

# LVD TEST REPORT

**REPORT NO.:** ECR1712120R-03

**MODEL NO.:** CS1000G, please see page 3 for mode list

**RECEIVED:** Nov. 29, 2017

**TESTED:** Nov. 30, 2017 to Dec. 07, 2017

**APPLICANT:** Couso Technology Co., Ltd.

**ADDRESS:** No. 26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

**ISSUED BY:** Shenzhen SETEK Technology Co., Ltd.

**LAB LOCATION:** 1003, C Bldg, Fuyuan Business Trade Center, 44 District Bao'an, Shenzhen, China

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## TEST REPORT

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

### Information technology equipment – Safety – Part 1: General requirements

Reference No. .... : ECS1712120R-03

Compiled by (+ signature)..... : Roy Zhang

Approved by (+ signature)..... : Bophe Mo

Date of issue..... : Dec. 08, 2017

Contents ..... : 60 pages



Calvin Chen  
Bophe Mo

#### Testing laboratory

Name ..... : Shenzhen SETEK Technology Co., Ltd.

Address ..... : 1003, C Bldg, Fuyuan Business Trade Center, 44 District Bao'an,  
Shenzhen, China

Testing location ..... : Same as above

#### Client

Name ..... : Couso Technology Co., Ltd.

Address ..... : No. 26#, MinYe Street, TangXia Town, DongGuang City, GuangDong  
Province, China

#### Test specification

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

Test procedure ..... : Compliance with EN 60950-1: 2006+A11: 2009 +A1: 2010+A12:  
2011+A2: 2013

Procedure deviation ..... : N.A.

Non-standard test method..... : N.A.

#### Test item

Description..... : Wireless Keyboard & Mouse set

Trademark..... : COUSO, BANRUO

Model and/or type reference..... : CS1000G, please see page 3 for mode list

Manufacturer..... : Couso Technology Co., Ltd.

Address ..... : No. 26#, MinYe Street, TangXia Town, DongGuang City, GuangDong  
Province, China

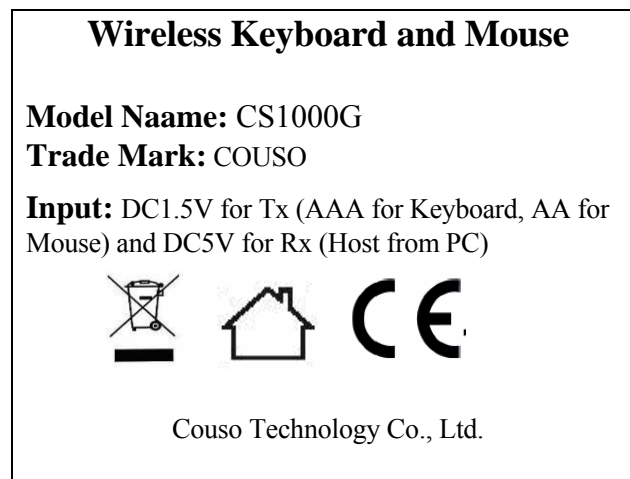
Rating(s)..... : DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx  
(Host from PC)

Particulars: test item vs. test requirements
Equipment mobility ..... : Hand-held equipment
Operating condition ..... : Continuing operation
Input of equipment ..... : Class III
Mass of equipment (Kg)..... : <1.0Kg
Protection against ingress of water..... : IP20
Test case verdicts
Test case does not apply to the test object ..... : N(.A.)
Test item does meet the requirement..... : P(ass)
Test item does not meet the requirement ..... : F(ail)
Testing
Date of receipt of test item ..... : Nov. 29, 2017
Date(s) of performance of test ..... : Nov. 30, 2017 to Dec. 07, 2017
General remarks
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CM620LD, CM630LD, CM640LD, CM650LD, CM660LD, CM670LD, CM680LD, CM690LD, CM610B, CM620B, CM630B, CM640B, CM650B, CM660B, CM670B, CM680B, CM690B, CM700B, CM710B, CM720B, CM730B, CM740B, CM750B, CM760B, CM770B, CM780B, CM790B, CM840B, CM850B, CM860B, CM870B, CM880B, CM890B, CM610G, CM620G, CM630G, CM640G, CM650G, CM660G, CM670G, CM680G, CM690G, CM810G, CM815G, CM820G, CM830G, CM840G, CM850G, CM860G, CM870G, CM880G, CM890G, CM891G, CM892G, CM893G, CM894G, CM895G, CM896G, CM897G, CM898G, CM898GL, CNS-HSETW3-RU, CNS-HSETW3-US, CNS-HSETW3-SK, CNS-HSETW3-LT, CNS-HSETW3-HU, CNS-HSETW3-BG, CNS-HSETW3-AD, CNS-HSETW3-CZ, CNS-HSETW3-UK, CNS-HKBW2-RU, CNS-HKBW2-US, CNS-HKBW2-SK, CNS-HKBW2-LT, CNS-HKBW2-HU, CNS-HKBW2-AD, CNS-HKBW2-CZ, CNS-HKBW2-EE, CNS-HKBW4-UK, CNS-HSETW4-RU, CNS-HSETW4-CS, CNS-HSETW4-US, CNS-HSETW4-BG, CNS-HSETW4-HU, CNS-HSETW4-LT, CNS-HSETW4-EE all identical in interior structure, electrical circuits and components, and just the model names are different for the marketing requirement.

We prepare CS1000G for the test.

Copy of marking plate:



#### Summary of testing:

Rubbing for 15s with a piece of cloth soaked with water. And a further 15 s with a piece of cloth soaked with petroleum spirit.

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

1	General		P
1.1	Scope		P
1.2	Definitions		P
1.3	General requirements		P
1.4	General conditions for tests		P

1.5	Components		P
1.5.1	Comply with relevant requirements of IEC 60950 or relevant Component standard	(See appended table)	P
1.5.2	Evaluation and testing of components	Components that are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standard are tested under the condition present in the equipment.	P
1.5.3	Thermal controls tested to Annex K	No thermal control	N
1.5.4	Transformers comply with relevant requirements of IEC 60950+Annex C		N
1.5.5	Interconnecting cables, detachable or not, comply with relevant requirements of IEC 60950	Wireless equipment	N
	Interconnecting cables supplied alone comply with the requirements (manufacturer's option)		N
1.5.6	Line capacitors comply IEC 60384X1 or X2	No such component	N
	Line-Earth capacitor comply IEC 60384 Y1, Y2, Y4	ditto	N
1.5.7	Double/reinforced insulation bridged by;	Class III appliance	N
1.5.7.1	General		N
1.5.7.2	-bridging capacitors comply IEC60384	Not applicable	N
	If two in series, each rated for total working voltage and Have same value		N
1.5.7.3	-Two bridging resistors, each comply 2.10.3&4 for total working voltage and same value		N
1.5.7.4	Bridged accessible parts comply Limited Current Circuit (2.4)		N
1.5.8	Components for IT power systems connected line-earth Withstand stress of line-line voltage	Class III appliace ,just used DC voltage supply no earth terminal	N

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

<b>1.6</b>	<b>POWER INTERFACE</b>		<b>P</b>
1.6.1	AC power distribution system	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	N
1.6.2	Test Voltage (V).....	1.0 times test voltage	P
	Rated Current (A)/Rated Power (W)	See the label	P
	Measured Current (A)/Power (W).....	(See appended table)	P
	Deviation not exceed by 10%		N
1.6.3	Rated voltage of hand-held equipment $\leq 250V$		N
1.6.4	Neutral conductor insulated from earth		N
	Components bet. N-earth rated as line-N voltage		N

<b>1.7</b>	<b>Marking and instructions</b>		<b>P</b>
1.7.1	Power rating	See page 3	P
	Marking readily visible in operator access area	On the Bottom enclosure	P
	Indication of marking location for service access area	On the Bottom enclosure	P
	Marking should include:		--
	Rated voltage/range (V).....:	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	P
	Symbol for nature of supply.....:	Not applicable	N
	Rated frequency/range (Hz).....:	Ditto	N
	Rated Current (A)/ Rated Power (W).....:	Ditto	N
	Manufacturer name/trademark.....:	See page 3	P
	Type / model	See page 3	P
	Symbol of Class II.....:	Class III appliance	N
1.7.2	Sufficient Safety Instructions		P
1.7.3	Short duty cycles marking.....:	Equipment is design for continuous operation	N
1.7.4	Supply voltage adjustment marking.....:	No such function	N
1.7.5	Marking of power outlets on the equipment	No outlet used	N
1.7.6	Marking at fuse-holders.....	Not applicable	N
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals		N

EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.7.2	Terminals for a.c. mains supply conductors:	Class III appliance	N
	-N for neutral (for exclusive connection)		N
	-All supply line conductor (3-phase)		N
1.7.7.3	Terminals for d.c. mains supply conductors	DC power only	P
	Polarity indication (exclusive connection for d.c.)	See instruction manual	P
	Both Earthing symbol and polarity marked for a terminal As earthing and one of the poles of d.c.		N
	Indications not on screws or removeable parts		P
1.7.8	Controls and indicators	No switch and other control device	N
1.7.8.1	Identifications, location and marking		N
1.7.8.2	Colours		N
1.7.8.3	Symbols for switches		N
1.7.8.4	Marking using figures		N
1.7.9	Marking for isolating of multiple power sources for service personnel		N
1.7.10	State in instruction of IT power system installation	Not connected to IT power system	N
1.7.11	Adjustment indication for thermostats and other regulating devices	No thermostats and other regulating devices	N
1.7.12	Language of safety markings/instructions	English	P
1.7.13	Durability and legibility (rubbing test)	15s	P
1.7.14	Markings not placed on removable parts	On the Rear enclosure	P
1.7.15	Warning test for replaceable lithium batteries	2X1.5V battery	P
1.7.16	Operator access area (tool required): -inaccessible hazard or -discourage by marking	Operator access area not including hazard part	N
1.7.17	Statement stated for equipment installed in restricted access locations	Not installed in restricted access location	N

<b>2</b>	<b>Protection from hazards</b>			<b>N</b>
<b>2.1</b>	<b>Protection against electric shock and energy hazards</b>			<b>N</b>
2.1.1	Protection in operator access areas, Operator permitted to access to	Class III appliance		N
2.1.1.1	Adequate protection in operator access areas against contact to:	Tested By Probe		N
		2A	2B	2C
	-Bare parts of ELV circuit	√	√	-
	-Bare parts at hazardous voltages	-	-	-

EN 60950-1					
Clause	Requirement – Test	Result - Remark			Verdict
	-Funct./basic insulation of ELV (except 2.1.1.3)	√	√	-	N
	-Funct./basic insulation at hazardous voltage	--	--	--	N
	-unearthed conductive parts by funct./basic insulation to ELV or hazardous voltage part	--	--	--	N
	-bare parts of TNV circuits (w/exception)	--	--	--	N
2.1.1.2	Access to bare TNV circuits within battery compartments				N
2.1.1.3	Accessible to ELV Insulation of internal wiring: -insulation meets supplementary insulation 3.1.4				N
	-not handled /pulled by operator, reliably fixed				N
	-not touch unearthed accessible conductive parts				N
	-withstand electric strength for suppl. Insul.				N
	-insulation distance not less than specified				N
2.1.1.4	Wire insulation of double/reinforced insulation if at hazardous voltages & accessible to operator or touching unearthed accessible				N
2.1.1.5	Energy hazards in an operator access areas	No Energy hazards in an operator access areas			N
	Bridging test by Finger 2A				N
	Determine hazardous energy level				N
	-Voltage $\geq$ 2V and power maintained at 240VA for 60s or more				N
	-Voltage $\geq$ 2V and energy stored in a capacitor exceeds 20J				N
2.1.1.6	Conductive shafts not connected to parts at hazardous voltages, ELV or TNV	No conductive shaft			N
	Conductive parts manually moved with earthed pivot/bearing only be -double/reinforced insulation to hazardous voltage				N
	-accessible parts covered by suppl. Insul.				N
2.1.1.7	No risk of electric shock from the pins of a plug	No such component			N
	Measured voltage (V).....:				N
2.1.2	Protection in service access areas Adequate guarded/located of hazardous parts of : -unintentional contact during service operation	All component protected by plastic enclosure. Not access to hazardous parts			N
	-accidental shoring to SELV/TNV by tools, probe				N
	Adequate guard against bridging bare ELV/TNV of energy hazard				N
2.1.3	Protection in restricted access locations				N
	-Comply 2.1.1 Except				N



EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
	1. Contact (finger 2A) bare secondary hazardous voltage for ringing signal generator. But guarded/located against unintentional contact		N
	2. Unlikely bridging bare parts of energy hazards		N
	3. Allow contact to bare parts of TNV-1, -2 &-3		N
<b>2.2</b>	<b>SELV circuits</b>		P
2.2.1	SELV exhibit voltages safe to touch under normal conditions and single fault		P
	The voltage limits of 2.2.2 and 2.2.3 are not exceeded under no load condition		N
2.2.2	In normal conditions, voltage bet.2 conductor of SELV circuit(s) & bet.1 cond.to earth not exceed 42.4Vpk or 60 Vdc	DC1.5V	P
2.2.3	In single fault, voltage bet.2 conductor of SELV circuit(s)& bet.1 cond. to earth: - not exceed 71 Vpk or 120 Vdc	DC1.5V	P
	- not exceed 71 Vpk or 120Vdc		P
2.2.3.1 to 2.2.3.3	Which separation means	Only DC1.5V power supply	N
2.2.4	Connection of SELV circuits to other circuits:		P
	- SELV in basic insulation from primary cct. (except permitted by 1.5.7 & 2.4.3)		N
	- SELV in normal cond. meet limits of 2.2.2		N
	- SELV in single fault meets 2.2.3 (except 2.3.2)		N
	The SELV circuit remains within the limits of 2.2.3 When the insulation of a transformer between the hazardous voltage secondary circuit and SELV circuit is short circuited		P
<b>2.3</b>	<b>TNV circuits</b>		P
2.3.1	Locations of TNV circuits	2.4G wireless emission and received	P
2.3.2	Separation of SELV, TNV-1 & accessible conductive parts from TNV-2 &TNV-3 by: -Basic insulation or	TNV-1	P
	- fulfill the four exclusive conditions		N
2.3.3	TNV circuits z9 except of 2.3.4) adequately separated from hazardous voltages by: -double/ reinforced insulation	Wireless 2.4G transmission	P
	-basic insulation + earthed protective screen		N

EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
2.3.4	Connection of TNV circuit to other circuit Separation method: -basic insulation from primary circuit		N
	-connected to secondary circuit of with double /reinforced insulation from hazardous voltage		N
	-connected to secondary circuit with basic insul.+ earthed screen from hazardous voltage		N
	The TNV circuit remains within the limits of 2.3.1 When the insulation of a transformer between the Hazardous voltage secondary circuit and TNV Circuit is short circuited		N
	5K $\Omega$ single fault simulation test		N
2.3.5	Test for operating voltages generated externally During test SELV, TNV-1 & accessible parts Comply 2.2.2 (SELV)		N
<b>2.4</b>	<b>Limited current circuits (LCC)</b>	No such fountion	N
2.4.1	Limits specified in 2.4.2 not exceeded in normal and in single fault		N
	Segregation of accessible parts of LCC from other circuit fulfill 2.2 SELV requirements		N
2.4.2	Limit values		N
	Current: $\leq 0.7\text{mA pk}$ , $0.2\text{mA dc}$ for $\leq 1\text{KHz}$ Max. $70\text{mA}$ or $0.7\text{mA} * \text{factor}$ for $> 1\text{KHz}$		N
	Capacitance: - $\leq 0.1\mu\text{F}$ (for $U \leq 450\text{V pk or dc}$ ) - $45/U \text{ nF}$ (for $450\text{V pk or dc} < U \leq 15\text{KV pk or dc}$ ) - $700/U^2 \text{ nF}$ (for $U < 15\text{kV pk or dc}$ )		N
2.4.3	Connection of LCC circuits to others, meets limits of 2.4.2 in : - normal operating conditions		N
	-in event of single fault		N
<b>2.5</b>	<b>Limited power source (LPS)</b>		N
	LPS comply ONE of the following: -output inherently comply table 2B		N
	-an impedance limit o/p to table 2B, if PTC must comply IEC60730 Clause 15,17,J15&J17		N
	-o/p limit to table 2C for overcurrent prot. Device		N
	-regulating network limit o/p to table 2B under normal and single fault		N

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Clause	Requirement – Test	Result - Remark	Verdict
	-regulating network limit o/p to table 2B under normal and limit to table 2C for overcurrent prot.d device under single fault		N
	Overcurrent prot. Device to be a fuse or non auto-Reset, non-adjustable, eletromechanical ones		N
	LPS from AC mains supply or battery-opeerated LPS recharged from AC mains incorporate an isolating transformer		N

<b>2.6</b>	<b>Provisions for protective earthing and bonding</b>		<b>N</b>
2.6.1	Relevant parts of reliable connection	Class III appliance no earth terminal	N
	For service access areas, relevant parts has: -reliable earthing connection or		N
2.6.1	Relevant parts of reliable connection		N
	For service access areas, relevant parts has: -reliable earthing connection or		N
	-suitable marking and warning		N
2.6.2	Functional earthing requirements -separation from hazardous voltages by:		N
	-connect to PE or Prot. Bonding conductor		N
	-appropriate symbol used		N
	-used of colour identification		N
	-for supply cord w/green-yellow wire for funct. Earthing only not marked “double square” Symbol & comply 3.1.9		N
2.6.3	Protective earthing & prot. Bonding conductors		N
2.6.3.1	Protective earthing & prot. Bonding conductors Have sufficient current capacity		N
2.6.3.2	Prot. Earthing cond. in power cord comply conductor size of 3B		N
2.6.3.3	Protective bonding conductor comply ONE of: -min. cond. size as table 3B		N
	-comply 2.6.3.4 & min. size table 2D for > 16A		N
	-for components only, not less than the cond. size supply to the components		N
2.6.3.4	Earthing conductor & terminations not have excessive resistance		N
	Protective bonding cond. meet: -table 3B and 3E or		N
	-earthing resistance/voltage drop test		N
2.6.3.5	PE cond. in power cord of green-yellow		N

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

	Prot. Bonding cond. with insulation color of : -green-yellow or		N
	-transparent (in earthing braid)		N
	-any color (in ribbon cables, bsbars, pcb etc.)		N
2.6.4	Terminals		N
2.6.4.1	-2.4.6.4&2 apply to one comply 2.6.1a.b.c&d		N
2.6.4.2	Protective earthing & bonding terminals		N
	Terminals comply with;		N
	PE terminal for fixed connected equip. with: -readily accessible for supply connection		N
	-provid. Fixing hardware if cond. $> 7\text{mm}^2$ req.		N
2.6.4.3	Separation of PE cond. from prot. Bonding conductors.		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Assure PE connection for interconnected equipments		N
2.6.5.2	No switches or overcurrent prot. Device in PE and Prot. Bonding conductors.		N
2.6.5.3	Adequate measure for disconnection of PE		N
2.6.5.4	PE make earlier & break later than supply		N
2.6.5.5	Adeq. Measure for PE disconnection for servicing		N
2.6.5.6	Adeq. Measure against corrosion		N
2.6.5.7	Screws for PE connection		N
2.6.5.8	PE not rely on Telecom. Network or Cable distribution system		N

<b>2.7</b>	<b>Overcurrent and earth fault protection in primary circuits</b>		<b>N</b>
2.7.1	Protection means by (subject to the conditions,a),b), And c) of EN60950): - integral part of equipments or	No such circuits	N
	-building installation( details state in instruction)		N
2.7.2	Faults not covered in 5.3		--
2.7.3	Adequate S/C breaking capacity device	(See appended table)	N
	Installation of protection		N
2.7.4	Appropriate no.& location of protective devices		--
2.7.5	Protection by several devices		N
2.7.6	Suitable warning provided to service personnel		N

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

<b>2.8</b>	<b>Safety interlocks</b>		<b>N</b>
2.8.1	General principles	No safety interlocks used	N
2.8.2	Protection against..... Comply finger 2A test		N
2.8.3	Protection against inadvertent reactivation		N
2.8.4	Adequate measure in fail-safe operation		N
2.8.5	Adequate endurance in mech/electromech. Safety Interlock system		N
2.8.6	Adequate measure when override safety interlock		N
2.8.7	A switch in safety interlock system comply		N
	A relay in safety interlock system comply		N
2.8.7.1	Contact gap not less than: - disconnect device (3.4.2) for primary .cct		N
	- min.CL for basic insul. (2.10.3.3) in sec. Cct.		N
2.8.7.2	Switch/relay withstand overload test		N
2.8.7.3	Switch/relay withstand endurance test, 100% rated, 6-10 cycles/min		N
2.8.7.4	Electric strength test		N
2.8.7.5	Adequate measure in mechanical actuators		N

<b>2.9</b>	<b>Electrical Insulation</b>		<b>P</b>
2.9.1	Natural rubber/hygroscopic/asbestos not used	Natural rubber, asbestos or hygroscopic materials are not used.	P
	Driving belts/coupling not relied for elet.insul.		N
	Pass 5.2.2 Hipot test after 2.9.2 (if necessary)	DC 500V test	P
2.9.2	Humidity conditioning, (for 2.9.1, 2.10.6.5 or 2.10.7 only)	Performed at 30 °C, 95% R.H. for 48 h required by manufacturer	P
2.9.3	Grade of insulation	Adequate levels of safety insulation were provided and maintained to comply with the requirements of this standard.	P

<b>2.10</b>	<b>Clearances, creepage distances and distances through insulation</b>		<b>P</b>
2.10.1	General		--
2.10.2	Determination of working voltages		P

The device described above is tested by SHENZHEN SETEK TECHNOLOGY CO., LTD. This report applies to above tested sample only and shall not be reproduced in part without written approval of SHENZHEN SETEK TECHNOLOGY CO., LTD.

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Clause	Requirement – Test	Result - Remark	Verdict
2.10.3	Clearances	See below. Alternate method of Annex G was not considered.	P
2.10.3.1	General	Annex F and minimum clearances considered.	P
2.10.3.2	Clearances in primary circuit	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.3	Clearances in secondary circuits	Sub-clause 5.3.4 considered.	批
2.10.4	Creepage distances		P
2.10.5	Solid insulation		P
2.10.5.1	Minimum distance through insulation	See append table	N
2.10.5.2	Thin sheet material		N
2.10.5.3	Printed boards		P
2.10.5.4	Wound components	Not used	N
2.10.6	Coated printed boards		P
2.10.6.1	General		N
2.10.6.2	Sample preparation and preliminary inspection		P
2.10.6.3	Thermal cycling	No such component	N
2.10.6.4	Thermal ageing		N
2.10.6.5	Electric strength test	See append table	P
2.10.6.6	Abrasion resistance test		N
	Electric strength test		N
2.10.7	Enclosed and sealed parts	No enveloping or hermetic sealed	N
2.10.8	Spacing filled by insulating compound	No filled with insulating compound	N
2.10.9	Component external terminations		N
2.10.10	Insulation with varying dimensions		N

<b>3</b>	<b>Wiring, connection and supply</b>		<b>N</b>
3.1	General		-
3.1.1	Current rating and overcurrent protection		N
3.1.2	Protection against mechanical damage	connected by Wireless 2.4G transmission	N
	Smooth well-rounded holes for wire pass		N
3.1.3	Securing of internal wiring		N

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Clause	Requirement – Test	Result - Remark	Verdict
3.1.4	Insulation of conductors, comply 2.10.5 and elect. Strength test of 5.2.2		N
3.1.5	Beads & ceramic insulator reliably supported & not rest on sharp edges/ corners	Not used	N
	Beads in insulating sleeve (if inside metal conduit)		N
3.1.6	For electrical contact pressure, $\geq 2$ complete threads engage into metal		N
	No plastic screws used for elec. Or PE connection or in where supp/rein. Insulation reduced.		N
3.1.7	Contct press. Not transmitted through insulation material		N
3.1.8	Use of self-tapping & spaced-thread screws		N
3.1.9	Adequate means prevent terminals loosening (10N movement test)		N
3.1.10	Sleeve (as suppl. Insul.) retained in postion	No such component	N

<b>3.2</b>	<b>Connection to a.c. mains supplies or a d.c. mains supply</b>		<b>P</b>
3.2.1	Means of connection	DC1.5V battery	P
3.2.1.1	Reliable type of connection for a.c.....:		N
3.2.1.2	Reliable type of connection for d.c.....:	Battery	P
	Plug and appliance inlet are not of a.c. type		N
	Reverse polarity connection are prevented	See polarity symbol	P
3.2.2	Requirements for multiple supply connection		N
3.2.3	Provision for permanent connection.....	Not for permanent connection	N
3.2.4	Appliance inlet	No inlet used	N
3.2.5	Power supply cords	No such component	N
3.2.5.1	Appropriate type & X-sectional area of AC power supply cord used		N
3.2.5.2	DC power supply cord is suitable for the voltage, current and the physical abuses encountered	Same as clause 3.2.5	N
3.2.6	Adequate means provided as cord anchorage & strain relief (60N, 25 times pull test, limit < 2mm)		N
3.2.7	Power supply cord not exposed to sharp points/edges On equip. surface or inlet portion		N
3.2.8	Hand-held appliance provided with: - Cord guard or		--

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Clause	Requirement – Test	Result - Remark	Verdict

	- suitable inlet bushing (1.5 times curvature)		N
	Requirements for cord guard be : - protect cord against excessive bending		N
	- of insulating material		N
	- fixed in reliable manner		N
	- 5 times project outside		N
	Curvature test		N
3.2.9	Adequate space for supply wiring		N
<b>3.3</b>	<b>Wiring terminals for external power supply conductors</b>		<b>N</b>
3.3.1	Permanently Connected Equipment and equipment with ordinary Non-detachable power supply cord		N
3.3.2	Connection of non-detachable power supply cord		N
3.3.3	Screws/nuts be: - have ISO261/262 thread pitch	Clamp with screws	N
	- not serve to fix other components		N
3.3.4	Terminals allow connect to cond. as table 3D		N
3.3.5	Wiring terminals comply size as table 3E		N
3.3.6	Adequate design of wiring terminals		N
3.3.7	AC supply terminals located in proximity to each other and to the main protective earthing terminal		N
	DC supply terminals located in proximity to each other and provide clear installation instructions		N
3.3.8	Fulfill requirements for stranded wire		N
	Test with 8mm stranded wire		N

<b>3.4</b>	<b>Disconnection from a.c. mains supply</b>	<b>DC1.5V power supply</b>	<b>N</b>
3.4.1	General requirements		N
3.4.2	Disconnection device		N
3.4.3	Disconnection device for fixed wiring equipments - incorporated in equipments or		N
	- state details in install instruction		N
3.4.4	Adequate guard remained energized parts after disconnection device sw off for service personnel	No part remain energized	N
3.4.5	Isolating switches shall not be fitted in flexible	No isolating switches	N



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Clause	Requirement – Test	Result - Remark	Verdict
	cords		
3.4.6	1- phase and d.c. unit, 2 poles disconnect. Same time or		N
	- disconnect. L only (if E conductor for d.c or N pole for a.c. identified) or		N
	- state in install. Instruction, 2 pole disconnect device required (if E conductor for d.c or N pole for a.c. cannot identified)		N
3.4.7	3-phase unit, all poles disconnect. Same time		N
	3-phase IT system, 4 ples (lines+N) disconnect same time or		N
	- state in install. instruction		N
3.4.8	ON/OFF position marked as 1.7.8 for switch as disconnect device		N
3.4.9	State in install. Instruction (1.7.2) for plug as disconnect device		N
3.4.10	Disconnect device for interconnected equipment		N
3.4.11	Prominent marking at each disconnect device for power removal		N
<b>3.5</b>	<b>Interconnection of equipment</b>		<b>N</b>
3.5.1	Continued conformance for SELV (2.2) or TNV (2.3) after interconnection		N
3.5.2	Interconnection circuit		N
3.5.3	ELV circuits as interconnection circuits		N
<b>4</b>	<b>Physical requirements</b>		<b>P</b>
4.1	Stability	Hand-held equipment	P
	Units not physically unstable to operators and service personnel		P
	Stabilizing means automatic operation to operator		N
	Stabilizing means automatic operation to service personnel or marking provided		N
	Tilting test-10°		N
	Tip over test for >25kg floor-standing unit		N
	800N downward force for floor-standing unit		N
<b>4.2</b>	<b>Mechanical strength</b>		<b>P</b>

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Clause	Requirement – Test	Result - Remark	Verdict
4.2.1	Units constructed having adequate mechanical strength		P
	Sufficient complete mechanical enclosure to contain/deflect loosened parts	See below. After tests, unit complies with the requirements of sub-clauses 2.1.1 and 2.10.	P
4.2.2	Steady force test for components& parts	10 N applied to all components other than enclosure.	P
4.2.3	Steady force for operator access enclosure	No internal enclosure.	P
4.2.4	Steady force to external enclosure	250 N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test (Steel ball free-fall test)	No damaged	P
	Steel ball pendulum swing impact	No damaged	P
4.2.6	3 time dropped test	No damaged	P
4.2.7	Stress relief for moulded/formed plastic	Plastic and metal enclosure	P
	Comply 4.2.1 after the stress relief conditioning		P
4.2.8	CRT( > 160mm face) comply IEC60065 for mechanical strength & against implosion		N
	CRT comply with IEC61965		N
4.2.9	Adequate strength in mechanical enclosure of high pressure lamp to operator or near person	No high pressure lamps	N
4.2.10	Added force to ceiling/wall mounted equipments	Not wall or ceiling mounted equipment.	N
<b>4.3</b>	<b>Design &amp; Construction</b>		<b>P</b>
4.3.1	Rounded/smooth edges/ corners to operators	Smoothed no sharp edge	P
4.3.2	Handles/knobs/ levers.reliably fixed	reliably fixed	P
	Unable to fix in wrong position if indicate position		N
	Pull test		P
4.3.3	Tools required for inadvertent adjustment controls	No adjustment control	N
4.3.4	Screws/nuts/washers/springs secured withstand mechanical stresses or no reduce CR/CL	Secured to withstand mechanical stresses	P
4.3.5	No hazard for operator use socket/plugs in misconnection		P
4.3.6	Direct plug-in, no impose undue strain on socket outlet	Not direct plug-in	N
4.3.7	Heating elements in equipment that is earthed for safety purposes shall be protected.	No Heating elements	N
	Temp. sensing device also disconnect n cond.		N

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Clause	Requirement – Test	Result - Remark	Verdict
4.3.8	Adequate design in battery cct. To reduce fire, explosion & chemical hazards	Battery sealed by plastic enclosure	P
	Battery circuit abnormal test: (if applicable)		P
	- overcharging rechargeable batteries		P
	- charging of non-rechargeable battery		P
	- reversed charging of batteries		P
	- rapid discharging of battery		P
	All applicable tests comply specified criteria &		P
	5.3.8.2 electric strength test		P
4.3.9	Insulation of wiring/winding/commutators... Has adequate properties to oil/grease deterioration	Not exposed to oil, grease or similar substances	N
4.3.10	No concentration of dust/powders/liquid/gases to hazardous level	Equipment not producing dust or using powders, liquids, or gases	N
	Withstand 5.2.25 Hi-Pot test after spillage test		N
4.3.11	Adequate safeguards to excessive pressure against liquid or gases incorporated	Not containers for liquids or gases.	N
4.3.12	No excessive storage of flammable liquid	Not using flammable liquids	N
	Lubrication/hydraulic oil have > 140C flash point		N
	Provision for oil expansion & pressure relief		N
	Replenishable liq. have > 60C flash point		N
	For replenishable flammable liq. In < 60C flash pt. no build up of vapour mixture causing explosion/fire hazard		N
	Vapor sampling test (if applicable)		N
4.3.13	Radiation	No radiation production	N
4.3.13.1	No harmful radiation effects to persons/materials		N
4.3.13.2	Ionizing radiation comply Annex H		N
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiation	N
	Non-metallic parts have sufficient UV resistance to degradation		N
	Comply with test of Table 4A after conditioned according to annex Y		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
	No emission of excessive UV radiation		N

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Clause	Requirement – Test	Result - Remark	Verdict
	UV radiation are contained by enclosure or not exceed the limits in IEC60825-9		N
	Limit exceeded with limited access periods		N
	User access doors and covers lead to exposure of higher UV emissions are marked with WARNING or UV symbol		N
	User access door and covers with interlock		N
	UV symbol used-symbol and warning are stated in the user and servicing instructions		N
	Service access area with emissions exceeded the limit are marked with WARNING or UV symbol		N
	Marking is readily visible during servicing		N
	UV symbol used-symbol and warning are stated in the servicing instructions		N
	UV radiation measurements		N
	Maximum permitted radiation exposure for maintenance or cleaning operations is $\leq 30$ min.		N
4.3.13.5	Classified and labeled according to IEC60825		N
	LEDs or lasers units comply IEC60825-1		N
	LEDs or lasers in the range of 180nm to 1nm		N
4.3.13.6	No hazard from other types of radiation		N
<b>4.4</b>	<b>Protection against hazardous moving parts</b>		<b>N</b>
4.4.1	Moving parts of adequate guarded/enclosed against personal injury	No hazardous moving part	N
	No automatic resetting device incorporated		N
4.4.2	Suitable construction/enclosure/interlocks Provided except obvious to operator or		N
	For functioning purpose or		N
	Adequate warning or		N
	Able to stop by operator		N
	Test with finger 2A w/without 30N		N
4.4.3	For equi. In restricted access location, comply 4.4.2 For operator access areas		N
4.4.4	Unlikely to contact hazardous moving parts in service access area		N
<b>4.5</b>	<b>Thermal requirements</b>		<b>P</b>

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Clause	Requirement – Test	Result - Remark	Verdict
4.5.1	Maximum Temperature	See attached table	P
4.5.2	Resistance to abnormal heat (Ball pressure test)		P
<b>4.6</b>	<b>Openings in enclosures</b>		<b>N</b>
4.6.1	Unlikely objects enter top and sides openings creating hazard	No openings on this product	N
	Openings dimens. Check:-<5mm any dimens.		N
	-<1mm width		N
	- prevent vertical entry top opening (fig. 4B)		N
	- prevent vertical falling side louvers (fig. 4C)		N
	- opening of volume V bounded by 5° (fig. 4D)		N
	Others.....		N
4.6.2	Bottom of fire enclosure (FE) against emit of material likely to ignite supporting surfaces	Not fire enclosure	N
	- no openings in bottom fire enclosure		N
	- opening under int. barrier/screen comply a FE		N
	- openings<40mm under components meeting flammability class V-1 &HF-1		N
	- baffle plate construction( fig 4F)		N
	-metal bottoms fire enclosure conform to table 4C		N
	- metal bottom mesh screens of 2mm		N
4.6.3	Fire enclosure( FE) consist of door/cover leading to operator access area comply with: - door/cover interlock comply 2.8 or		N
	- not removable from other parts of FE by operators & means to keep close in normal operation or		N
	- correct removal/installation directions for occasional use by operator		N
4.6.4	Measures provided prevent entry of small metallic objects inside transportable equipments		N
	Acceptable measures: - openings<1mm		N
	- mesh screen with opening <2mm		N
	- providing internal barrier		N
	Barrier/enclosure within 13mm fm cct.>15VA. - limited foreign metallic objects access even for limited power source (2.5)		N
	- barrier bet. Bare cond. and enclosure		N

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Clause	Requirement – Test	Result - Remark	Verdict
	- bridging test bet. Bare cond & barrier/ enclosure within 13mm		N
4.6.5	Adequate bonding properties in adhesive securing barrier/screen	No adhesive for constructional purposes	N
	After condition test, withstand mechanical test of 4.2		N
<b>4.7</b>	<b>Resistance to fire</b>		<b>P</b>
4.7.1	Reducing the risk of ignition & spread of flame	Plastic enclosure and approve UL	P
4.7.2	Conditions for a fire enclosure	Ditto	P
4.7.3.1	Materials for enclosure, components limited propagation of fire, by: - Flammability class material or		P
	-Components mounted on V-1 material & comp. Separated from less V-1 material by 13mm air or soild barrier		P
4.7.3.2	Materials for fire enclosure		P
	FE of class V-1/ fulfill A2 (unit<18kg)		P
	FE of class 5VB/ fulfill A1 (unit < 18kg or stationary)		N
	Material for components fill FE opening & intended to be mounted be.....		N
	FE located 13mm air from arcing parts		N
	FE located < 13mm air from non-arcing parts and parts under normal/abnormal attain high temp. to ignite material pass IEC 60695-2-20		N
4.7.3.3	Material for components located outside FE be of		N
	Connectors comply: - flammability class.....		N
	Or – comply IEC Comp. Std. Flamm. Req.		N
	Or – mounted on V-1 material and in small size		N
	Or – in secondary cct. <15VA		N
4.7.3.4	Material for components inside FE be.....		N
4.7.3.5	Air filters assemblies in mat'l of.....	No air filter in the equipment	N
4.7.3.6	High voltages components ( > 4kV pk-pk) be.....	No part exceeding 4kV	N
<b>5</b>	<b>Electrical requirements &amp; simulated abnormal conditions</b>		<b>P</b>
5.1	Touch current& protective cond. current		P

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Clause	Requirement – Test	Result - Remark	Verdict
5.1.1-5.1.6	Equipments designed/constructed no excessive touch/protective conductor current		P
5.1.7	Equipment with touch current > 3.5mA, comply: - rms prot.cond current < 5% of input current/line		N
	&-X-sectional area of Prot. Bonding Cond. > table 3B with min. 1.0 mm		N
	& - warning label affix to AC supply connection		N
5.1.8	Touch current to & from Telecomm. Networks and to cable distribution systems		N
5.1.8.1	Limited touch current fm supply to tele. Network or cable distribution systems		N
5.1.8.2	Limited summation to touch current from telecomm. Network comply: - EUT with earthed telecomm. Ports or		N
	- EUT has no reference to protective earth		N
<b>5.2</b>	<b>Electric strength</b>		<b>P</b>
	Electric strength test	See attachable sheet	P
<b>5.3</b>	<b>Abnormal operating and fault conditions</b>		<b>P</b>
5.3.1	Equipments designed limited abnormal operation or careless use		P
5.3.2	Motors	No such components	N
5.3.3	Transformers	Ditto	N
5.3.4	Functional insulation comply with:		N
	Method used.....	Class III appliance Double insulation	N
5.3.5	Electromechanical components in secondary circuits		N
5.3.6	Simulation of faults	(See appended table)	P
5.3.7	Unattended equipments, thermostat, temp limiters & thermal cut-outs comply K6	No such components	N
5.3.8	Compliance criteria		N
<b>6</b>	<b>Connection to telecommunication networks</b>		<b>N</b>
6.1	Protection of TNV service personnel, users, other equipments connected from hazards in the equipments		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of telecom network from earth		N

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Clause	Requirement – Test	Result - Remark	Verdict
<b>6.2</b>	<b>Protection of equipments users from over-voltages on telecomm networks</b>		<b>N</b>
6.2.1	Separation requirements		N
6.2.2	Electric strength test		N
6.2.2.1	Impulse test 10 impulses 10/700us		N
6.2.2.3	Steady state HV test		N
<b>6.3</b>	<b>Protection of telecommunication wiring system for overheating</b>		<b>N</b>
	Equipment limit the max. Output current to telecommunication wiring system		N
<b>7</b>	<b>Connection to cable distribution systems</b>		<b>N</b>
7.1	Protection of cable distribution system (CDS) service persons, and users of other equipment connected to the systems, from hazardous voltages in the equipment		<b>N</b>
	Circuitry directly connected to CDS comply with TNV-1, TNV-3 or Hazardous voltage secondary circuit		N
	CDS protected by PE with installation instructions stated PE must be ensured		N
7.2	Protection of equipment users from over voltages on the CDS		N
	CDS comply with requirements of clause 6.2		N
7.2.1	Separation requirements		N
7.2.2	Electric strength test		N
7.2.2.1	Impulse test 10 impulse 10/700us		N
7.2.2.2	Steady state HV test		N
<b>7.3</b>	<b>Insulation between primary circuits and cable distribution systems</b>		<b>N</b>
7.3.1	Equipment comply with 7.3.2 and /or 7.3.3		N
7.3.2	Voltage surge test 50 charges 10KV, then electric strength test	No damaged	N
7.3.3	Impulse test 10 impulses		N
<b>A</b>	<b>Annex A, Test for resistance to heat &amp; fire</b>		<b>P</b>
A.1	Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18kg, and of stationary equipment		N
A.2	Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18kg, and for materials located within fire enclosures		P



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Clause	Requirement – Test	Result - Remark	Verdict

A.3	Hot flaming oil test		N
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<b>B</b>	<b>Annex B, Motor tests under abnormal conditions</b>		<b>N</b>
B1-B.3	General details		---
	Motor location	No such compnent	N
	Manufacturer		N
	Type reference		N
	Rated V, Hz, A, W		N
	Class of insulation		N
B.4*	Running overload test		N
B.5*	Lock-rotor overload test		N
B.6*	Running overload test for dc motors in sec. cct.		N
B.7*	Locked-rotor overload tests for dc motors in sec.cct.		N
B.8*	Tests for motors with capacitors		N
B.9*	Tests for three-phase motors		N
B.10*	Tests for series motors		N
	* enter P/F/N.A. if applicable, please also enter the corresponding table		

<b>C</b>	<b>Annex C, Transformers</b>		<b>N</b>
	General details		--
	Transformer location	No such component	N
	Manufacturer		N
	Type reference		N
	Model reference		N
	Rated input V, A, W		N
	Class of insulation		N
C.1*	Overload test—Output short		N
C.2	Insulation: - comply 2.10 &		N
	- pass 5.2.2 electric strength test		N
	Adequate precautions against reduction of CR/CL		N
	* enter P/ F/N.A. if applicable, please also enter the corresponding table		N
<b>D</b>	<b>Annex D, Measuring instruments for touch-current tests</b>		<b>N</b>

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Clause	Requirement – Test	Result - Remark	Verdict
<b>E</b>	<b>Annex E, Temperature rise of a winding</b>		<b>N</b>
<b>F</b>	<b>Annex F, Measurment of clearances and creepage distances</b>		<b>P</b>
<b>G</b>	<b>Annex G, Alternative method for determining minimum clearances</b>		<b>P</b>
<b>H</b>	<b>Annex H, Ionizing radiation</b>		<b>N</b>
	Lonizing radiation		<b>N</b>
	Measured radiation.....		<b>N</b>
	Measured high-voltage.....		<b>N</b>
	Measured focus voltage.....		<b>N</b>
	CRT markings.....		<b>N</b>
	Approved by.....		<b>N</b>
	Publication used.....		<b>N</b>
<b>K</b>	<b>Annex K, Thermal controls</b>		<b>N</b>
	General details		<b>-</b>
	Location	--	
	Manufacturer	--	
	Type reference	--	
	Rated V, A, W	--	
	Temp. rating	--	
K.1	Making & breaking capacity	--	
K.2	Thermostat reliability (200 makes & 200 breaks)	--	
K.3	Thermostat endurance test (10K cycles makes & breaks)	--	
K.4	Temp. limiter endurance (1K cycles make & break)	--	
K.5	Thermal cut-out reliability	--	
K.6	Stability of operation	--	
<b>L</b>	<b>Annex L, Normal load conditions for some types of electrical business equipments</b>		<b>N</b>

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Clause	Requirement – Test	Result - Remark	Verdict
<b>M</b>	<b>Annex M, Criteria for telephone ringing signals</b>		<b>N</b>
<b>N</b>	<b>Annex N, Impulse test generators</b>		<b>N</b>
<b>P</b>	<b>Annex P, normative references</b>		<b>N</b>
<b>Q</b>	<b>Annex Q, Bibliography</b>		<b>N</b>
<b>R</b>	<b>Annex R, Examples of requirements for quality control programmes</b>		<b>N</b>
<b>S</b>	<b>Annex S, Procedures for impulse testing</b>		<b>N</b>
<b>T</b>	<b>Annex T, Guidance on protection against ingress of water</b>		<b>N</b>
<b>U</b>	<b>Annex U, insulated winding wires for use without interleaved insulation</b>		<b>N</b>
<b>V</b>	<b>Annex V, AC power distribution systems</b>		<b>N</b>
<b>W</b>	<b>Annex W, summation of touch currents</b>		<b>N</b>
<b>X</b>	<b>Annex X, maximum heating effect in transformer tests</b>		<b>N</b>
<b>Y</b>	<b>Annex Y, Ultraviolet light conditioning test</b>		<b>N</b>
<b>ZB</b>	<b>Annex ZB: SPECIAL NATIONAL CONDITIONS</b>		<b>N</b>
1.2.4.1	(Denmark): Class I appliances with a plug not establishing earthing continuity when inserted into Danish socket-outlets		<b>N</b>
1.5.8	(Norway): Capacitors rated for the applicable phase-to-phase voltage (230V)		<b>N</b>
1.7.2	(Finland, Norway & Sweden): Class I pluggable equipment Type A for connection to other		<b>N</b>

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Clause	Requirement – Test	Result - Remark	Verdict
	equipment or if surge suppressors are connected between network terminals and accessible parts have marking: Finland “Laiteon Liitetav” Suojamaadoituskoskettimilla varustettuun pistorasiaan” Norway “Apparatet ma tilkoples jordetstikkontakt” Sweden”Apparaten skall anslutas till jordat uttg”		
1.7.5	(Denmark): Socket-outlets in accordance with the Heavy Current Regulations, Section 107-2-D1		N
2.2.4	(Norway): Annex sub-clause 6.1.2.1 and 1.7.2 apply		N
2.3.2	(Norway): Annex sub-clause 6.1.2.1 apply		N
2.3.3	(Norway): Annex sub-clause 1.7.2&6.1.2.1		N
2.3.4	(Norway): Annex sub-clause 1.7.2&6.1.2.1		N
2.10.3.1	(Norway): A.C.mains supply voltage is the line-to-line voltage at 230V		N
3.2.1.1	(Switzerland): Plug( $\leq 10A$ ) complied with SEV 1011 or IEC884-1 and one of the following dimension sheets: -SEV 6532-2:1991: plug type 15 3P+N+PE 250V/400V, 10A -SEV 6533-2:1991:1991: plug type-11L+N250V, 10A -SEV 6534-2:1991: plug type 12L+N+PE250V, 10A		N
	EN 60 309 applies for plugs for currents exceeding 10A and 16A plug following dimension sheets: -SEV 5932-2:1998: plug type 254 3L+N+PE 230/400V, 16A -SEV 5933-2:1998: plug type 21L+N250V, 16A -SEV 5934-2:1998: plug type 23L+N+PE250V, 16A		N
	(Denmark): Single-phase plug ( $\leq 10A$ ) complied with Heavy Current Regulations Section 107-2-D1		N
	Class I equipment provided with socket-outlets has a plug complied with standard sheet DK-2-1a or DK-2-5a		N
	Poly-or single-phase plug ( $> 10A$ ) complied with Heavy Current Regulations Section 107-2-D1 or EN 60309-2		N
	(Spain): Single-phase plug( $\leq 10A$ ) complied with UNE 20315:1994		N
	Single-phase plug ( $\leq 2.5A$ ) complied with UNE-EN 50075:1993		N
	Class I equipment provided with socket-outlets has a plug complied with UNE 20315:1994		N
	Poly-phase plug complied with UNE-EN60309-2		N
	(United Kingdom): Plug is according to Statutory Instrument 1786:1994		N

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Clause	Requirement – Test	Result - Remark	Verdict
	(Ireland): Plug is according o Statutory Instrument 525:1997		N
3.2.5	(United Kingdom): A power supply cord with conductor of 1.25mm <sup>2</sup> is allowed for equipment with rated current over 10A and up to and including 13A		N
3.3.4	(United Kingdom): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10A and up to and including 13A is: -1.25mm <sup>2</sup> to 1.5mm <sup>2</sup> nominal cross-sectional area		N
4.3.6	(United Kingdom): Torque test complied using BS 1363 socket outlet and the plug part complied with relevant clauses of BS 1363: Part1		N
	(Ireland ): Direct Plug-in equipment complied with Statutory Instrument 526:1997		N
6.1.2.1	(Finland, Norway and Sweden): Solid insulation consisted of: two layers of thin sheet material one layer with thickness≥0.4mm		N
	Insulation forms part of a semiconductor component complied with the electric strength test		N
	Insulation bridged by capacitor complying with EN 132400:1994, subclass Y2		N
	Insulation bridged by capacitor complying with EN 132400:1994, subclass Y3 under the conditions stated in the standard		N
6.1.2.2	(Finland, Norway and Sweden): Exclusions applied for permanently connected equipment, pluggable equipment type B and equipment intended to be used in a restricted access location		N
7.1	(Finland, Norway and Sweden):6.1.2.1 and 6.1.2.2 apply with the term telecommunication network in 6.1.2 being replaced by the term cable distribution system		N
G.2.1	(Norway): A.C. mains supply voltage is the line-to-line voltage at 230V		N

ZC	Annex ZC: A-deviations		N
1.5.1	(Sweden): Mercury switches are not used		N
	(Switzerland): Mercury switches are not used		N
1.7.2	(Denmark): Supply cord with visible tag		N
1.7.5	(Denmark): Class II equipment not fitted with socket-outlets		N
1.7.12	(Gerrmany): Direction for use in German language		N
	Rules for use even only by service personnel are not exempted		N

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Clause	Requirement – Test	Result - Remark	Verdict
1.7.15	(Switzerland): Batteries complied with ordinance of environmentally hazardous substances		N
Annex H	(Germany): a) License required		N
	b) License not required (electron acceleration voltage $\leq$ 20kV) dose rate at 0.1m $\leq$ 1uSv/h adequately indicated on X-ray emission source		N
	c) License not required (electron acceleration voltage $>$ 20kV) X-ray emission source approved adequately indicated on X-ray emission source		N
	d) License not required (electron acceleration voltage $\leq$ 30kV) X-rays generated by intrinsically safe CRTs Values stipulated are limited Adequately indicated on X-ray emission source		N

**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

**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 – 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

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)																																																																											
Clause	Requirement + Test	Result - Remark	Verdict																																																																								
General	<p>Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list:</p> <table><tr><td>1.4.8</td><td>Note 2</td><td>1.5.1</td><td>Note 2 &amp; 3</td><td>1.5.7.1</td><td>Note</td></tr><tr><td>1.5.8</td><td>Note 2</td><td>1.5.9.4</td><td>Note</td><td>1.7.2.1</td><td>Note 4, 5 &amp; 6</td></tr><tr><td>2.2.3</td><td>Note</td><td>2.2.4</td><td>Note</td><td>2.3.2</td><td>Note</td></tr><tr><td>2.3.2.1</td><td>Note 2</td><td>2.3.4</td><td>Note 2</td><td>2.6.3.3</td><td>Note 2 &amp; 3</td></tr><tr><td>2.7.1</td><td>Note</td><td>2.10.3.2</td><td>Note 2</td><td>2.10.5.13</td><td>Note 3</td></tr><tr><td>3.2.1.1</td><td>Note</td><td>3.2.4</td><td>Note 3</td><td>2.5.1</td><td>Note 2</td></tr><tr><td>4.3.6</td><td>Note 1 &amp; 2</td><td>4.7</td><td>Note 4</td><td>4.7.2.2</td><td>Note</td></tr><tr><td>4.7.3.1</td><td>Note 2</td><td>5.1.7.1</td><td>Note 3 &amp; 4</td><td>5.3.7</td><td>Note 1</td></tr><tr><td>6</td><td>Note 2 &amp; 5</td><td>6.1.2.1</td><td>Note 2</td><td>6.1.2.2</td><td>Note</td></tr><tr><td>6.2.2</td><td>Note</td><td>6.2.2.1</td><td>Note 2</td><td>6.2.2.2</td><td>Note</td></tr><tr><td>7.1</td><td>Note 3</td><td>7.2</td><td>Note</td><td>7.3</td><td>Note 1 &amp; 2</td></tr><tr><td>G.2.1</td><td>Note 2</td><td>Annex H</td><td>Note 2</td><td></td><td></td></tr></table>	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
1.4.8	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																																																																						
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G.2.1	Note 2	Annex H	Note 2																																																																								
General (A1:2010)	<p>Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list:</p> <table><tr><td>1.5.7.1</td><td>Note</td><td>6.1.2.1</td><td>Note 2</td></tr><tr><td>6.2.2.1</td><td>Note 2</td><td>EE.3</td><td>Note</td></tr></table>	1.5.7.1	Note	6.1.2.1	Note 2	6.2.2.1	Note 2	EE.3	Note		P																																																																
1.5.7.1	Note	6.1.2.1	Note 2																																																																								
6.2.2.1	Note 2	EE.3	Note																																																																								
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>	No headphones or earphones connectors in the equipment.	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																																																																								

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A
	<b>Zx Protection against excessive sound pressure from personal music players</b>		N/A
	<b>Zx.1 General</b> This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.  A personal music player is a portable equipment for personal use, that: is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.  A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.  The requirements in this sub-clause are valid for music or video mode only.  The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used.  NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.  The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		N/A




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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A
	<p><b>Zx.2 Equipment requirements</b></p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> <li>equipment provided as a package (personal music player with its listening device), where the acoustic output <math>L_{Aeq,T}</math> is <math>\leq 85</math> dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</li> <li>a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is <math>\leq 27</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</li> </ul> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level <math>L_{Aeq,T}</math> is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> <li>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</li> <li>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</li> </ul>		N/A

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <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 <math>L_{Aeq,T}</math>) 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 <math>L_{Aeq,T}</math>) 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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.3 Warning</b></p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <p style="padding-left: 40px;">the symbol of Figure 1 with a minimum height of 5 mm; and</p> <p style="padding-left: 40px;">the following wording, or similar:</p> <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><b>Figure 1 – Warning label (IEC 60417-6044)</b></p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>	See user manual	N/A
	<b>Zx.4 Requirements for listening devices (headphones and earphones)</b>		N/A
	<p><b>Zx.4.1 Wired listening devices with analogue input</b></p> <p>With 94 dBA sound pressure output <math>L_{Aeq,T}</math>, 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
	<p><b>Zx.4.2 Wired listening devices with digital input</b></p> <p>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 <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> 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

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.4.3 Wireless listening devices</b></p> <p>In wireless mode:</p> <ul style="list-style-type: none"> <li>with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and</li> <li>respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and</li> <li>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 <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dBA.</li> </ul> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p><b>Zx.5 Measurement methods</b></p> <p>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
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>		N/A

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Clause	Requirement – Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<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>		N/A
2.7.2	This subclause has been declared ‘void’.	Considered.	—
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
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.	—
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	Considered.	—

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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>	The unit does not emit X-ray radiation.	N/A
Bibliography	Additional EN standards.		—

<b>ZA</b>	<b>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>	—
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ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In <b>Denmark</b> , 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.	Class III equipment.	N/A
1.2.13.14	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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 <b>Norway</b> , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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 <b>Finland, Norway and Sweden</b>, 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: "Laite 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 <b>Norway and Sweden</b>, 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>	Class III equipment.	N/A



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

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“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.”</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>		N/A
1.7.5	<p>In <b>Denmark</b>, 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 <b>CLASS II EQUIPMENT</b> the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	There are no socket outlets provided power to other appliances.	N/A
2.2.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In <b>Finland, Norway and Sweden</b> there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.	Class III equipment.	N/A
2.7.1	In the <b>United Kingdom</b> , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A



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

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.13	In <b>Finland, Norway and Sweden</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	<p>In <b>Switzerland</b>, 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>		<p>N/A</p> <p>N/A</p>
3.2.1.1	<p>In <b>Denmark</b>, 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

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

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In <b>Spain</b>, 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 <b>United Kingdom</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a ‘standard plug’ in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE ‘Standard plug’ is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
3.2.1.1	<p>In <b>Ireland</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N/A
3.2.4	<p>In <b>Switzerland</b>, for requirements see 3.2.1.1 of this annex.</p>		N/A
3.2.5.1	<p>In the <b>United Kingdom</b>, 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.</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
3.3.4	In the <b>United Kingdom</b> , 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 <b>United Kingdom</b> , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In <b>Ireland</b> , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In <b>Finland, Norway and Sweden</b> TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:  • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON;  • STATIONARY PLUGGABLE EQUIPMENT TYPE B;  • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.	Class III equipment.	N/A

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

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	<p>In <b>Finland, Norway and Sweden</b>, 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>		N/A
	<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>	TNV-1 circuits	P

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

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In <b>Finland, Norway and Sweden</b> , 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/A
7.2	In <b>Finland, Norway and Sweden</b> , 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 <b>Norway and Sweden</b> , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A
7.3	In <b>Norway</b> , for installation conditions see EN 60728-11:2005.		N/A

1.5.1	TABLE: list of critical components				P
Object/part no.	Manufacturer /trademark	Type/model	Technical data	Standard	Mark(s) of Conformity
Connector	Shenzhen XiangYi Electron Co.,Ltd	5058	250V 5A	EN 60320-1	VDE 4002516
(alternative)	Various	Various	250V 5A	EN 60320-1	VDE or TUV
PCB	Shenzhen BiSiManS Eeddm Co., Ltd.	FR4	V-0, 130℃	---	UL E187447
(alternative)	Various	Various	V-0 or better, 130℃	---	UL

1.6	TABLE: input test					P
voltage	P rated (W)	P (W)	I rated (mA)	I (mA)	Condition/status	
DC1.5V for key board	--	--	4.5	4.0	Normal operation	
DC1.5V for mouse	--	--	10	3.5	Normal operation	

1.5.7	TABLE: Components bridging double/reinforced insulation				N
1.5.7.2	Capacitors				
Location	Type & rating	Working voltage req.	No .in series	Y1/Y2	
--	--	--	--	--	

1.6.2	TABLE: electric data (in normal condition)					N
FUSE1	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status

2.1.1.5	TABLE: max. V, A, VA test				N
Voltage (rated)	Current (rated)	Voltage (max.)	Current (max.)	VA (max.)	

2.1.1.7	TABLE: Discharge test				N
Condition	$\tau$ calculated (s)	$\tau$ measured (s)	$t_{u \rightarrow 0V}$ (s)	Comments	
Note(s):					

<b>2.2.2</b>	<b>TABLE: Hazardous voltage measurement</b>			N
transformer	Location	Max.Voltage		Voltage Limitation Component
		V peak	V d.c	

2.2.3	TABLE: SEL voltage measurement		N
Location	Voltage Measurement (V)	Comments	

2.4.2	TABLE: limited current circuit measurement					N
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	

2.5	TABLE: Limited power source measurement			N
		Limits	Measured	Verdict
According to Table 2B/2C (normal condition)				
Current (in A)				
Apparent power (in VA)				
According to Table 2B/2C (single fault condition)				
Current (in A)				
Apparent power (in VA)				

2.6.3.3	TABLE: ground continue test		N
Location	Resistance measured (mΩ)	Comments	
Note(s):			

2.7.4	TABLE: Location of protective devices			N
Location		Protect. against	Number	

2.10.2	Table: working voltage measurement			P
Location:		U r.m.s (V)	U pK (V)	Comments

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L1	1.2	1.2	
E1	1.8	1.8	
Battery polarity	3.5	3.5	maximum
NOTE: Input voltage:DC1.5V			

2.10.3 & 4	TABLE: clearance and creepage distance measurements						P
Clearance cl and creepage distance dcr at/of	Up (V)	Ur.m.s.	Required cl.(mm)	Cl(mm)	Required dcr (mm)	Dcr (mm)	
Diffidence polarity	3.5	3.5	0.2	>0.2	0.2	>0.2	
Note(s):							

2.10.5.1	TABLE: distance through insulation measurements					N
Distance through insulation at/of:		Ur.m.s. (V)	Test voltage(V)	Required di (mm)	Di (mm)	
2.10.5.2	TABLE: thin sheet material					N
Location :		U r.m.s (V)	Type Of insulation	Total no. of layers	Test voltage (V)	At 1/2 layers

3.3.3	TABLE: tests for electrical connections and mechanical fixings							P
	Table columns: 1 – screw location/function; 2 – diameter (mm); 3 – length of the thread (mm); 4 – screw material; 5 – nut material; 6 – required material; 7 – test torque (Nm); 8- fulfils/remarks							
1	2	3	4	5	6	7	8	
Rear Enclosure	1.0mm	2mm	Metal	--	--	0.2Nm	Pass	

4.5.1	TABLE: temperature rise measurements			P
	Condition:	Normal operation key board and mouse working together		
	Test voltage (V).....:	DC1.5V		-
	T1 (°C).....:	25.6		-
	T2 (°C).....:	25.4		-
Temperature rise dT of part/at:		dT (K)	Required dT(K)	
Ambient		25.4	Reference	
Top Enclosure		1.2	60	



Connector of BAT	0.3	60			
E1 body	1.2	Reference			
L1	1.2	Reference			
Battery surface of mouse	3.5	50			
EB body	2.3	Reference			
PCB for mouse	2.1	85			
Switch Body for mouse	1.4	50			
PCB of key board	1.9	85			
Battery line of key board	1.2	50			
silicone skin case of key board	1.1	Reference			
Plastic inside	0.6	60			
Battery surface of key board	3.4	50			
Top Enclosure of key board	0.4	60			
Note 1) Ball pressure test performed according to B2 of Annex B					
	Winding temperature rise measurements:				
	Ambient temperature t1 (°C) .....	23.7			
	Ambient temperature t2 (°C) .....	24.6			
Temperature rise dT of winding:	R1 (Ω)	R2 (Ω)	dT (K)	Required dT(K)	Insulation class
--	-	--	--	--	--

<b>4.5.2</b>	<b>TABLE: ball pressure test of thermoplastics</b>			<b>P</b>
	Required impression diameter (mm)	≤2.0mm		
Part of appliance	Test temperature (°C)	Impression diameter (mm)		
Plastic support of PCB part	70	0.5		
Enclosure outside	70	0.3		

<b>5.1</b>	<b>TABLE: Touch current measurements</b>		<b>N</b>
Location	Measured current (mA)	Limit (mA)	

<b>5.2</b>	<b>TABLE: Electric strength</b>		<b>P</b>
Location	Test Voltage (V)	Breakdown?	
Battery polarity to enclosure with a metal sheet	DC 500	No	

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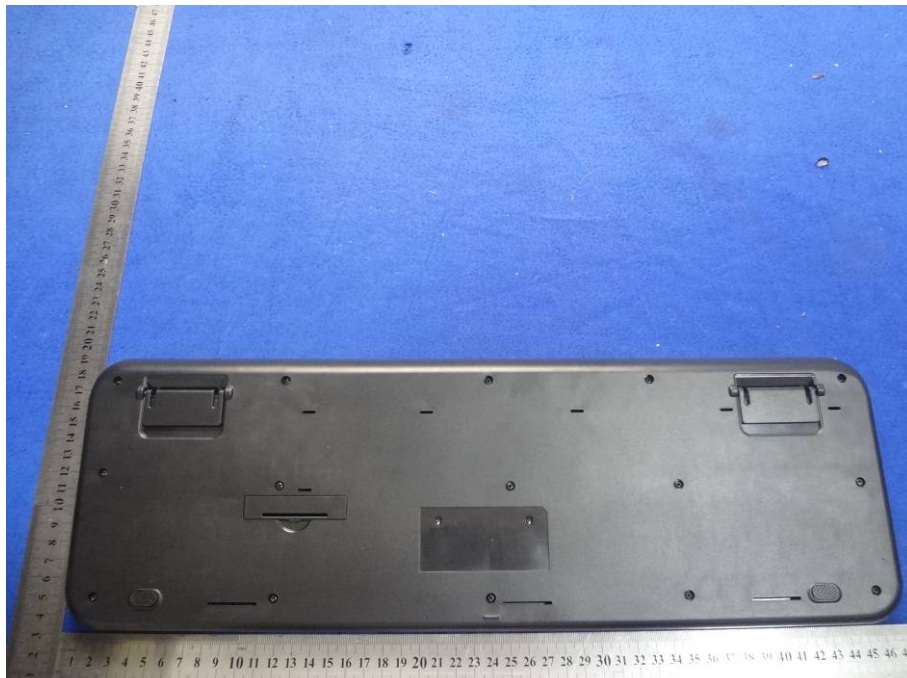
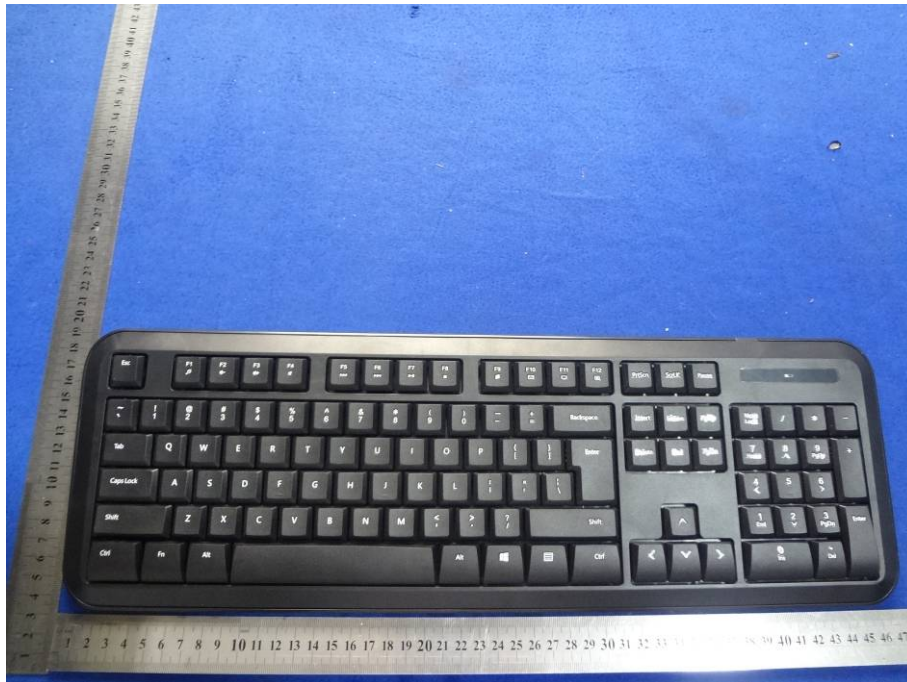
5.3.6		TABLE: simulation of faults					P
		Ambient temperature (°C).....:			28.5		
		Test Voltage (V) .....			DC1.5V		
No	Component No	Fault	Test voltage(v)	Test time	Fuse No	Fuse current (A)	Result
1.	Battery	SC	DC1.5V	1h.	--	--	Unit was no working no hazard.
2	Battery over charged	over charged	DC1.5V	1min.	--	--	Shut down ,removed fault condition is normal working no hazard.
3	C3	SC	DC1.5V	15min.	--	--	Unit was no working no hazard.
4	E2	SC	DC1.5V	20min.	--	--	Unit was no working no hazard.
<b>Note:</b>							

**Photo :**

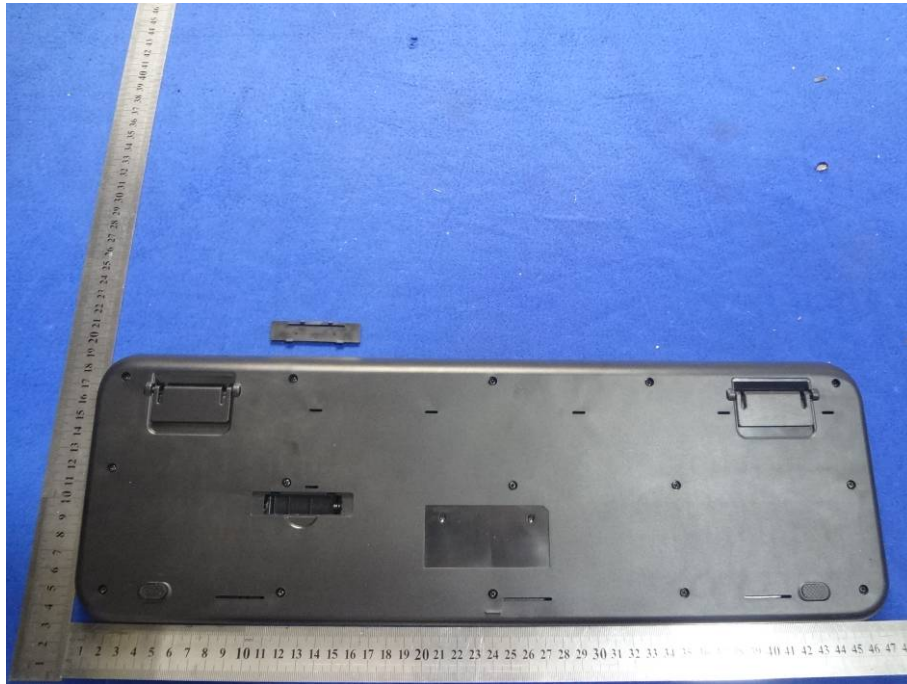
TX (Mouse + Keyboard)

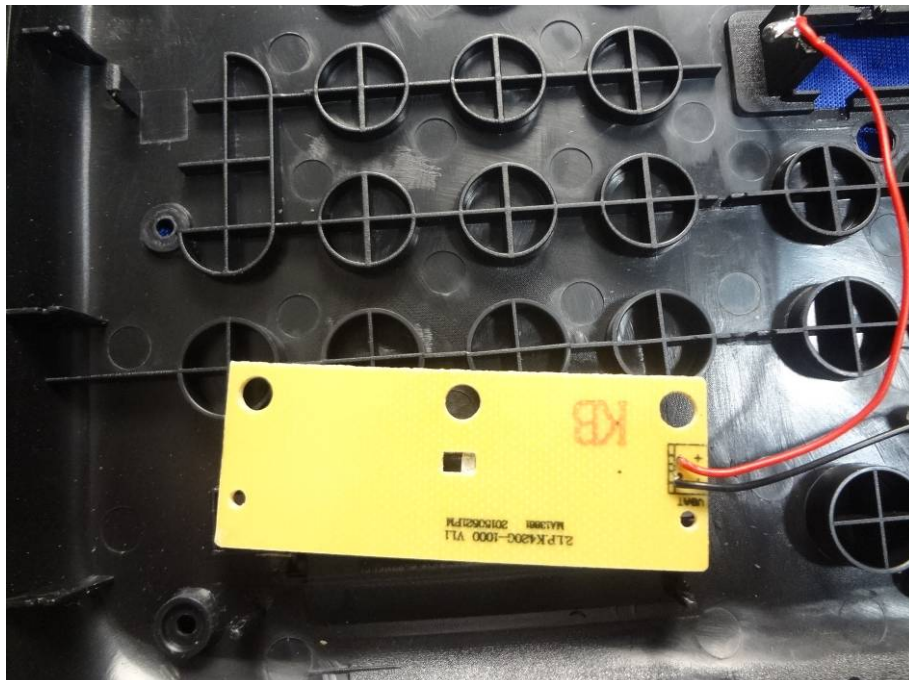


## TX (Keyboard)

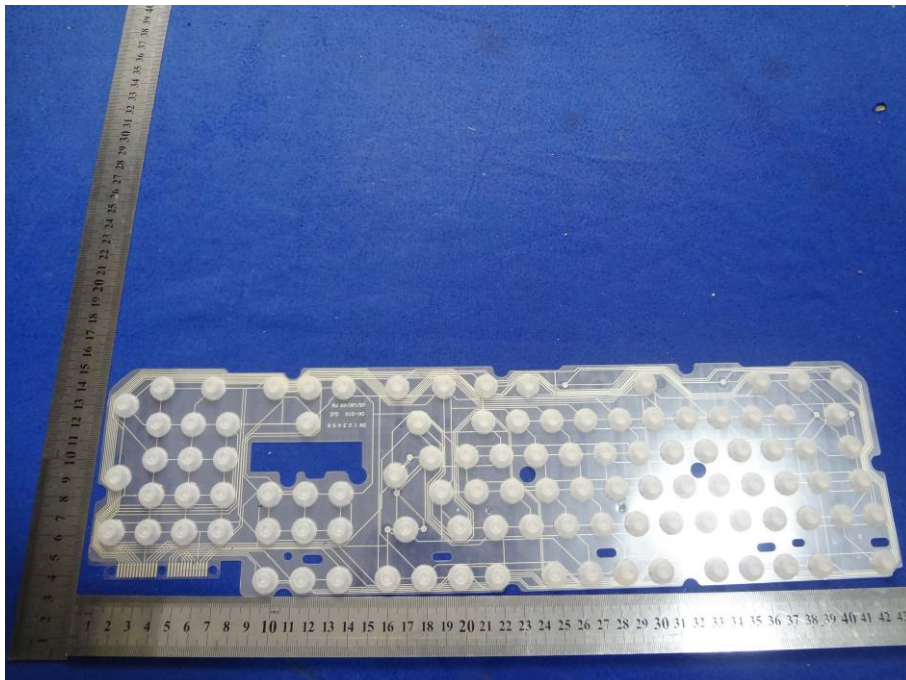
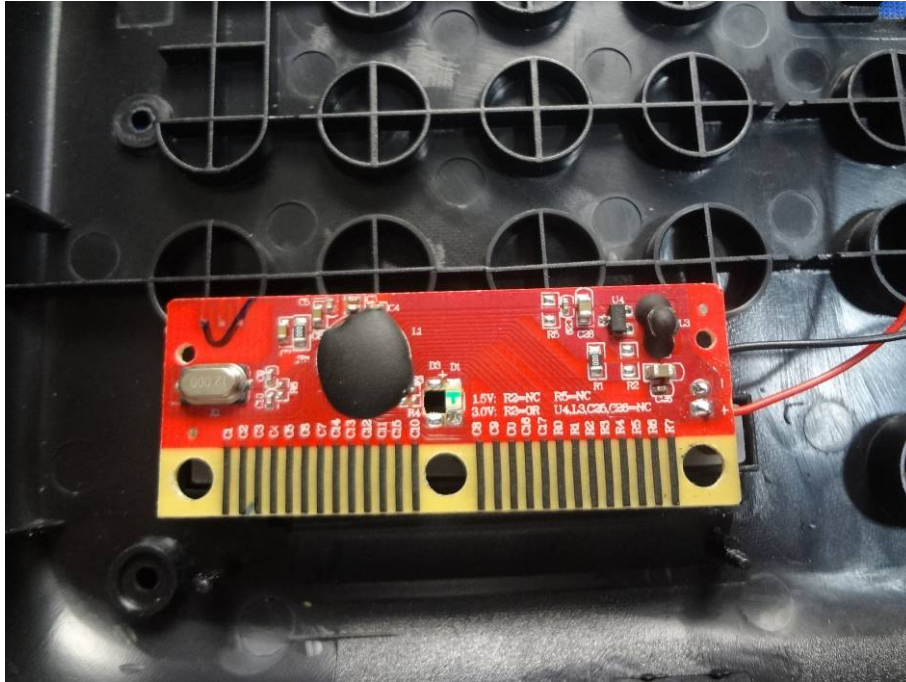








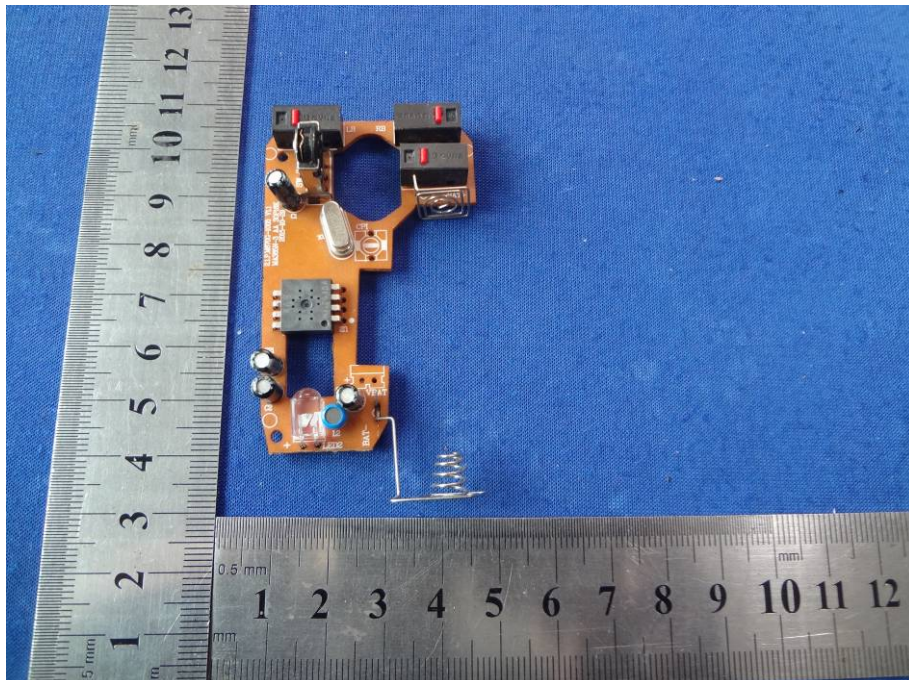


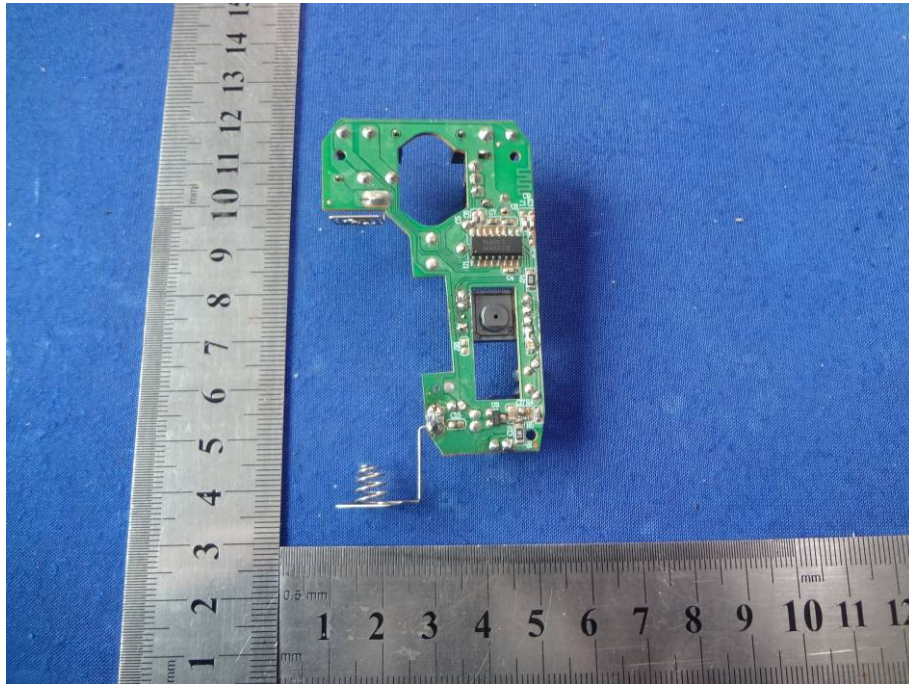


TX (Mouse)



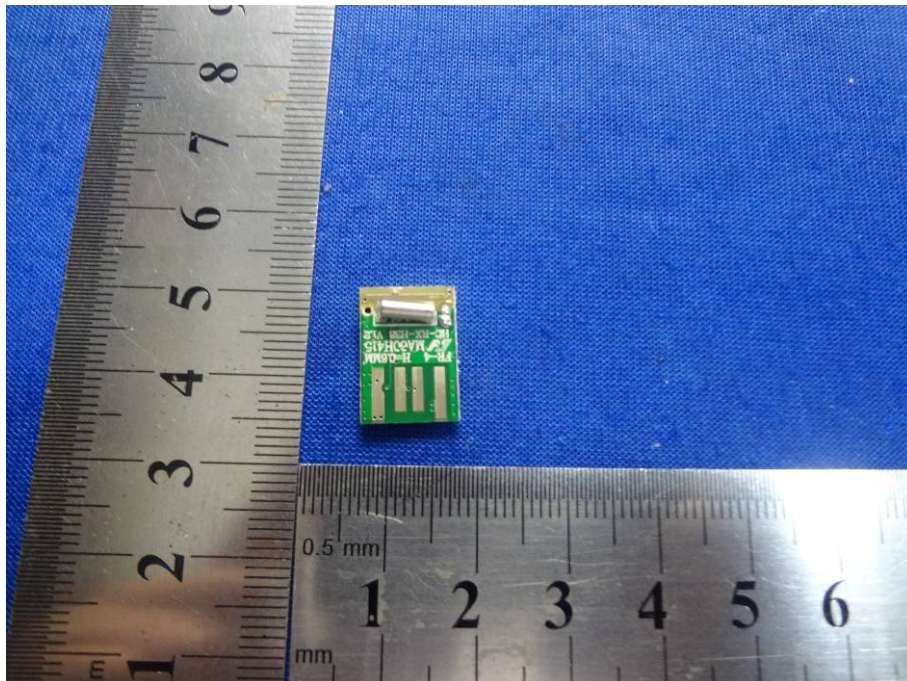
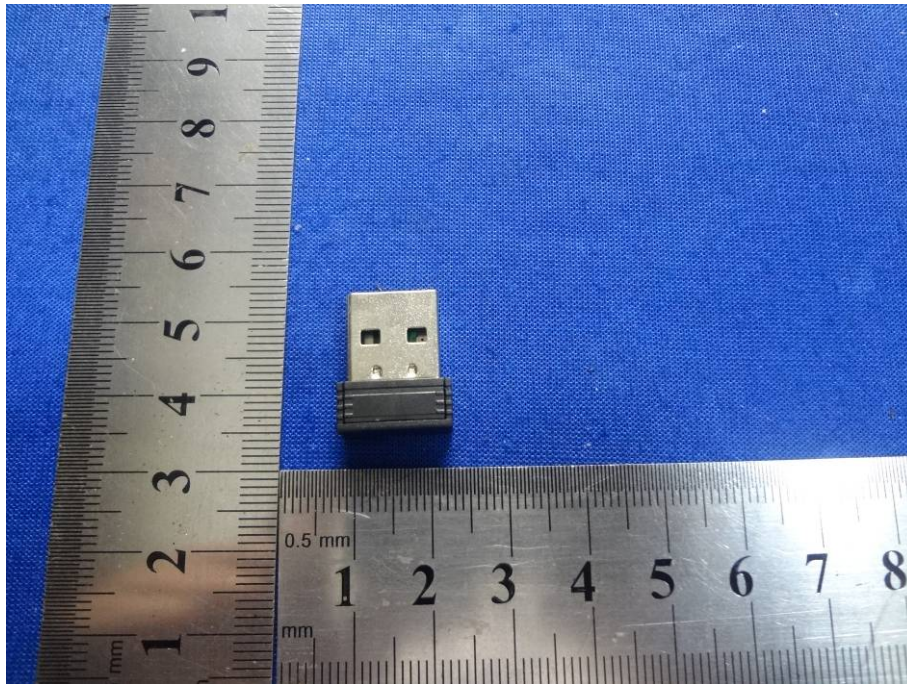


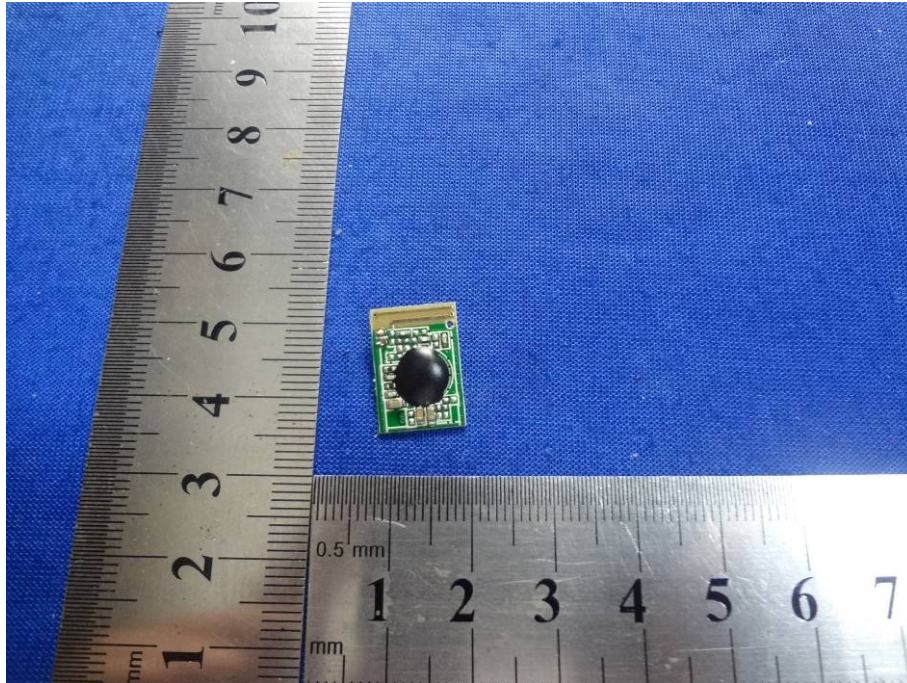






RX (Host)





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End of the Report