10.3	Clearances		N
2.10.3.1	General		—
2.10.3.2	Mains transient voltages		—
	a) AC mains supply		N
	b) Earthed d.c. mains supplies		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Unearthed d.c. mains supplies		N
	d) Battery operation		N
2.10.3.3	Clearances in primary circuits		N
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply		N
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		—
	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		—
2.10.4.1	General		N
2.10.4.2	Material group and comparative tracking index		—
	CTI tests		—
2.10.4.3	Minimum creepage distances		N
2.10.5	Solid insulation		—
2.10.5.1	General		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation	No such construction used.	N
2.10.5.4	Semiconductor devices	Not used.	N
2.10.5.5.	Cemented joints	Not used.	N
2.10.5.6	Thin sheet material – General	Not used.	N
2.10.5.7	Separable thin sheet material	Not used.	N
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material	Not used.	N
2.10.5.9	Thin sheet material – standard test procedure	Not used.	N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	Not used.	N
	Electric strength test		—
2.10.5.11	Insulation in wound components	Not used.	N
2.10.5.12	Wire in wound components		N
	Working voltage		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
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	No additional insulation used	N
	Working voltage		N
	- Basic insulation not under stress		N
	- Supplementary, reinforced insulation		N
2.10.6	Construction of printed boards	See below.	—
2.10.6.1	Uncoated printed boards		N
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	No such device used.	N
2.10.12	Enclosed and sealed parts		N
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.1	Current rating and overcurrent protection	Internal wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges which could damage the insulation and cause hazards.	P
3.1.3	Securing of internal wiring	Wire ways are smooth and free from edges. Wires are adequately fixed to prevent excessive strain on wire and terminals and avoiding damage to the insulation of the conductors.	P
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	P
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors		P
	10 N pull test	All conductors are reliable secured.	P
3.1.10	Sleeving on wiring		N

3.2	Connection to a mains supply		N
3.2.1	Means of connection		N
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords		—
3.2.5.1	AC power supply cords		N
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals	Class III equipment	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		N
3.4.1	General requirement	Class III equipment (supplied by SELV).	N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles – single-phase and d.c. equipment		N
3.4.7	Number of poles – three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N
3.5	Interconnection of equipment		P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5.1	General requirements	Considered.	P
3.5.2	Types of interconnection circuits	SELV circuit	P
3.5.3	ELV circuits as interconnection circuits	No ELV.	N
3.5.4	Data ports for additional equipment		N

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N
	Angle of 10°		N
	Test force (N)		N
4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment (IEC/EN 60950-1 /A1)	(see Annex DD)	N
4.2.2	Steady force test, 10 N	10N force applied to components	P
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N	250N force applied to enclosure	P
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm)		N
4.2.7	Stress relief test		N
4.2.8	Cathode ray tubes		N
	Picture tube separately certified		—
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment; force (N)		N
4.2.11	Rotating solid media (IEC/EN 60950-1 /A1)		N
	Test to cover on the door		N

4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N)	No knobs, grips, handles, lever etc.	N
4.3.3	Adjustable controls	No hazardous adjustable controls.	N
4.3.4	Securing of parts	No connection likely to be exposed to mechanical stress are provided in unit	N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.5	Connection by plugs and sockets	No mismatch connector, plug or socket possible	N
4.3.6	Direct plug-in equipment		N
	Torque		—
	Compliance with the relevant mains plug standard		—
4.3.7	Heating elements in earthed equipment		N
4.3.8	Batteries		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease		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		P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation		N
	Measured radiation (Pa/kg)		—
	Measured high-voltage (Kv)		—
	Measured focus voltage (Kv)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N
	Part, property, retention after test, flammability classification		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation	The equipment does not produce significant UV radiation.	N
4.3.13.5	Laser (including LEDs)		N
	Laser class		—
4.3.13.6	Other types	The equipment does not generate other types of radiation.	N
4.4	Protection against hazardous moving parts		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.1	General		N
4.4.2	Protection in operator access areas		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 (IEC/EN 60950-1 /A1)		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	No thermoplastic parts carrying hazardours voltages.	N
4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		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
	Conditioning temperature (°C), time (weeks).....:		—



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

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	Method 1 is used.	P
	Method 2, application of all of simulated fault condition tests	Not used method 2.	N
4.7.2	Conditions for a fire enclosure	Refer below.	P
4.7.2.1	Parts requiring a fire enclosure		N
4.7.2.2	Parts not requiring a fire enclosure	Components in secondary circuits supplied by limited power sources complying with 2.5 and mounted on PCB rated V-1 min.	P
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification. See appended table 1.5.1.	P
4.7.3.2	Materials for fire enclosures		N
4.7.3.3	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures	Other materials inside fire enclosure are minimum V-2 .HF-2 or better material.	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		N
5.1.1	General		N
5.1.2	Configuration of equipment under test (EUT)		N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Supply voltage (V)		—
	Measured touch current (Ma)		—
	Max. Allowed touch current (Ma)		—
	Measured protective conductor current (Ma)		—
	Max. Allowed protective conductor current (Ma)....		—
5.1.7	Equipment with touch current exceeding 3,5 Ma		N
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		N
5.2.1	General		N
5.2.2	Test procedure		N
5.3	Abnormal operating and fault conditions		N
5.3.1	Protection against overload and abnormal operation	See appended table 5.3	N
5.3.2	Motors		N
5.3.3	Transformers		N
5.3.4	Functional insulation	See appended table 5.3. Complies with c)	N
5.3.5	Electromechanical components		N
5.3.6	Audio amplifiers in ITE		N
5.3.7	Simulation of faults	See appended table 5.3	N
5.3.8	Unattended equipment		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.9	Compliance criteria for abnormal operating and fault conditions	No flame emitted, no molten material emitted, no deformation of enclosure	N
5.3.9.1	During the tests	No fire propagated beyond the equipment. No molten metal was emitted.	N
5.3.9.2	After the tests	No hazards.	N
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	No TNV circuit.	N
	Supply voltage (V)		—
	Current in the test circuit (Ma)		—
6.1.2.2	Exclusions		N
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N
6.3	Protection of the telecommunication wiring system from overheating		N
	Max. Output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General	Not 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



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)	Not used.	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).....:		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Sample 3 burning time (s).....:		—
A.3	Hot flaming oil test (see 4.6.2)		N
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements		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)		N
	Position		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturer		—
	Type		—
	Rated values		—
	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)		N
D.1	Measuring instrument		N
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)		N
---	--	--	---

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



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal(s) used		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V)		N
K.3	Thermostat endurance test; operating voltage (V)		N
K.4	Temperature limiter endurance; operating voltage (V)		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation	(see appended table 5.3)	N
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters	Not used.	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		P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction	No telephone ringing signal.	N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringling signal		N
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	The impulse test generator not used.	N
N.2	IEC 60065 impulse test generator		N
P	ANNEX P, NORMATIVE REFERENCES		P
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N
	a) Preferred climatic categories	No VDR used in equipment.	N
	b) Maximum continuous voltage		N
	c) Pulse current		N
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	The quality control programmes are not used.	N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment	The impulse testing is not used.	N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
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)		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
V.1	Introduction		N
V.2	TN power distribution systems		N
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits	Not connected to TNV circuit.	N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N
X.1	Determination of maximum input current	Considered.	N
X.2	Overload test procedure		N
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus	No ultraviolet light.	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
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



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
DD.3	Mechanical strength test, 250N, including end stops..... :		N
DD.4	Compliance.....:		N

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



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	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
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 2011/65/EU		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
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		N

IEC/EN 60950-1															
Clause	Requirement + Test	Result - Remark	Verdict												
	<p>cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>														
2.7.2	This subclause has been declared 'void'.		N												
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N												
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="padding: 2px;"> Up to and including 6</td> <td style="padding: 2px;"> </td> <td style="padding: 2px;">0,75 ^{a)}</td> <td style="padding: 2px;"> </td> </tr> <tr> <td style="padding: 2px;"> Over 6 up to and including 10</td> <td style="padding: 2px;"> (0,75) ^{b)}</td> <td style="padding: 2px;">1,0</td> <td style="padding: 2px;"> </td> </tr> <tr> <td style="padding: 2px;"> Over 10 up to and including 16</td> <td style="padding: 2px;"> (1,0) ^{c)}</td> <td style="padding: 2px;">1,5</td> <td style="padding: 2px;"> </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 ^{a)}		Over 6 up to and including 10	(0,75) ^{b)}	1,0		Over 10 up to and including 16	(1,0) ^{c)}	1,5			N
Up to and including 6		0,75 ^{a)}													
Over 6 up to and including 10	(0,75) ^{b)}	1,0													
Over 10 up to and including 16	(1,0) ^{c)}	1,5													
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="padding: 2px;"> Over 10 up to and including 16</td> <td style="padding: 2px;"> 1,5 to 2,5</td> <td style="padding: 2px;"> 1,5 to 4</td> <td style="padding: 2px;"> </td> </tr> </table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4			N								
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4													
4.3.13.6	<p>Add the following NOTE:</p> <p>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.</p>		N												
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>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.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		N												
Bibliography	Additional EN standards.		—												
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS (EN 60950-1/A11)		—												



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	SPECIAL NATIONAL CONDITIONS		N
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex. (EN 60950-1/A11)		N
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. (EN 60950-1/A11)		N
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N
1.7.2.1	In Finland, Norway and Sweden , CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"		N
1.7.2.1	In Norway and Sweden , the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing - and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)." NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr - og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom		N



IEC/EN 60950-1																											
Clause	Requirement + Test	Result - Remark	Verdict																								
	<p>utstyret og kabel- TV nettet."</p> <p>Translation to Swedish:</p> <p>"Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p> <p>(EN 60950-1/A11)</p>																										
1.7.5	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N																								
1.7.5	For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA1-4a. (EN 60950-1/A11)		N																								
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N																								
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N																								
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N																								
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N																								
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N																								
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N																								
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table border="0"> <tr> <td>SEV 6532-2.1991</td> <td>Plug Type 15</td> <td>3P+N+PE</td> <td>250/400 V, 10 A</td> </tr> <tr> <td>SEV 6533-2.1991</td> <td>Plug Type 11</td> <td>L+N</td> <td>250 V, 10 A</td> </tr> <tr> <td>SEV 6534-2.1991</td> <td>Plug Type 12</td> <td>L+N+PE</td> <td>250 V, 10 A</td> </tr> </table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table border="0"> <tr> <td>SEV 5932-2.1998</td> <td>Plug Type 25</td> <td>3L+N+PE</td> <td>230/400 V, 16 A</td> </tr> <tr> <td>SEV 5933-2.1998</td> <td>Plug Type 21</td> <td>L+N</td> <td>250 V, 16 A</td> </tr> <tr> <td>SEV 5934-2.1998</td> <td>Plug Type 23</td> <td>L+N+PE</td> <td>250 V, 16 A</td> </tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																								
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A																								
SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A																								
SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A																								
SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A																								
SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																								



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N
3.2.1.1	<p>In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N
3.2.4	<p>In Switzerland, for requirements see 3.2.1.1 of this annex.</p>		N
3.2.5.1	<p>In the United Kingdom, a power supply cord with conductor of 1,25 mm² is allowed for equipment with a rated current over 10 A and up to and including 13 A.</p>		N
3.3.4	<p>In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:</p> <ul style="list-style-type: none">• 1,25 mm² to 1,5 mm² nominal cross-sectional area.		N
4.3.6	<p>In the United Kingdom, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 		N
6.1.2.1	In Finland, Norway and Sweden , add the following text between the first and second paragraph of the compliance clause: <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		N



IEC/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	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex. (EN 60950-1/A11)		N
7.3	In Norway , for installation conditions see EN 60728-11:2005.		N

ZC	A-DEVIATIONS (informative) (EN 60950-1/A11)		N
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.		N
1.7.2.1	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



Note(s): supplied with 240V, 50Hz. No load

2.4.2	TABLE: limited current circuit measurement					N
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
--	--	--	--	--	--	
<p>Note(s): Test applied when _____ [Y1 cap.] [resistor] was _____ [μF] [MΩ]. Under +10% or +6% of the highest Rated Voltage.</p>						

2.6.3.4	TABLE: ground continue test		N
Location	Resistant measured (错误! 未找到引用源。)	Comments	
From to	--	--	
From to	--	--	
<p>Note: Test current: [25A] [40A] or [_____A]. Test duration: [1 min] [2 min] or [_____sec]. Pass: [\leq 0.1 Ohm] [\leq 2.5 V].</p>			

2.10.2	TABLE: WORKING VOLTAGE MEASUREMENT			N
Location	RMS voltage (V)	Peak voltage (V)	Comments	
--	--	--	--	
Supplementary information:				

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					N
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)
--	--	--	--	--	--	--
Supplementary information:						

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:						



4.3.8	TABLE: Batteries								N
The tests of 4.3.8 are applicable only when appropriate battery data is not available								-	
Is it possible to install the battery in a reverse polarity position?								-	
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging(mA)		Discharging(mA)		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	-	-	-	--	--	--	--	--	-
Max. current during fault condition	-	-	-	--	--	--	--	--	-
Test results:									
- Chemical leaks				After the test, no chemical leaks.				Verdict	
- Explosion of the battery				No explosion.				N	
- Emission of flame or expulsion of molten metal				No emission of flame or molten metal				N	
- Electric strength tests of equipment after completion of tests				--				N	
Supplementary information: N/A									



4.5.1	TABLE: maximum temperatures			P
	Test voltage (V)	12Vdc	----	—
	t _{amb1} (°C)	25.1	----	—
	t _{amb2} (°C)	25.7	----	—

maximum temperature T of part/at:	T (°C)		allowed DT _{max} (°C)
PCB near U1	41.2	----	130
PCB near U2	43.5	----	130
PCB near U4	36.7	----	130
PCB near U5	38.1	----	130
enclosure	37.8	----	95
Ambient	25.7	----	-

Note:

1. The measure were measured under worst case normal mode as described in 1.2.2.1 and described in 1.6.2 at voltage.
2. "A" indicates condition under charging with fully discharged battery and input voltage for adapter was 264V/50Hz.
3. "B" indicates condition under discharging with fully charged battery.

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

Part	Test temperature (°C)	Impression diameter (mm)
--	--	--

Supplementary information:

5.1.6	TABLE: Touch current					N
-------	----------------------	--	--	--	--	---

Terminal A (Switch "s") of Measuring Instrument Connected to:	Switch "e" Position	Test voltage (V)	Touch Current (mA r.m.s.)				Limit(mA)
			Polarity P1/Primary Switch Condition				
			Normal/On	Normal/Off	Reverse/On	Reverse/Off	
--	--	--	--	--	--	--	

Supplementary information:

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			N
-----	---	--	--	---

Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
--	--	--	--

Supplementary information:



5.3	TABLE: fault condition tests					N
	ambient temperature (°C)	:	25.3		—	
	model/type of power supply	:	-		—	
	manufacturer of power supply	:	-		—	
	rated markings of power supply	:	-		—	
component No.	Fault	test voltage (V)	test time	fuse No.	fuse current (A)	Result
--	--	--	--	-	-	The short circuit current dropped to 0A immediately, no component damage, no high temperature, no fire generation.
Supplementary information: S-C: short-circuit, o-c: open-circuit						

Photos of the Product

Photo 1 Appearance of EUT



Photo 2 Appearance of EUT



***** End of test report *****