



## CHINA WORLD CONNECTION(HK) CO.,LTD

# CE LVD REPORT

Prepared For :	CHINA WORLD CONNECTION(HK) CO.,LTD Room 608, Ban' Tian Group Business Center Building, Lipu Street,West Changfa Road, Bantian, Longgang District.,Shenzhen 518129,China
Product Name:	CUSTOM USB FLASH DRIVE
Trade Name:	N/A
Test Model :	CUSTOM USB FLASH DRIVE
Additional Model :	N/A
Prepared By :	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Test Date:	Aug. 25, 2016 – Sep. 05, 2016
Date of Report :	Sep. 05, 2016
Report No.:	BST16098108A0001Y-1SR-2



<b>LVD Report</b> <b>EN 60950-1</b> Information technology equipment - Safety - Part 1: General requirements	
Testing laboratory .....	: Shenzhen BST Technology Co.,Ltd.
Address .....	: Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Testing location .....	: Shenzhen BST Technology Co.,Ltd.
Applicant .....	: CHINA WORLD CONNECTION(HK) CO.,LTD
Address .....	: Room 608, Ban' Tian Group Business Center Building, Lipu Street,West Changfa Road, Bantian, Longgang District.,Shenzhen 518129,China
Standard .....	: EN 60950-1:2006+A11:2009+A1: 2010+A12:2011+ A2:2013
Test Result .....	: Compliance with EN 60950-1:2006+A11:2009+A1: 2010+A12:2011+ A2:2013
Procedure deviation .....	: N/A.
Non-standard test method .....	: N/A.
Type of test object .....	: CUSTOM USB FLASH DRIVE
Model/type reference .....	: See page 1 for details
Rating .....	: 5V
Manufacturer .....	: CHINA WORLD CONNECTION(HK) CO.,LTD
Address .....	: Zone B,5 Building,mei'jia'mei industrial Park,zhang'Qi Road,Da'ping community,guanlan Street,longhua,Shenzhen.
Test item particulars :	
Equipment mobility .....	: Movable
Operation condition .....	: Continuous
Class of equipment .....	: Class III equipment
Protection against ingress of water .	: IPX0



**Possible test case verdicts :**

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

test object does meet the requirement ..... : P(ass)

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

**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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Attached with:

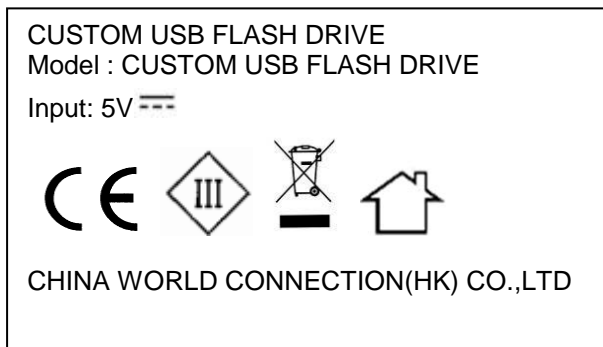
A photo documentation

**General descriptions of the test sample:**

1. This product is a Movable type CUSTOM USB FLASH DRIVE for use with information technology equipment;
2. The equipment has been evaluated for maximum ambient temperature of +25°C.
3. All models are identical to each other except model name, due to the similarity between models, model **CUSTOM USB FLASH DRIVE** was selected for full test.



Artwork of Marking Label



Prepared by :

*Ken*

Engineer

Reviewer :

*W.S.*

Supervisor

Approved & Authorized Signer :

*Christina*

Christina / Manager



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

<b>1</b>	<b>GENERAL</b>		—
<b>1.5</b>	<b>Components</b>		P
1.5.1	General	Refer to below.	P
	Comply with IEC 60950-1 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC/EN component standards. (See appended table 1.5.1).	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC/EN and/or national standards are used correctly within their ratings. Components not covered by IEC/EN standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	No the cables	N/A
1.5.6	Capacitors bridging insulation		N/A
1.5.7	Resistors bridging insulation	No such part	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No such part	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No such part	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Not for IT power systems	N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs	No VDRs used	N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

<b>1.6</b>	<b>Power interface</b>		P
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EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor		N/A
<b>1.7</b>	<b>Marking and instructions</b>		
1.7.1	Power rating and identification markings	The required marking is located on the outside surface of the equipment.	P
1.7.1.1	Power rating marking	See below	P
	Multiple mains supply connections.....:	SELV supply	P
	Rated voltage(s) or voltage range(s) (V) .....	5V	P
	Symbol for nature of supply, for d.c. only .....	DC input	P
	Rated frequency or rated frequency range (Hz) .....		N/A
	Rated current (mA or A) .....		P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark .....	CHINA WORLD CONNECTION(HK) CO.,LTD	P
	Model identification or type reference .....	Refer to model designation information in page1	P
	Symbol for Class II equipment only .....		N/A
	Other markings and symbols .....	No other sybols	N/A
1.7.2	Safety instructions and marking	See the user manual	P
1.7.2.1	General	Considered.	P
1.7.2.2	Disconnect devices	Approved input DC connector provided.	P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	IT for Norway	N/A
1.7.2.5	Operator access with a tool	No such access required.	N/A
1.7.2.6	Ozone	No such parts	N/A
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N/A
1.7.4	Supply voltage adjustment .....	No voltage select switch.	N/A
	Methods and means of adjustment; reference to installation instructions .....		—
1.7.5	Power outlets on the equipment .....	No standard power outlet.	N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....	No such parts	N/A
1.7.7	Wiring terminals	No such part	—
1.7.7.1	Protective earthing and bonding terminals .....	Class III equipment	N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No such parts	—
1.7.8.1	Identification, location and marking .....		N/A
1.7.8.2	Colours .....		N/A
1.7.8.3	Symbols according to IEC 60417 .....		N/A
1.7.8.4	Markings using figures .....	No controls.	N/A
1.7.9	Isolation of multiple power sources .....		N/A
1.7.10	Thermostats and other regulating devices .....	No thermostats or other regulating devices.	N/A
1.7.11	Durability	After test, the label is legible, no curling, no possible to remove marking plates easily.	P
1.7.12	Removable parts	No removable parts	N/A
1.7.13	Replaceable batteries .....	No battery used	N/A
	Language(s) .....		—
1.7.14	Equipment for restricted access locations .....	Equipment not intended for installation in RAL.	N/A
<b>2</b>	<b>PROTECTION FROM HAZARDS</b>		N/A
<b>2.1</b>	<b>Protection from electric shock and energy hazards</b>		N/A
2.1.1	Protection in operator access areas	No hazardous parts in operator access areas	N/A
2.1.1.1	Access to energized parts	Energized parts are not accessible.	N/A
	Test by inspection .....		N/A
	Test with test finger (Figure 2A) .....		N/A
	Test with test pin (Figure 2B) .....		N/A
	Test with test probe (Figure 2C) .....		N/A
2.1.1.2	Battery compartments	No battery used	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area	N/A
	Working voltage (V <sub>peak</sub> or V <sub>rms</sub> ); minimum distance through insulation (mm)		—



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.1.1.4	Access to hazardous voltage circuit wiring	No such part	N/A
2.1.1.5	Energy hazards .....		N/A
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment	No such part	N/A
	Measured voltage (V); time-constant (s) .....		N/A
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply .. :		N/A
	b) Internal battery connected to the d.c. mains supply .....		N/A
2.1.1.9	Audio amplifiers .....	No such part	N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations	Equipment not intended for installation in RAL.	N/A
<b>2.2</b>	<b>SELV circuits</b>		P
2.2.1	General requirements	.	P
2.2.2	Voltages under normal conditions (V) .....	Between any conductor of the SELV circuits 42.4V peak or 60Vd.c. are not exceeded.	P
2.2.3	Voltages under fault conditions (V) .....	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120Vd.c. were not exceeded and SELV limits not for longer than 0.2 seconds. See appended table	P
2.2.4	Connection of SELV circuits to other circuits .....	No direct connection between SELV and primary circuits	N/A
<b>2.3</b>	<b>TNV circuits</b>		N/A
2.3.1	Limits	No TNV circuits.	N/A
	Type of TNV circuits .....		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions .....		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed .....		—





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Clause	Requirement – Test	Result – Remark	Verdict
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed .....		—
2.3.5	Test for operating voltages generated externally		N/A
<b>2.4</b>	<b>Limited current circuits</b>		N/A
2.4.1	General requirements	No such part	N/A
2.4.2	Limit values		N/A
	Frequency (Hz).....		N/A
	Measured current (mA) .....		N/A
	Measured voltage (V).....		N/A
	Measured circuit capacitance (nF or μF) .....		—
2.4.3	Connection of limited current circuits to other circuits	Only to be connected to SELV.	N/A
<b>2.5</b>	<b>Limited power sources</b>		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....		N/A
	Current rating of overcurrent protective device (A) .:		—
	Use of integrated circuit (IC) current limiters		N/A
<b>2.6</b>	<b>Provisions for earthing and bonding</b>		N/A
2.6.1	Protective earthing	Class III equipment.	N/A
2.6.2	Functional earthing	Class III equipment.	N/A
2.6.3	Protective earthing and protective bonding conductors		—
2.6.3.1	General		—
2.6.3.2	Size of protective earthing conductors	Class III equipment.	N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
	Protective current rating (A), cross-sectional area (mm <sup>2</sup> ), AWG.....		—



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min)..... :		N/A
2.6.3.5	Colour of insulation ..... :	No such part.	N/A
2.6.4	Terminals	Refer below:	—
2.6.4.1	General	Refer below:	—
2.6.4.2	Protective earthing and bonding terminals	Refer below:	—
	Rated current (A), type, nominal thread diameter (mm)..... :		N/A
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
<b>2.7</b>	<b>Overcurrent and earth fault protection in primary circuits</b>		N/A
2.7.1	Basic requirements	Class III equipment	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices ..... :		N/A
2.7.5	Protection by several devices	Only one fuse provided.	N/A
2.7.6	Warning to service personnel..... :	No service work necessary.	N/A
<b>2.8</b>	<b>Safety interlocks</b>		N/A
2.8.1	General principles	No safety interlocks.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
<b>2.9</b>	<b>Electrical insulation</b>		P
2.9.1	Properties of insulating materials	Neither natural rubber, Asbestos or hygroscopic materials are used.	P
2.9.2	Humidity conditioning	Humidity treatment performed for 48 h.	P
	Relative humidity (%), temperature (°C) .....	93% R.H 28°C	—
2.9.3	Grade of insulation	double insulation and reinforced insulation	P
2.9.4	Separation from hazardous voltages	double insulation and reinforced insulation	P
	Method(s) used .....	Method 1	—
<b>2.10</b>	<b>Clearances, creepage distances and distances through insulation</b>		P
2.10.1	General	Class III equipment	N/A
2.10.1.1	Frequency .....		N/A
2.10.1.2	Pollution degrees .....		N/A
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply .....		N/A
	b) Earthed d.c. mains supplies .....		N/A
	c) Unearthed d.c. mains supplies .....		N/A
	d) Battery operation .....		N/A
2.10.3.3	Clearances in primary circuits	No such part	N/A
2.10.3.4	Clearances in secondary circuits	Sub-clause 5.3.4 considered.	N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....	No such part	N/A
2.10.3.7	Transients from d.c. mains supply .....		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....		N/A
2.10.3.9	Measurement of transient voltage levels		—
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....		N/A
	For a d.c. mains supply .....		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.4.1	General		N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests .....	Material group IIIb are assumed to be used	—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation	See appended table 2.10.5.	N/A
2.10.5.3	Insulating compound as solid insulation	Only inside approved aptocoupler	N/A
2.10.5.4	Semiconductor devices		P
2.10.5.5	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Number of layers (pcs) .....		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		P
	Electric strength test		P
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test		N/A
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage .....		P
	a) Basic insulation not under stress .....		N/A
	b) Basic, supplementary, reinforced insulation .....		N/A
	c) Compliance with Annex U .....		P
	Two wires in contact inside wound component; angle between 45° and 90° .....		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		N/A
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		P
	Working voltage .....		P
	- Basic insulation not under stress .....		N/A
	- Supplementary, reinforced insulation .....		P
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards		P
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs) .....		—
2.10.7	Component external terminations	Not applied.	N/A
2.10.8	Tests on coated printed boards and coated components	Not applied.	N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A



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Clause	Requirement – Test	Result – Remark	Verdict

2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

<b>3</b>	<b>WIRING, CONNECTIONS AND SUPPLY</b>		P
3.1	General		P
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges which could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage.	P
3.1.5	Beads and ceramic insulators	Not used	N/A
3.1.6	Screws for electrical contact pressure	No such screws provided.	N/A
3.1.7	Insulating materials in electrical connections	No such material	N/A
3.1.8	Self-tapping and spaced thread screws	No such components used	N/A
3.1.9	Termination of conductors	All conductors are reliably secured by hooking-in and solder, use of solder-pins or glue.	P
	10 N pull test		P
3.1.10	Sleeving on wiring	No sleeving on wire.	N/A

<b>3.2</b>	<b>Connection to a mains supply</b>		P
3.2.1	Means of connection	Terminal block	P
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		P
3.2.2	Multiple supply connections		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm) .....		—
3.2.4	Appliance inlets		P
3.2.5	Power supply cords		—
3.2.5.1	AC power supply cords		N/A
	Type .....		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
3.2.5.2	DC power supply cords		P
3.2.6	Cord anchorages and strain relief		P
	Mass of equipment (kg), pull (N) .....	30N, 25times, 1s duration per time.	—
	Longitudinal displacement (mm) .....	0.8mm < 2mm	—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) .....		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		P
<b>3.3</b>	<b>Wiring terminals for connection of external conductors</b>		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ) .....		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) .....		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
<b>3.4</b>	<b>Disconnection from the mains supply</b>		P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.1	General requirement		P
3.4.2	Disconnect devices	Provided with a Terminal block which is integral with the CUSTOM USB FLASH DRIVE.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N/A
3.4.4	Parts which remain energized	When plug is disconnected no remaining parts with hazardous voltage in the equipment.	N/A
3.4.5	Switches in flexible cords		—
3.4.6	Number of poles - single-phase and d.c. equipment	Dsconnect both plose simultaneously	N/A
3.4.7	Number of poles - three-phase equipment	Single-phase equipment	N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment	Interconnection to other devices by secondary output only.	N/A
3.4.11	Multiple power sources	Only one supply connection provided.	N/A
<b>3.5</b>	<b>Interconnection of equipment</b>		N/A
3.5.1	General requirements		N/A
3.5.2	Types of interconnection circuits .....		N/A
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A
<b>4</b>	<b>PHYSICAL REQUIREMENTS</b>		N/A
4.1	Stability		N/A
	Angle of 10°		N/A
	Test force (N) .....		N/A
4.2	Mechanical strength		
4.2.1	General	See below. After tests, unit complies with the requirements of sub-clauses 2.1.1 and 2.10.	P
	Rack-mounted equipment.		N/A





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Clause	Requirement – Test	Result – Remark	Verdict
4.2.2	Steady force test, 10 N	10 N applied to all components other than enclosure.	P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N	250 N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test	No hazard as result from steel ball impact test from 1.3mm, 3 times.	N/A
	Fall test	See above	N/A
	Swing test	See above	N/A
4.2.6	Drop test; height (mm) .....		N/A
4.2.7	Stress relief test	After the test at temperature of 75°C, no shrinkage, distortion or loosening of any enclosure part was noticeable on the equipment.	P
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified .....		N/A
4.2.9	High pressure lamps	No such part	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....	No such part	N/A
4.2.11	Rotating solid media	No such parts provided.	N/A
	Test to cover on the door.....		N/A
<b>4.3</b>	<b>Design and construction</b>		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N)..... :	No handles or controls provided.	N/A
4.3.3	Adjustable controls	Full rang voltage design, no controls provided.	N/A
4.3.4	Securing of parts	Mechanical fixings in such a way designed that they will withstand mechanical stress occurring in normal use.	N/A
4.3.5	Connection by plugs and sockets	Mismatch of connectors either not possible or does not result in any hazard.	N/A
4.3.6	Direct plug-in equipment	0.05 Nm	N/A



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Clause	Requirement – Test	Result – Remark	Verdict
	Torque .....	Less than 0.25Nm (for all plug types) Torque measured under all orientation : 0.05 Nm	N/A
	Compliance with the relevant mains plug standard .....	EN 50075	N/A
4.3.7	Heating elements in earthed equipment	No such part	N/A
4.3.8	Batteries	No battery used	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No oil used	N/A
4.3.10	Dust, powders, liquids and gases	No such part	N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids .....		N/A
	Quantity of liquid (l) .....		N/A
	Flash point (°C) .....		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N/A
	Part, property, retention after test, flammability classification .....		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....	The equipment does not produce significant UV radiation.	N/A
4.3.13.5	Lasers (including laser diodes) and LEDs	See below	N/A
4.3.13.5.1	Lasers (including laser diodes)	No lasers	N/A



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Clause	Requirement – Test	Result – Remark	Verdict

	Laser class .....		—
4.3.13.5.2	Light emitting diodes (LEDs)	No such part	N/A
4.3.13.6	Other types .....		N/A

<b>4.4</b>	<b>Protection against hazardous moving parts</b>		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas .....	No moving parts	N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations .....	Not intended for installation in RAL.	N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades	No such parts	N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....:		N/A
	Is considered to cause pain, not injury. b).....:		N/A
	Considered to cause injury. c) .....		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning .....		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning .....		N/A

<b>4.5</b>	<b>Thermal requirements</b>		P
4.5.1	General	Class III equipment	P
4.5.2	Temperature tests		P
	Normal load condition per Annex L .....		P
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 .....		P

<b>4.6</b>	<b>Openings in enclosures</b>		N/A
4.6.1	Top and side openings	Transportable equipment.	N/A
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures	No openings	N/A
	Construction of the bottom, dimensions (mm) .....		—



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Clause	Requirement – Test	Result – Remark	Verdict

4.6.3	Doors or covers in fire enclosures	No such doors and covers	N/A
4.6.4	Openings in transportable equipment	No transportable equipment	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....		N/A
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	No adhesive used	N/A
	Conditioning temperature (°C), time (weeks) .....		N/A

<b>4.7</b>	<b>Resistance to fire</b>		P
4.7.1	Reducing the risk of ignition and spread of flame	Electrical parts not likely to ignite nearby materials and the fire enclosures used	P
	Method 1, selection and application of components wiring and materials		P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Compliance with the fault conditions of 5.3	P
4.7.2.1	Parts requiring a fire enclosure	.	P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N/A
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N/A

<b>5</b>	<b>ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS</b>		P
<b>5.1</b>	<b>Touch current and protective conductor current</b>		P



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Clause	Requirement – Test	Result – Remark	Verdict
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	P
5.1.2	Configuration of equipment under test (EUT)	EUT has only one mains connection.	P
5.1.2.1	Single connection to an a.c. mains supply	EUT has only one mains connection.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Equipment of figure 5A used.	P
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	P
5.1.5	Test procedure	The touch current was measured from mains to DC output connector and to a 10 cm*20 cm metal foil wrapped on accessible non-conductive parts (plastic enclosure).	P
5.1.6	Test measurements		P
	Supply voltage (V) .....	(see appended table 5.1.6)	—
	Measured touch current (mA) .....	(see appended table 5.1.6)	—
	Max. allowed touch current (mA) .....	(see appended table 5.1.6)	—
	Measured protective conductor current (mA) .....		—
	Max. allowed protective conductor current (mA) .....		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General .....		—
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No such network used	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....		—
	Measured touch current (mA) .....		—
	Max. allowed touch current (mA) .....		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports .....		—



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Clause	Requirement – Test	Result – Remark	Verdict

	b) EUT whose telecommunication ports have no reference to protective earth		—
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<b>5.2</b>	<b>Electric strength</b>		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P

<b>5.3</b>	<b>Abnormal operating and fault conditions</b>		P
5.3.1	Protection against overload and abnormal operation	See below.	P
5.3.2	Motors	No motors.	N/A
5.3.3	Transformers	With the shorted and overload o/p of the transformers, no high temperature of the transformer was recorded. Results of the short-circuit tests see appended table 5.3 and Annex C.	P
5.3.4	Functional insulation.....:	Method c). Test results see appended table 5.3.	P
5.3.5	Electromechanical components	No electromechanical component provided.	N/A
5.3.6	Audio amplifiers in ITE .....	Results see appended table 5.3.	N/A
5.3.7	Simulation of faults	See appended table 5.3.	P
5.3.8	Unattended equipment	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary <input type="checkbox"/> → SELV, primary <input type="checkbox"/> were passed.	P
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	.	P
5.3.9.2	After the tests		P

<b>6</b>	<b>CONNECTION TO TELECOMMUNICATION NETWORKS</b>		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		—
6.1.1	Protection from hazardous voltages		—
6.1.2	Separation of the telecommunication network from earth		—



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Clause	Requirement – Test	Result – Remark	Verdict
6.1.2.1	Requirements	No TNV circuit.	N/A
	Supply voltage (V) .....		—
	Current in the test circuit (mA) .....		—
6.1.2.2	Exclusions .....		N/A
<b>6.2</b>	<b>Protection of equipment users from overvoltages on telecommunication networks</b>		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....		—
	Current limiting method .....		—
<b>7</b>	<b>CONNECTION TO CABLE DISTRIBUTION SYSTEMS</b>		N/A
7.1	General	Not connected to Cable Distribution System.	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A
<b>A</b>	<b>Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)	Not used.	N/A
A.1.1	Samples.....		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C) .....		N/A



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Clause	Requirement – Test	Result – Remark	Verdict
A.1.3	Mounting of samples .....		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material.....		—
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples; temperature (°C) .....		N/A
A.2.3	Mounting of samples .....		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C .....		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A
<b>B</b>	<b>Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)</b>		N/A
B.1	General requirements	No motors	N/A
	Position .....		—
	Manufacturer .....		—





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Clause	Requirement – Test	Result – Remark	Verdict
	Type .....		—
	Rated values .....		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) .....		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors	No such part	N/A
	Operating voltage (V) .....		—
<b>C</b>	<b>Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)</b>		N/A
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
	Method of protection.....		N/A
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings.....	No such part	N/A



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Clause	Requirement – Test	Result – Remark	Verdict
<b>D</b>	<b>Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)</b>		N/A
D.1	Measuring instrument	Figure D.1 used	N/A
D.2	Alternative measuring instrument	Figure D.1 used	N/A
<b>E</b>	<b>Annex E, TEMPERATURE RISE OF A WINDING (see 1.4.13)</b>		N/A
<b>F</b>	<b>Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)</b>		P
<b>G</b>	<b>Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES</b>		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply .....		N/A
G.2.2	Earthed d.c. mains supplies .....		N/A
G.2.3	Unearthed d.c. mains supplies .....		N/A
G.2.4	Battery operation .....		N/A
G.3	Determination of telecommunication network transient voltage (V) .....		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks .....		N/A
G.4.2	Transients from telecommunication networks .....		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances .....		N/A
<b>H</b>	<b>Annex H, IONIZING RADIATION (see 4.3.13)</b>		N/A
<b>J</b>	<b>Annex J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)</b>		N/A
	Metal(s) used .....		—
<b>K</b>	<b>Annex K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)</b>		N/A
K.1	Making and breaking capacity		N/A



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Clause	Requirement – Test	Result – Remark	Verdict
K.2	Thermostat reliability; operating voltage (V) .....		N/A
K.3	Thermostat endurance test; operating voltage (V) .....		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
<b>L</b>	<b>Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)</b>		N/A
L.1	Typewriters	Not used.	N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		N/A
<b>M</b>	<b>Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)</b>		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz) .....		—
M.3.1.2	Voltage (V) .....		—
M.3.1.3	Cadence; time (s), voltage (V) .....		—
M.3.1.4	Single fault current (mA) .....		—
M.3.2	Tripping device and monitoring voltage .....		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V) .....		N/A
<b>N</b>	<b>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)</b>		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
<b>P</b>	<b>Annex P, NORMATIVE REFERENCES</b>		N/A
<b>Q</b>	<b>Annex Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)</b>		N/A



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Clause	Requirement – Test	Result – Remark	Verdict
	a) Preferred climatic categories .....		N/A
	b) Maximum continuous voltage .....		N/A
	c) Pulse current .....		N/A
<b>R</b>	<b>Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES</b>		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
<b>S</b>	<b>Annex S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)</b>		
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
<b>T</b>	<b>Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)</b>		N/A
			—
<b>U</b>	<b>Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)</b>		N/A
			—
<b>V</b>	<b>Annex V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)</b>		N/A
V.1	Introduction	See below	—
V.2	TN power distribution systems		N/A
<b>W</b>	<b>Annex W, SUMMATION OF TOUCH CURRENTS</b>		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
<b>X</b>	<b>Annex X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)</b>		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P
<b>Y</b>	<b>ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)</b>		N/A
Y.1	Test apparatus .....		N/A
Y.2	Mounting of test samples .....		N/A



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Clause	Requirement – Test	Result – Remark	Verdict
Y.3	Carbon-arc light-exposure apparatus .....		N/A
Y.4	Xenon-arc light exposure apparatus .....		N/A
<b>Z</b>	<b>ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)</b>		N/A
<b>AA</b>	<b>ANNEX AA, MANDREL TEST (see 2.10.5.8)</b>		N/A
<b>BB</b>	<b>ANNEX BB, CHANGES IN THE SECOND EDITION</b>		N/A
<b>CC</b>	<b>Annex CC, Evaluation of integrated circuit (IC) current limiters</b>		N/A
CC.1	General		N/A
CC.2	Test program 1.....		N/A
CC.3	Test program 2.....		N/A
<b>DD</b>	<b>Annex DD, Requirements for the mounting means of rack-mounted equipment</b>		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....		N/A
DD.3	Mechanical strength test, 250N, including end stops.....		N/A
DD.4	Compliance.....		N/A
<b>EE</b>	<b>Annex EE, Household and home/office document/media shredders</b>		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....		N/A
	Information of user instructions, maintenance and/or servicing instructions.....		N/A
EE.3	Inadvertent reactivation test.....		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A) .....		N/A
	Test with wedge probe (Figure EE1 and EE2) .....		N/A



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

ATTACHMENT TO TEST REPORT IEC 60950-1			
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Information technology equipment – Safety –			
part 1: general requirements			
Differences according to ..... : EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013			
Attachment Form No. .... : EU_GD_IEC60950_1B_II			
Attachment Originator ..... : SGS Fimko Ltd			
Master Attachment ..... : Date 2011-08			
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS			
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2      1.5.1 Note 2 & 3      1.5.7.1 Note 1.5.8 Note 2    1.5.9.4 Note      1.7.2.1 Note 4, 5 & 6 2.2.3 Note      2.2.4 Note      2.3.2 Note 2.3.2.1 Note 2    2.3.4 Note 2      2.6.3.3 Note 2 & 3 2.7.1 Note      2.10.3.2 Note 2    2.10.5.13 Note 3 3.2.1.1 Note      3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2    4.7 Note 4    4.7.2.2 Note 4.7.3.1 Note 2    5.1.7.1 Note 3 & 4    5.3.7 Note 1 6 Note 2 & 5      6.1.2.1 Note 2    6.1.2.2 Note 6.2.2 Note      6.2.2.1 Note 2    6.2.2.2 Note 7.1 Note 3    7.2 Note      7.3 Note 1 & 2 G.2.1 Note 2    Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note      6.1.2.1 Note 2 6.2.2.1 Note 2      EE.3 Note		P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>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.</p> <p>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.</p>	See separated sound pressure report.	N/A
(A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete the addition of 1.3.Z1 / EN 60950-1:2006</p> <p>Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010</p>		N/A
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>		N/A
1.7.2.1 (A1:2010)	<p>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.</p>		N/A
1.7.2.1 (A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete NOTE Z1 and the addition for Portable Sound System.</p> <p>Add the following clause and annex to the existing standard and amendments.</p>		P
	Zx Protection against excessive sound pressure from personal music players		P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>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.</p> <p>A personal music player is a portable equipment <input type="checkbox"/> for personal use, that:  <input type="checkbox"/> is designed to allow the user to listen to recorded or broadcast sound or video; and  <input type="checkbox"/> primarily uses headphones or earphones that can be worn in or on or around the ears; and  <input type="checkbox"/> 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.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:  <input type="checkbox"/> while the personal music player is connected to an external amplifier; or  <input type="checkbox"/> 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.</p> <p>The requirements do not apply to:  <input type="checkbox"/> 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.</p>		N/A






EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<input type="checkbox"/> <input type="checkbox"/> 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/A
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: <input type="checkbox"/> <input type="checkbox"/> equipment provided as a package (personal music player with its listening device), where the acoustic output LAeq,T is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and <input type="checkbox"/> 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 LAeq,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		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be <math>\leq 100</math> dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be <math>\leq 150</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.</p> <p>For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term LAeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:  <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>the symbol of Figure 1 with a minimum height of 5 mm; and  <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/>the following wording, or similar:            “To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p>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.</p>		N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<p>Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be <math>\geq 75</math> mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N/A
	<p>Zx.4.3 Wireless listening devices In wireless mode: <input type="checkbox"/><input type="checkbox"/>with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and <input type="checkbox"/><input type="checkbox"/>respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and <input type="checkbox"/><input type="checkbox"/>with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA.</p> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>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):</p> <p>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;</p> <p>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;</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>		P
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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> <p>Up to and including 6   0,75<sup>a)</sup>    Over 6 up to and including 10   (0,75)<sup>b)</sup> 1,0   Over  10 up to and including 16   (1,0)<sup>c)</sup> 1,5  </p> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition<sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>		N/A
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <p>Over 10 up to and including 16   1,5 to 2,5   1,5 to 4   </p> <p>Delete the fifth line: conductor sizes for 13 to 16 A</p>		N/A
4.3.13.6 (A1:2010)	<p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:</p> <p>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</p> <p>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).</p>	Considered.	—
	<p>Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>	Considered.	—
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/A
Bibliography	Additional EN standards.		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
ZA	Normative references to international publications with their corresponding European publications		N/A

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In Denmark, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14	In Norway and Sweden, for requirements see 1.7.2.1 and 7.3 of this annex.	Not connected to cable distribution system.	N/A
1.5.7.1	In Finland, Norway and Sweden, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In Norway, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		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/A



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p>		N/A





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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):            "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 utstyret og kabel- TV nettet."            Translation to Swedish:            "Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p>		N/A
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No socket-outlets provided.	N/A
2.2.4	In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.4	In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.6.3.3	In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Not direct plug in equipment.	N/A
2.10.5.13	In Finland, Norway and Sweden, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991      Plug Type 15    3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991      Plug Type 11    L+N 250 V, 10 A</p> <p>SEV 6534-2.1991      Plug Type 12    L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE .250 V, 16 A</p>		N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In Switzerland, for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom, a power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm <sup>2</sup> to 1,5 mm <sup>2</sup> nominal cross-sectional area.		N/A
4.3.6	In the United Kingdom, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		P
4.3.6	In Ireland, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"><li>• 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;</li><li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li><li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li></ul>		N/A



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul>	No TNV circuits.	N/A



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

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- 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;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> <li>- 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.</li> </ul>	No TNV circuits.	N/A
6.1.2.2	In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV circuits.	N/A
7.2	In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No CDS circuits.	N/A
7.3	In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A
7.3	In Norway, for installation conditions see EN 60728-11:2005.		N/A



1.5.1	TABLE: List Of Critical Components				P
Components	Manufacturers / Trademark	Types / Model	Technical data	Standard	Mark(s) of conformity
Enclosure	SABIC INNOVATIVE PLASTICS US L LC	SE1X(GG) (f1)	V-1,105°C, Thickness at Least:1.5mm	UL94	UL E121562
PCB	Various	Various	V-0,130°C	UL94	UL
Varnish	JOHN C DOLPH CO	BC-346A	Min. 130 degree C	UL1446	UL E317427
Internal wire	Various	Various	1007, 22AWG, 80°C	--	UL





<b>1.7.11</b>	<b>TABLE: durability of marking test</b>			<b>P</b>
Location	Checked by	Time	Result	
External enclosure	Water	15s	No any curling and still legibility	
External enclosure	Petroleum spirit	15s	No any curling and still legibility	
Supplementary information:				

<b>2.2</b>	<b>TABLE: evaluation of voltage limiting component in SELV circuits</b>			<b>P</b>
Component(measured between)	Max.voltage(V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c		
For model : CUSTOM USB FLASH DRIVE				
Input + to -	--	5.0		
Fault test performed on voltage limiting components		Voltage measured(V) in SELV circuits (V peak or V d.c.)		
Supplementary information:s-c=short circuit.				
Vin=5V.S-c=short circuit.				

<b>2.9.2</b>	<b>Humidity Condition Test</b>		<b>P</b>
Test condition: <b>28 °C, 93 %, 48 hrs</b>			
Test voltage applied between:		Test voltage (V)	Breakdown
Input to enclosure with metal foil		AC 500	No
One layer of insulating tape		AC 500	No
<b>BI:</b> Basic insulation <b>SI:</b> Supplementary insulation <b>RI:</b> Reinforced insulation; <b>FI:</b> Functional Insulation			
Humidity Chamber: ; Stop watch: ; Withstanding Voltage Tester:			

<b>2.10.5</b>	<b>TABLE: distance through insulation measurements</b>			<b>P</b>
distance through insulation di at/of:	U rms (V)	test voltage (V)	required di (mm)	di (mm)
Functional: plastic enclosure	5	500Vac	No requirement	1.5
Supplementary information:				
No flash over or insulation breakdown after test.				

<b>4.2.6</b>	<b>Drop Test</b>	<b>Height: 1000mm</b>	<b>N</b>
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Impact Area	Drop Times	Drop No.	Observation
Front enclosure	3	--	intact
Bottom enclosure	3	--	Intact

<b>4.2.7</b>	<b>Stress relief test</b>	<input type="checkbox"/> Temp. equal to 10°C plus max. temp measured on enclosure during test of 4.5.1: $T-T_{amb}+T_{ma}+10^{\circ}\text{C} = 58.6^{\circ}\text{C}$ , 7h <input checked="" type="checkbox"/> 75°C, 7h	<b>P</b>
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**Pass:** If any cracks or damages occur which do not change the normal shape or allow reduction of protection against electric shock then they are disregarded. Otherwise the pass verdict will be established by the Project Engineer.

<b>4.5.2</b>	<b>TABLE: Temperature Rise Measurements</b>		<b>P</b>
Location	Test voltage (V)		Allowed Temperature(°C)
	5V Temperature(°C)	--	
<b>For model : CUSTOM USB FLASH DRIVE</b>			
Ambient	25.0	--	--
Terminal block	30.5	--	80
PCB	45.4	--	130
E-cap	42.8	--	105
Inside of enclosure	48.6	--	105
Outside of enclosure	46.0	--	95
<b>Comments:</b>			
The temperatures were measured by thermal couple (type K) method under worst case normal mode defined in 1.2.2.1 load as described in 1.6.2 at voltage described in 1.4.5. The worst case at normal mode is defined with max load of the CUSTOM USB FLASH DRIVE.			
With max. ambient temperature specified as 25°C, therefore, the maximum temperature rise is calculated as follows:			
<b>Winding components:</b>			
- No such parts			
<b>Components with:</b>			

<b>4.5.5</b>	<b>TABLE: ball pressure test of thermoplastic parts</b>		<b>P</b>
	allowed impression diameter (mm) :	2.0	---



part	test temperature (°C)	impression diameter (mm)
Terminal block	75	0.5
supplementary information:		
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<b>5.1.6</b>	<b>Table: touch current measurement</b>			<b>P</b>
Measured between:	Measured (mA)	Limit (mA)	Comments	
Input + – Enclosure (with metal foil)	0.005	0.25	“e” – C; P1 – N; Pri S. - On	
Input - – Enclosure (with metal foil)	0.005	0.25	“e” – C; P1 – R; Pri S. - On	
supplementary information:				
Note(s):				
Supply voltage: 5V				

<b>5.2</b>	<b>TABLE: Electric strength tests, impulse tests and voltage surge tests</b>		<b>P</b>
Test voltage applied between:		Test voltage (V)	Breakdown
Input to enclosure with metal foil		AC 500	No
One layer of insulating tape		AC 500	No
Supplementary information:			
<b>BI:</b> Basic insulation <b>SI:</b> Supplementary insulation <b>RI:</b> Reinforced insulation; <b>FI:</b> Functional Insulation			
Withstanding Voltage Tester:			

<b>5.3</b>	<b>TABLE: Fault Condition Tests</b>						<b>P</b>
--	Ambient temperature (°C)			25°C, if not otherwise stated			--
	Power source for EUT: Manufacturer, model/type, output rating .....			Refer to page 2.			--
No.	Component No.	Fault	Test Voltage (V)	Test Time	Fuse No.	Fuse Current (A)	Result
<b>For model : CUSTOM USB FLASH DRIVE</b>							
1	U1(Pin VCC-GND)	s-c	5VDC	1 sec	F1	0.01	Unit shut down immediately. Recoverable. No hazard.
2	Output terminal	s-c	5VDC	1 sec	F1	0.02	Unit shut down immediately. Recoverable.



								No hazard.
Supplementary information								
Fault: S-C=short circuit, O-L =overload, B-L = blocked, O-C =open circuit.								
Note: for fuse-opened conditions, same results came out for all sources of fuse. If fuse not open have repeat test three times.								

C.2		TABLE: transformer						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)	
T1	Reinforced:	501	269	3000Vac	4.8	5.6	*)	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T1	Reinforced: Primary winding – secondary winding			3000Vac	Triple wire used on secondary winding	Triple wire used on secondary winding	TIW-E	
T1	Reinforced: Primary/Core - secondary winding <b>1)</b>			3000Vac	Triple wire used on secondary winding	Triple wire used on secondary winding	TIW-E	

\*) 2 or 3 layers / 0.4mm / Annex U  
**1)**T1 core is considered as Primary.



## **ANNEX A:**

### **Photo-documentation**

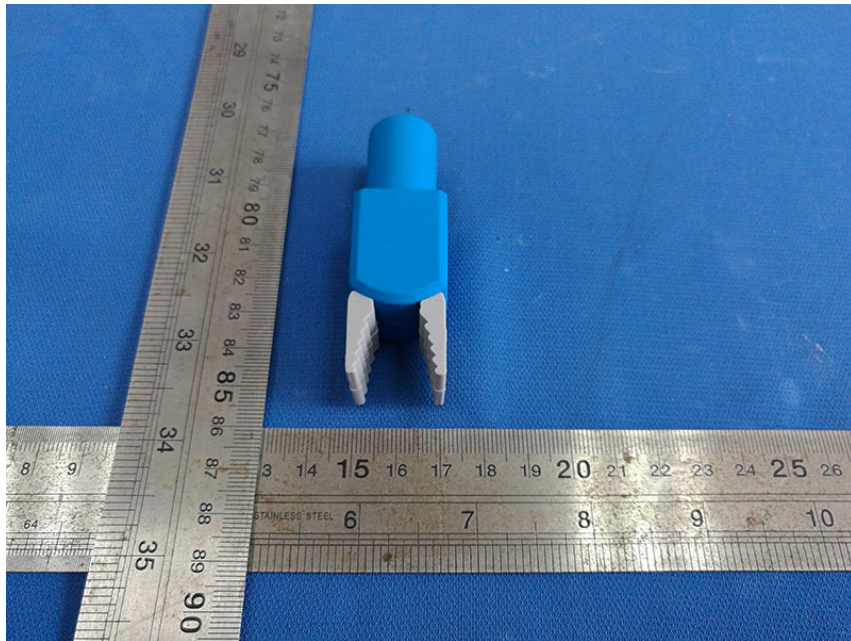


Photo 1 General Appearance of the EUT



Photo 2 General Appearance of the EUT

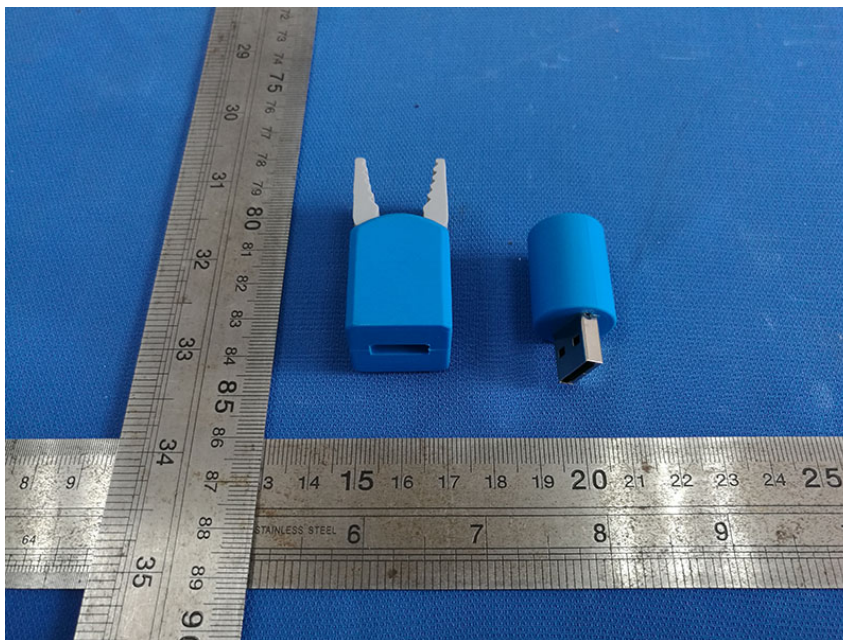


Photo 3 General Appearance of the EUT

---End of the report---