

TEST REPORT

EN 60950-1

Information Technology Equipment including-Safety Part 1: General equipments

Report reference No.:	ESTS- P12052305
Tested by.....: (printed name and signature)	Paul Zou
Approved by.....: (printed name and signature)	Allen Yang
Date of issue.....:	2012-06-11
Testing laboratory	EST Technology Co., Ltd
Address.....:	Santun Management Zone (Guantai Road), Houjie District, Dongguan, Guangdong, P. R. China
Test location.....:	Same as above
Applicant.....:	Acrox Technologies Co., Ltd.
Address.....:	4F., No.89, Minshan St., Neihu Dis.t, Taipei City 114, Taiwan, R.O.C
Manufacturer.....:	Acrox Technologies Co., Ltd.
Address.....:	4F., No.89, Minshan St., Neihu Dist., Taipei City 114, Taiwan, R.O.C
Standards.....:	EN 60950-1: 2006+A11: 2009+A1:2010+A12:2011
Test Procedure	--
Non-standard test method.....:	N/A
Type of test equipment	2.4G Optical Mouse
Trade mark.....:	ACROX
Model/Type designation.....:	G30
Rating.....:	Input: 3.0Vdc , 50mA (AAA battery)
TRF originator.....:	EST Technology Co., Ltd
Copyright blank test report:	EST Technology Co., Ltd
Test item particulars:	
Equipment mobility	Hand-held
Operating Condition	Continuous
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N.A.
Class of equipment	Class III equipment
Mass of equipment (Kg)	0.061kg approx.
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)

Summary of testing:**Tests performed (name of test and test clause):**

Item	Clause(s)	Test(s)	Result
1	1.6.2	Input Current Test	P
2	1.7.11	Durability of Marking Test	P
3	2.1.1.5	Energy Hazard in Operator Access Area	N / A
4	2.1.1.7	Discharge of Capacitors	N / A
5	2.2.2	SELV limits for Normal Conditions	P
6	2.2.3	SELV limits for Abnormal Conditions	P
7	2.4.2	Limited Current Circuits (Bridging components)	N / A
8	2.5	Limited Power Sources	P
9	2.6.3.4	Resistance of Earthing Circuit	N / A
10	2.9.2	Humidity Conditioning	N / A
11	2.10.2	Working Voltage over Insulation	N / A
12	2.10.3	Clearances measurement	N / A
13	2.10.4	Creepage distances measurement	N / A
14	3.2.6	Cord Anchorages and Strain Relief Test	N / A
15	4.1	Stability Test (10 Tilting Test)	N / A
16	4.2.2	Steady Force Test, 10N	N / A
17	4.2.4	Steady Force Test, 250N	N / A
18	4.2.5	Impact Test (Steel Ball)	N / A
19	4.2.6	Drop Test	N / A
20	4.2.7	Stress Relief Test	N / A
21	4.3.6	Torque Test (direct-plug in over 450g)	N / A
22	4.5.2	Maximum Temperature Test	P
23	4.5.5	Ball Pressure Test	N / A
24	5.1.6	Touch Current and PE current	N / A
25	5.2	Electric Strength Test	N / A
26	5.3	Fault Condition Test	P

Remark:--

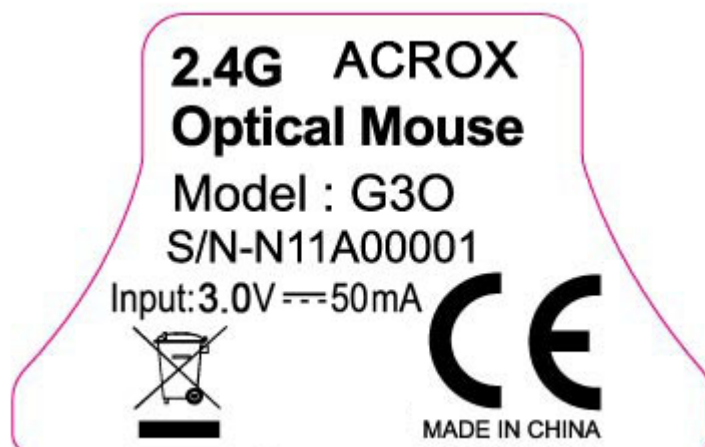
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Clause	Requirement	Result - Remark	Verd.

Factory(ies):

Acrox Technologies Co., Ltd.

Hsinmin Industria, Changan Town, Dongguan City, Guangdong, China

Copy of marking plate(s):



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Clause	Requirement	Result - Remark	Verd.

General remarks:	
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<p>“(see remark #)” refers to a remark appended to the report.</p> <p>“(see appended table)” refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>Until otherwise specified, all tests are done under normal ambient condition 25°C±10°C, Max RH: 75% and air pressure of 860 mbar to 1060 mbar.</p>	<p>Attached with:</p> <p>Attachment – A: Photo Documentation</p> <p>Attachment – B: Electric Circuit Diagram & Printed Wiring Board Layout</p>
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<p>General product information:</p> <p>The test samples were pre-production samples without serial numbers. This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>The product is a Class III 2.4G Optical Mouse equipped with AAA battery supply.</p> <p>The equipment’s top enclosure is secured to bottom enclosure by screws.</p> <p>The maximum ambient is 40°C.</p>

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Clause	Requirement	Result - Remark	Verd.

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

1.6	Power interface		P
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	Highest load according to 1.2.2.1 for this equipment is the operation with the maximum specified load. (see appended table 1.6.2)	P

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Clause	Requirement	Result - Remark	Verd.
1.6.3	Voltage limit of hand-held equipment		P
1.6.4	Neutral conductor		N/A
1.7	Marking and instructions		P
1.7.1	Power rating	See below	P
	Rated voltage(s) or voltage range(s) (V)	Input: 3.0Vdc , 50mA	P
	Symbol for nature of supply, for d.c. only		P
	Rated frequency or rated frequency range (Hz) :		N/A
	Rated current (mA or A)	50mA	P
	Manufacturer's name or trademark or identification mark	It will show on final rating label	P
	Type/model or type reference	It will show on final rating label	P
	Symbol for Class II equipment only	Class III	N/A
	Other marking and symbols	Additional symbols or marking does not give rise to misunderstanding.	P
1.7.2	Safety instructions and marking	Operating Instructions provided to the operator, containing necessary instructions and caution information. English version checked.	P
1.7.2.1	General	"User Manual" provided that contains information regarding the maximum ambient temperature	P
1.7.2.2	Disconnect device		N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	Only for Norway	N/A
1.7.2.5	Operator access with a tool	No operator accessible area that needs to be accessed by the use of a tool	N/A
1.7.2.6	Ozone	Not such equipment	N/A
1.7.3	Short duty cycles	Continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage selector	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No standard power outlet	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		N/A
1.7.7	Wiring terminals	See below.	N/A
1.7.7.1	Protective earthing and bonding terminals	Class III equipment	N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No d, c mains supply	N/A
1.7.8	Controls and indicators	No safety related switches or indicators.	N/A

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Clause	Requirement	Result - Remark	Verd.
1.7.8.1	Identification, location and marking	No controls	N/A
1.7.8.2	Colours	No indicators with colours where safety is involved	N/A
1.7.8.3	Symbols according to IEC 60417	There are no switches in the equipment	N/A
1.7.8.4	Markings using figures	No controls	N/A
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N/A
1.7.10	Thermostats and other regulating devices	No such components provided.	N/A
1.7.11	Durability	The label was subjected to the permanence of marking test .The label was rubbed with cloth soaked with water for 15sec.And then again for 15sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge.	P
1.7.12	Removable parts	No removable part.	N/A
1.7.13	Replaceable batteries		P
	Language(s)		—
1.7.14	Equipment for restricted access locations	Not intended for use in restricted access locations	N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage.	P
2.1.1.1	Access to energized parts	See above	P
	Test by inspection	See above	P
	Test with test finger	See above	P
	Test with test pin	See above	P
	Test with test probe		N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area	N/A
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N/A
2.1.1.5	Energy hazards	No energy hazard.	P
2.1.1.6	Manual controls	No manual controls	N/A

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Clause	Requirement	Result - Remark	Verd.

2.1.1.7	Discharge of capacitors in equipment	No discharge capacitor in the equipment, measurement did not performed.	N/A
	Measured voltage (V);time-constant(s).....:	(see appended table 2.1.1.7)	—
2.1.1.8	Energy hazards-d.c.mains supply	No d.c. mains	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.....:	Not such equipment	N/A
2.1.2	Protection in service access areas	No operator accessible area that needs to be accessed by the use of a tool.	N/A
2.1.3	Protection in restricted access locations	Not intended to be installed in a restricted access location.	N/A

2.2	SELV circuits		P
2.2.1	General requirements	All accessible voltages are less than 42.4 Vpk or 60 Vdc And are classified as SELV	P
2.2.2	Voltages under normal conditions (V).....:	Under fault conditions voltage never exceed 71V peak and 120V dc and do not exceed 42,4V peak or 60 Vdc for more than 0.2 sec	P
2.2.3	Voltages under fault conditions (V).....:	SELV circuits permanently separated from hazardous voltage circuits by double or reinforced insulation	N/A
2.2.4	Connection of SELV circuits to other circuits.....:	Connect to SELV circuit only	P

2.3	TNV circuits		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.....:		—
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

2.4	Limited current circuits		N/A
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Clause	Requirement	Result - Remark	Verd.

2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		—
	Measured current (mA)		—
	Measured voltage (V)		—
	Measured circuit capacitance (nF or μ F)		—
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		P
	a) Inherently limited output		P
	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)		—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	Class III equipment	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG		—
	Protective current rating(A), cross-sectional area(mm^2), AWG		N/A
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, resistance(Ω) voltage drop(V) test current (A), duration(min)		N/A
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A

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Clause	Requirement	Result - Remark	Verd.
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	No TNV	N/A
2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements		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		N/A
2.7.6	Warning to service personnel :		N/A
2.8	Safety interlocks		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
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		N/A
2.9.2	Humidity conditioning		N/A
	Relative humidity (%),temperature (° C) :		—
2.9.3	Grade of insulation		P
2.9.4	Separation from hazardous voltages		N/A

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Clause	Requirement	Result - Remark	Verd.

	Method(s) used.....:		—
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2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency.....:		N/A
2.10.1.2	Pollution degrees.....:	Pollution degree 2	P
2.10.1.3	Reduced values for functional insulation		P
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		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
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		N/A
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c.mains supply.....:		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.....:	No TNV circuit	N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a)Transients from a mains supply		N/A
	For an a.c.mains supply.....		N/A
	For an d.c.mains supply.....		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		N/A
2.10.4.1	General		N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI test		—
2.10.4.3	Minimum creepage distance		N/A
2.10.5	Solid insulation		N/A

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Clause	Requirement	Result - Remark	Verd.
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation	No such component	N/A
2.10.5.4	Semiconductor devices	No such component	N/A
2.10.5.5	Cemented joints	No such construction	N/A
2.10.5.6	Thin sheet material-General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material	Not such material	N/A
2.10.5.9	Thin sheet material- standard test procedure	Not such material	N/A
	Electric strength test		—
2.10.5.10	Thin sheet material- alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage.....:		N/A
	a)Basic insulation not under stress		N/A
	b)Basic,supplementary,reinforced insulation		N/A
	c)Compliance with Annex U.....:		N/A
	Two wires in contact inside wound component;angle between 45° C and90° C		N/A
2.10.5.13	Wire with solvent-based enamel in wound components	No such construction	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	No such construction	N/A
	Working voltage		N/A
	-Basic insulation not under stress.....:		N/A
	Supplementary,reinforced insulation		N/A
2.10.6	Construction of printed insulation		P
2.10.6.1	Uncoated printed boards		P
2.10.6.2	Coated printed boards	No coated printed boards.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	No multi-layer PCBs provided	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No multi-layer PCBs provided	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs).....:		N/A
2.10.7	Component external terminations	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.8	Tests on coated printed boards and coated components	No such boards and components	N/A

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2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
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	No hermetically sealed component	N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	Sufficient cross sectional area of internal wiring.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges and heat sinks that could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	Internal wires with basic insulation are routed so that they are not close to any live bare components. Wires are adequately fixed to prevent excessive strain or damage of the conductors' insulation.	P
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	N/A
3.1.8	Self-tapping and spaced thread screws	Not used.	N/A
3.1.9	Termination of conductors	All conductors are reliably secured.	P
	10 N pull test	Force of 10N applied to the termination points of the conductors.	P
3.1.10	Sleeving on wiring	No sleeving used to provide supplementary insulation.	N/A

3.2	Connection to a.c. mains supply		N/A
3.2.1	Means of connection		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply	AC source	N/A
3.2.2	Multiple supply connections	Only one source provided	N/A

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3.2.3	Permanently connected equipment	Not a permanently connected equipment	N/A
	Number of conductors, diameter (mm) of cable and conduits		—
3.2.4	Appliance inlets	No appliance inlet is used.	N/A
3.2.5	Power supply cords	Refer below	--
3.2.5.1	AC power supply cords	Direct plug-in equipment.	N/A
	Type	(See appended tabel 1.5.1)	--
	Rated current (A), cross-sectional area (mm ²), AWG	Refer to cl. 1.5.1	--
3.2.5.2	DC power supply cords	The equipment is not for connecting to d.c. mains.	N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		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		N/A

3.3	Wiring terminals for connection of external conductors		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 ²).....		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment	Not permanently connected equipment	N/A
3.4.4	Parts which remain energized	there are not remaining parts at hazardous voltage.	N/A

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Clause	Requirement	Result - Remark	Verd.

3.4.5	Switches in flexible cords	No switch	N/A
3.4.6	Number of poles-single-phase and d.c. equipment		N/A
3.4.7	Number of poles-three-phase equipment	Single phase equipment	N/A
3.4.8	Switches as disconnect devices	See sub-clause 3.4.2	N/A
3.4.9	Plugs as disconnect devices	See sub-clause 3.4.2	N/A
3.4.10	Interconnected equipment	Interconnection to other device by secondary output cable only.	N/A
3.4.11	Multiple power sources	Only one supply connection provided.	N/A

3.5	Interconnection of equipment		N/A
3.5.1	General requirements	This power supply is not considered for connection to TNV	N/A
3.5.2	Types of interconnection circuits		N/A
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	N/A
3.5.4	Data ports for additional equipment	No such ports	N/A

4	PHYSICAL REQUIREMENTS		N/A
4.1	Stability		N/A
	Angle of 10°		N/A
	Test: force (N)		N/A

4.2	Mechanical strength		N/A
4.2.1	General	See below. After tests, unit comply with 2.1.1, 2.6.1, 2.10 and 4.4.1	N/A
4.2.2	Steady force test, 10 N	Applied to relevant parts, no hazard.	N/A
4.2.3	Steady force test, 30 N	No internal enclosure	N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test	Impact test not applicable.	N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height(mm).....		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	No CRT provided	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No high pressure lamps provided	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) ...		N/A

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Clause	Requirement	Result - Remark	Verd.
4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and / or smoothed.	P
4.3.2	Handles and manual controls; force (N)	No such part	N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Torque..... :	Refer to below	—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements provided	N/A
4.3.8	Batteries		P
	-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		P
4.3.9	Oil and grease	Insulation not in contact with oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N/A
4.3.11	Containers for liquids or gases	No container for liquid or gas.	N/A
4.3.12	Flammable liquids	No flammable liquids present.	N/A
	Quantity of liquid (l)		N/A
	Flash point (° C)		N/A
4.3.13	Radiation		P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation	No 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	No ultraviolet (UV) radiation.	N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Laser (including LEDs)		P
	Laser class		—
4.3.13.6	Other types		N/A

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Clause	Requirement	Result - Remark	Verd.

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No hazardous moving part	N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		P
4.5.1	General	See below	P
4.5.2	Temperature tests	(see appended table 4.5.2)	P
	Normal load condition per Annex L..... :	(see appended table 1.6.2)	—
4.5.3	Temperature limits for materials	(see appended table 4.5.2)	P
4.5.4	Touch Temperature limits	(see appended table 4.5.2)	P
4.5.5	Resistance to abnormal heat..... :	(see appended table 4.5.5)	N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings	See below	N/A
	Dimensions (mm) :	No openings	—
4.6.2	Bottoms of fire enclosures	See below	N/A
	Construction of the bottom, dimensions (mm).... :	No openings	N/A
4.6.3	Doors or covers in fire enclosures	No doors or covers provided	N/A
4.6.4	Openings in transportable equipment		P
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)..... :		—
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 such adhesives	N/A
	Conditioning temperature (° C), time (weeks) :		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		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		N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		P
4.7.3	Materials		P
4.7.3.1	General		N/A
4.7.3.2	Materials for fire enclosures		N/A

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Clause	Requirement	Result - Remark	Verd.

4.7.3.3	Materials for components and other parts outside fire enclosures	No part outside the fire enclosure.	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies	No air filters provided.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components provided.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N/A
5.1.1	General		N/A
5.1.2	Configuration equipment under test (EUT)	EUT has only one mains connection	N/A
5.1.2.1	Single connection to an a.c.mains supply	No interconnection of equipment.	N/A
5.1.2.2	Redundant multiple connection to an a.c.mains supply	No multiple power sources.	N/A
5.1.2.3	Simultaneous multiple connection to an a.c.mains supply	No multiple power sources.	N/A
5.1.3	Test circuit	Tested for connection to IT power distribution system (also relevant for TN or TT power distribution system).	N/A
5.1.4	Application of measuring instrument	Measuring instrument D1 is used.	—
5.1.5	Test procedure		—
5.1.6	Test measurements		—
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) :		—
5.1.7	Equipment with touch current exceeding 3.5 mA	The touch current does not exceed 3.5mA.	N/A
5.1.7.1	General.....		N/A
5.1.7.2	Simultaneous multiple connection to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—

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Clause	Requirement	Result - Remark	Verd.
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a)EUT with earthed telecommunication ports.....		N/A
	b) EUT whose telecommunication ports have no reference to protective earth.....		N/A
5.2	Electric strength		N/A
5.2.1	General		N/A
5.2.2	Test procedure		N/A
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A
5.3.3	Transformers	Adequate protection against overload provided. (see appended Annex C)	N/A
5.3.4	Functional insulation	Short circuit tests. (see appended table 5.3)	P
5.3.5	Electromechanical components	Not provided.	N/A
5.3.6	Audio amplifiers in ITE.....	No such component	N/A
5.3.7	Simulation of faults	Results see appended table 5.3	P
5.3.8	Unattended equipment	None of the listed components was provided	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted.	P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.2	After the tests	No reduction of clearance and creepage distances. Electric strength test is made on basic, supplementary and reinforced insulation.	N/A
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2.1	Requirements		N/A
	Test voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions.....		N/A

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Clause	Requirement	Result - Remark	Verd.

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method.....		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	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

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples		—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C).....		N/A
A.1.3	Mounting of samples.....		N/A
A.1.4	Test flame (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

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Clause	Requirement	Result - Remark	Verd.

A.2.1	Samples, material.....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples		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 60695-2-2, cl. 4 and 8		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motor	N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test;test voltage(V).....:		N/A

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Clause	Requirement	Result - Remark	Verd.

B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		
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		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Method of protection.....		—
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings.....		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
D.1	Measuring instrument	Considered.	N/A
D.2	Alternative measuring instrument	Measuring instrument D1 is used.	N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		N/A
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G	Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed b.c.mains supplies.....		N/A
G.2.3	Unearthed b.c.mains supplies.....		N/A
G.2.4	Battery operation.....		N/A

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Clause	Requirement	Result - Remark	Verd.
G.3	Determination of telecommuniication network transient voltage (V).....:		N/A
G.4	Determination of required withstand voltage (V).:		N/A
G.4.1	Mains transients and internal repetitive peaks:		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient levels (V):		N/A
	a) Transients from a mains supply		N/A
	For an a.c.mains supply		N/A
	For a d.c.mains supply		N/A
	b)Transients from a telecommunication networks		N/A
G.6	Determination of minimum clearances.....:		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal used:		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V):		N/A
K.3	Thermostat endurance test; operating voltage (V):		N/A
K.4	Temperature limiter endurance; operating voltage (V):		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A

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Clause	Requirement	Result - Remark	Verd.
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
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	Annex Q, Voltage dependent resistors(VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic catagoies.....		N/A
	b) Maximum continuous voltage.....		N/A
	c) Pulse current.....		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A

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Clause	Requirement	Result - Remark	Verd.
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A
W	Annex W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits	Not connected to TNV circuit	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
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current	Considered.	N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus	No ultraviolet light.	N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES(see 2.10.3.2and Clause G.2)		—
AA	ANNEX AA, MANDREL TEST(see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General		N/A
CC.2	Test program 1.....		N/A
CC.3	Test program 2.....		N/A
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		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
EE	ANNEX EE, Household and home/office document/media shredders		N/A

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Clause	Requirement	Result - Remark	Verd.

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

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Clause	Requirement	Result - Remark	Verd.

TABLE 1.5.1		List of critical components and materials		
Component	manufacturers / trademark	Type / model	Value / rating	Approval/ Reference 1)
Battery	Various	AAA	3.0Vdc	Test with appliance
Plastic enclosure	Formosa Chemicals & Fibre Corp Plastics Div	AG15A1	HB, 60°C ,min. thickness: 1.0mm	UL E162823
PCB	Surpass Printed Circuit Board Co Ltd	L-4	V-0, 130°C	UL E320803
Alternative	Various	Various	V-0, Min. 105°C	UL
Internal wire	Various	Various	VW-1, min. 28AWG, 30V, 80°C	UL
Supplementary information:--				

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Clause	Requirement	Result - Remark	Verd.

1.6.2	TABLE: electrical data (in normal conditions)					P
fuse #	I rated (A)	U (V)	P (mW)	I (mA)	I fuse (mA)	condition/status
Mouse						
--	0.05	3.0	0.05	0.02	--	Maximum rated load
Receiver						
--	--	5.0	0.07	0.01	--	Maximum rated load

2.1.1.5	TABLE: max. V, A, VA test				N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Note: The above measurements are the maximum values (max. V and max. A not obtained at the same time).					

2.1.1.7	TABLE: discharge test				N/A
Condition	τ calculated (s)	τ measured (s)	t u→0V (s)	Comments	
Model:					
System on/off				V _{peak} = V, 37%*V _{peak} = V	
Note(s):					
1.Overall capacity: CX1= uF					
2.Discharge resistor: R1=R11= MΩ					

2.2.2	TABLE: Hazardous voltage measurement				N/A
Transformer	Location	max. Voltage		Voltage Limitation Component	
		V peak	V d.c.		
Note: Test voltage:					

2.2.3	TABLE: SEL voltage measurement			N/A
Location	Voltage measured (V)	Comments		
For Model:				
Output terminal		After Diode short		
Note: Test voltage:				

2.4.2	TABLE: Limited current circuit measurement				N/A
Location	Voltage (V)	Frequency (kHz)	Current (mA)	Limit (mA)	

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Clause	Requirement	Result - Remark	Verd.

Note: Test voltage:

2.5	TABLE: limited power source measurement			P
		Limits	Measured	Verdict
Uoc = 3.0 V (measured under no load conditions)				
According to Table 2B (with the max. load conditions)				
current (in A)		≤8	3.2	P
power (in VA)		≤100	3.0	P
Note: --				

2.6.3.4	TABLE: ground continue test			N/A
Location		Resistant measured (Ω)	Comments	
From earthing terminal to casing				
Note: --				

2.10.2	Table: working voltage measurement			N/A
Location		RMS voltage (V)	Peak voltage (V)	Comments
Note: Supply voltage: 240Vac The highest measured working voltages in transformer is indicated with bold characters.				

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					N/A
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
Note :						
1. All internal wires are soldering and glue						
2. The transformer T1 was wrapped by two layers of insulation tape around the core.						

2.10.5	TABLE: distance through insulation measurements				N/A
distance through insulation di at/of:	Up (V)	U r.m.s. (V)	test voltage (V)	required dti (mm)	dti (mm)
Note :					
1. Further details are provided in table 1.5.1					
2. Test voltages are a.c.					

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4.3.8	TABLE: Batteries									N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?										
	Non-rechargeable batteries				Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Test results:										Verdict
- chemical leaks										
- explosion of the battery										
- emission of flame or expulsion of molten metal										
- electric strength tests of equipment after completion of tests										
Supplementary information:										

4.5.1	TABLE: maximum temperatures			P
	test voltage (V).....:	--	--	—
	t _{amb1} (° C):	40.0	--	—
	t _{amb2} (° C):	40.0	--	—
Mouse				
Internal wire		46.7	--	80
PCB under U3		45.6	--	105
PCB under U5		44.9	--	105
E-capacitor C14		45.3	--	105
Enclosure inside		46.8	--	60
Enclosure outside		45.3	--	60
Receiver				
PCB		44.6	--	105
Enclosure inside		44.6	--	60
Enclosure outside		43.5	--	60
Note: Having a specified maximum ambient temperature of 40°C, the maximum temperatures are calculated based upon a (minimum) test temperature of 25°C. Temp. Limits are adjusted according to Cl. 1.4.12.3. Temperature limits include less 10K for thermocouple measurement method. Tested condition for temperature test: Normal operation with loaded at maximum rated output power for each specific model.				

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

5.1.6	TABLE: touch current measurement				N/A
Condition	L→terminal A (mA)	N →terminal A (mA)	Limit (mA)	Comments	
Note: Input voltage: 264V, 60Hz					

5.3	TABLE: fault condition tests					P
	ambient temperature (° C)				25	—
	model/type of power supply				See below	—
	manufacturer of power supply				--	—
	rated markings of power supply				--	—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (mA)	result
C14	s-c	3.0	10min	--	0.54	Unit shutdown immediately and recoverable, no hazard
Battery	*	3.0	10min	--	0.03	Unit shutdown immediately and recoverable, no hazard
Note: s-c = short circuit, o-l = overload, o-c = open circuit						
*=battery reverse connection						

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Clause	Requirement + Test	Result - Remark	Verdict
EN 60950-1:2006+ A11:2009 + A12:2011– CENELEC COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.8 Note 2 1.5.9.4 Note 2.2.3 Note 2.2.4 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.7.1 Note 2.10.3.2 Note 2 3.2.1.1 Note 3.2.4 Note 3. 4.3.6 Note 1 & 2 4.7 Note 4 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 6 Note 2 & 5 6.1.2.1 Note 2 6.2.2 Note 6. 2.2.1 Note 2 7.1 Note 3 7.2 Note G.2.1 Note 2 Annex H Note 2	Deleted.	N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure. The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	Not such equipment.	N/A
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC	Added.	P
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss.	Added.	N/A

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Clause	Requirement	Result - Remark	Verd.

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>	Replaced.	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.	Deleted.	N/A												
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td> Up to and including 6</td><td> </td></tr><tr><td>0,75 ^{a)} </td><td></td></tr><tr><td> Over 6 up to and including 10</td><td> </td></tr><tr><td>(0,75) ^{b)} 1,0 </td><td></td></tr><tr><td> Over 10 up to and including 16</td><td></td></tr><tr><td> (1,0) ^{c)} 1,5 </td><td></td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 ^{a)}		Over 6 up to and including 10		(0,75) ^{b)} 1,0		Over 10 up to and including 16		(1,0) ^{c)} 1,5		Replaced.	N/A
Up to and including 6															
0,75 ^{a)}															
Over 6 up to and including 10															
(0,75) ^{b)} 1,0															
Over 10 up to and including 16															
(1,0) ^{c)} 1,5															

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A.	Deleted.	N/A
4.3.13.6	Add the following NOTE: NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	Added.	N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μ Sv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	Replaced.	N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	SPECIAL NATIONAL CONDITIONS	P
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.5.7.1	In Finland , Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	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

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Clause	Requirement	Result - Remark	Verd.

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: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
1.7.5	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	No socket-outlet 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.	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.	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.	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	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.	N/A

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</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 SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A</p>		N/A
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In the United Kingdom , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
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 ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.		N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A

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Clause	Requirement	Result - Remark	Verd.



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"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> • is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and • has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and • is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 	Not exceed 3.5mA.	N/A

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 	No TNV.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In Finland, Norway and Sweden , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV.	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.	Not connected to cable distribution system.	N/A
7.3	In Norway and Sweden , there are many buildings where the shielding of the coaxial cable is normally not connected to the earth in the building installation.	Not connected to cable distribution system.	N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.	Not connected to cable distribution system.	N/A

ZC	A-DEVIATIONS (informative)		P
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.	No switch provided.	N/A
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.	No switch provided.	N/A
1.7.2.1	Denmark (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."	.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>	Switching power supply, and German instruction sheet provided.	P
1.7.5	<p>Denmark (Heavy Current Regulations)</p> <p>With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.</p>	No socket-outlet provided.	N/A
1.7.13	<p>Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)</p> <p>Annex 2.15 of SR 814.81 applies for batteries.</p>	No battery provided.	N/A
5.1.7.1	<p>Denmark (Heavy Current Regulations, Chapter 707, clause 707.4)</p> <p>TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.</p>		N/A

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
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Annex ZA (Modified by A11:2009)				P																																																							
<p align="center">Normative references to international publications with their corresponding European publications</p> <p>The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.</p> <table> <tr> <th><u>Publication</u></th><th><u>Year</u></th><th><u>Title</u></th><th><u>EN/HD</u></th><th><u>Year</u></th></tr> <tr> <td>IEC 60065 (mod) A1</td><td>2001 2005</td><td>Audio, video and similar electronic apparatus - Safety requirements</td><td>EN 60065 A1 + A11</td><td>2002 2006 2008</td></tr> <tr> <td>A2</td><td>- ¹⁾</td><td></td><td>A2</td><td>- ¹⁾</td></tr> <tr> <td>IEC 60068-2-78</td><td>- ²⁾</td><td>Environmental testing Part 2-78: Tests - Test Cab: Damp heat, steady state</td><td>EN 60068-2-78</td><td>2001 ³⁾</td></tr> <tr> <td>IEC 60073</td><td>- ²⁾</td><td>Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators</td><td>EN 60073</td><td>2002 ³⁾</td></tr> <tr> <td>IEC 60083</td><td>- ²⁾</td><td>Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC</td><td>-</td><td>-</td></tr> <tr> <td>IEC 60085</td><td>2004</td><td>Electrical insulation - Thermal classification</td><td>EN 60085</td><td>2004</td></tr> <tr> <td>IEC 60112</td><td>- ²⁾</td><td>Method for determining the proof and comparative tracking indices of insulating materials</td><td>EN 60112</td><td>2003 ³⁾</td></tr> <tr> <td>IEC 60216-4-1</td><td>- ²⁾</td><td>Guide for the determination of thermal endurance properties of electrical insulating materials Part 4: Ageing ovens Section 1: Single-chamber ovens</td><td>EN 60216-4-1</td><td>2006 ³⁾</td></tr> <tr> <td>IEC 60227 (mod)</td><td>Series</td><td>Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V</td><td>HD 21 ⁴⁾</td><td>Series</td></tr> <tr> <td>IEC 60245 (mod)</td><td>Series</td><td>Rubber insulated cables of rated voltages up to and including 450/750V</td><td>HD 22 ⁵⁾</td><td>Series</td></tr> </table>					<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>	IEC 60065 (mod) A1	2001 2005	Audio, video and similar electronic apparatus - Safety requirements	EN 60065 A1 + A11	2002 2006 2008	A2	- ¹⁾		A2	- ¹⁾	IEC 60068-2-78	- ²⁾	Environmental testing Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001 ³⁾	IEC 60073	- ²⁾	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators	EN 60073	2002 ³⁾	IEC 60083	- ²⁾	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	-	-	IEC 60085	2004	Electrical insulation - Thermal classification	EN 60085	2004	IEC 60112	- ²⁾	Method for determining the proof and comparative tracking indices of insulating materials	EN 60112	2003 ³⁾	IEC 60216-4-1	- ²⁾	Guide for the determination of thermal endurance properties of electrical insulating materials Part 4: Ageing ovens Section 1: Single-chamber ovens	EN 60216-4-1	2006 ³⁾	IEC 60227 (mod)	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V	HD 21 ⁴⁾	Series	IEC 60245 (mod)	Series	Rubber insulated cables of rated voltages up to and including 450/750V	HD 22 ⁵⁾	Series
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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test		Result - Remark	Verdict
<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60309 (mod)	Series	Plugs, socket-outlets and couplers for industrial purposes	EN 60309	Series
IEC 60317	Series	Specifications for particular types of winding wires	EN 60317	Series
IEC 60317-43	- ²⁾	Part 43: Aromatic polyimide tape wrapped round copper wire, class 240	EN 60317-43	1997 ³⁾
IEC 60320 (mod)	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60364-1 (mod)	2001	Electrical installations of buildings Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 384.1 S2	2001
IEC 60384-14 A1	1993 1995	Fixed capacitors for use in electronic equipment Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 132400 ⁶⁾	1994
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60664-1 + A1 + A2	1992 2000 2002	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	2003
IEC 60695-2-11	- ²⁾	Fire hazard testing Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001 ³⁾
IEC 60695-2-20	- ²⁾	Part 2-20: Glowing/hot-wire based test methods - Hot-wire coil ignitability - Apparatus, test method and guidance	-	-
IEC 60695-10-2	- ²⁾	Part 10-2: Guidance and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires - Method for testing products made from non-metallic materials for resistance to heat using the ball pressure test	EN 60695-10-2	2003 ³⁾
IEC 60695-11-3	- ²⁾	Part 11-3: Test flames - 500 W flames - Apparatus and confirmational test methods	-	-
IEC 60695-11-4	- ²⁾	Part 11-4: Test flames - 50 W flames - Apparatus and confirmational test methods	-	-
IEC 60695-11-10 A1	- ²⁾	Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10 A1	1999 ³⁾ 2003 ³⁾

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test		Result - Remark	Verdict
<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-11-20 A1	- ²⁾	Part 11-20: Test flames - 500 W flame test methods	EN 60695-11-20 A1	1999 ³⁾ 2003 ³⁾
IEC 60730-1 (mod) A1	1999 2003	Automatic electrical controls for household and similar use Part 1: General requirements	EN 60730-1 A1 + A12 + A13 + A14 + A16	2000 2004 2003 2004 2005 2007
A2	2007		A2	2008
IEC 60747-5-5	2007	Semiconductor devices - Discrete devices Part 5-5: Optoelectronic devices - Photocouplers	EN 60747-5-5	- ¹⁾
IEC 60825-1	- ²⁾	Safety of laser products Part 1: Equipment classification, requirements and user's guide	EN 60825-1	2007 ³⁾
IEC 60825-2	- ²⁾	Part 2: Safety of optical fibre communication systems	EN 60825-2 A1	2004 ³⁾ 2007 ³⁾
IEC/TR 60825-9	- ²⁾	Part 9: Compilation of maximum permissible exposure to incoherent optical radiation	-	-
IEC 60825-12	- ²⁾	Part 12: Safety of free space optical communication systems used for transmission of information	EN 60825-12	2004 ³⁾
IEC 60851-3 A1	1996 1997	Winding wires - Test methods Part 3: Mechanical properties	EN 60851-3 A1	1996 1997
IEC 60851-5 A1 A2	1996 1997 2004	Part 5: Electrical properties	EN 60851-5 A1 A2	1996 1997 2004
IEC 60851-6	1996	Part 6: Thermal properties	EN 60851-6	1996
IEC 60885-1	1987	Electrical test methods for electric cables Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-
IEC 60906-1	- ²⁾	IEC System of plugs and socket-outlet for household and similar purposes Part 1: Plugs and socket-outlets 16 A 250 V a.c.	-	-
IEC 60906-2	- ²⁾	Part 2: Plugs and socket-outlets 15 A 125 V a.c.	-	-
IEC 60947-1	2004	Low voltage switchgear and control gear Part 1: General rules	EN 60947-1	2004
IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999

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Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test		Result - Remark	Verdict
<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61051-2	1991	Varistors for use in electronic equipment Part 2: Sectional specification for surge suppression varistors	-	-
IEC 61058-1 (mod)	2000	Switches for appliances Part 1: General requirements	EN 61058-1 ⁷⁾	2002
ISO 178	- ²⁾	Plastics - Determination of flexural properties	EN ISO 178	2003 ³⁾
ISO 179	Series	Plastics - Determination of Charpy impact strength	EN ISO 179	Series
ISO 180	- ²⁾	Plastics - Determination of Izod impact strength	EN ISO 180	2000 ³⁾
ISO 261	- ²⁾	ISO general-purpose metric screw threads - General plan	-	-
ISO 262	- ²⁾	ISO general-purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-
ISO 527	Series	Plastics - Determination of tensile properties	EN ISO 527	Series
ISO 3864	Series	Safety colours and safety signs	-	-
ISO 4892-1	- ²⁾	Plastics - Methods of exposure to laboratory light sources Part 1: General guidance	EN ISO 4892-1	2000 ³⁾
ISO 4892-2	- ²⁾	Part 2: Xenon-arc sources	EN ISO 4892-2	2006 ³⁾
ISO 4892-4	- ²⁾	Part 4: Open-flame carbon-arc lamps	-	-
ISO 7000	Data-base	Graphical symbols for use on equipment - Index and synopsis	-	-
ISO 8256	- ²⁾	Plastics - Determination of tensile-impact strength	EN ISO 8256	2004 ³⁾
ISO 9772	- ²⁾	Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame	-	-
ISO 9773	- ²⁾	Plastics - Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source	EN ISO 9773	1998 ³⁾
ITU-T Recommendation K.44	- ²⁾	Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents - Basic Recommendation	-	-

EN 60950-1			
Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
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Annex ZB (Modified by A11:2009) Special national conditions			P
<p>Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.</p> <p>Note if it affects harmonization, it forms part of the European Standard.</p> <p>For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.</p> <p>Change the existing special national conditions as follows:</p>			
1.2.3.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1	Replace the exiting SNC by the following: In Finland, Norway and Sweden , resistors bridging Basic insulation in Class I pluggable equipment type A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.7.2.1	<p>Add as new SNC:</p> <p>In Norway and Sweden, the shielding 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 shielding 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> <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 1,5kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p>		N/A

EN 60950-1			
Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
	<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 nettet, kan forårsake brannfare.</p> <p>For å unngå dette skal det ved tilkpoling av utstyret til kabel-TV nettet installers en galvanisk isolator finnes mellom og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>“Utstyting som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustningen och samtidigt är kapplad till kabel-TV nät kan i vissa fall medföra risk för brand.</p> <p>For ått undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnes mellan utrustningen och kabel-TV nätet.”</p>		
1.7.5	<p>Add the following paragraph to the existing SNC for Denmark:</p> <p>For Class II equipment the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	Added	N/A
7.3	<p>Delete the existing SNC for Norway and Sweden (Based on Note 1 of IEC 60950-1: 2005 + Corr.1).</p> <p>Add as new SNC (Based on future Note 3 of IEC 60950-1: 200X):</p> <p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N/A

EN 60950-1			
Clause	Requirement	Result - Remark	Verd.

Clause	Requirement + Test	Result - Remark	Verdict
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Annex ZC (Modified by A11:2009)			P
<p>A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC national member.</p> <p>This European Standard falls under Directives RTTED (1999/5/EC) and LVD (2006/95/EC).</p> <p>NOTE (from CEN/CENELEC IR Part 2:2006, 2.17) Where standards fall under EC Directives, it is the view of the Commission of the European Communities (OJ No. C 59, 1982-03-09) that the effect of the decision of the Court of Justice in case 815/79 Cremonini/Vrankovich (European Court Reports 1980, p. 3583) is that compliance with A-deviations is no longer mandatory and that the free movement of products complying with such a standard should not be restricted within the EC except under the safeguard procedure provided for in the relevant Directive.</p> <p>A-deviations in an EFTA-country are valid instead of the relevant provisions of the European Standard in that country until they have been removed.</p>			
1.5.1	Denmark Delete the A-deviation	Deleted.	N/A
1.7.2.1	Denmark Delete the A-deviation	Deleted.	N/A
1.7.5	Denmark Delete the A-deviation	Deleted.	N/A
5.1.7.1	Denmark Delete the A-deviation	Deleted.	N/A

EN 60950-1			
Clause	Requirement	Result - Remark	Verd.

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Differences according to: EN 60950-1:2006+A1:2010			

	CENELEC COMMON MODIFICATIONS (EN)	P
	In IEC 60950-1:2005/A1 delete all the “country” notes according to the following list: - 1.5.7.1: Note - 6.1.2.1: Note 2 - 6.2.2.1: Note 2 - EE.3: Note For special national conditions, see Annex ZB.	N/A
1.1.1	Replace the text of NOTE 3 by the following NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.	N/A
1.2.3	Add the following definition: 1.2.3.Z1 PORTABLE SOUND SYSTEM small battery powered audio equipment: whose prime purpose is to listen to recorded or broadcasted sound; and that uses headphones or earphones that can be worn in or on or around the ears; and that allows the user to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment.	N/A
1.7.2.1	Delete NOTE Z1. Add the following paragraph at the end of the subclause: In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.	N/A
4.3.13.6	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to : 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation). Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	N/A
ZA	ANNEX ZA, NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)	P
1.5.7.1	In Finland, Norway and Sweden , no changes needed - Correction of SNC already part of A11.	N/A

EN 60950-1			
Clause	Requirement	Result - Remark	Verd.
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with 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"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N/A

Attachment – A

Photo Documentation

Appendix attached with total 5 pages

Photo 1



Photo 2



Photo 3



Photo 4

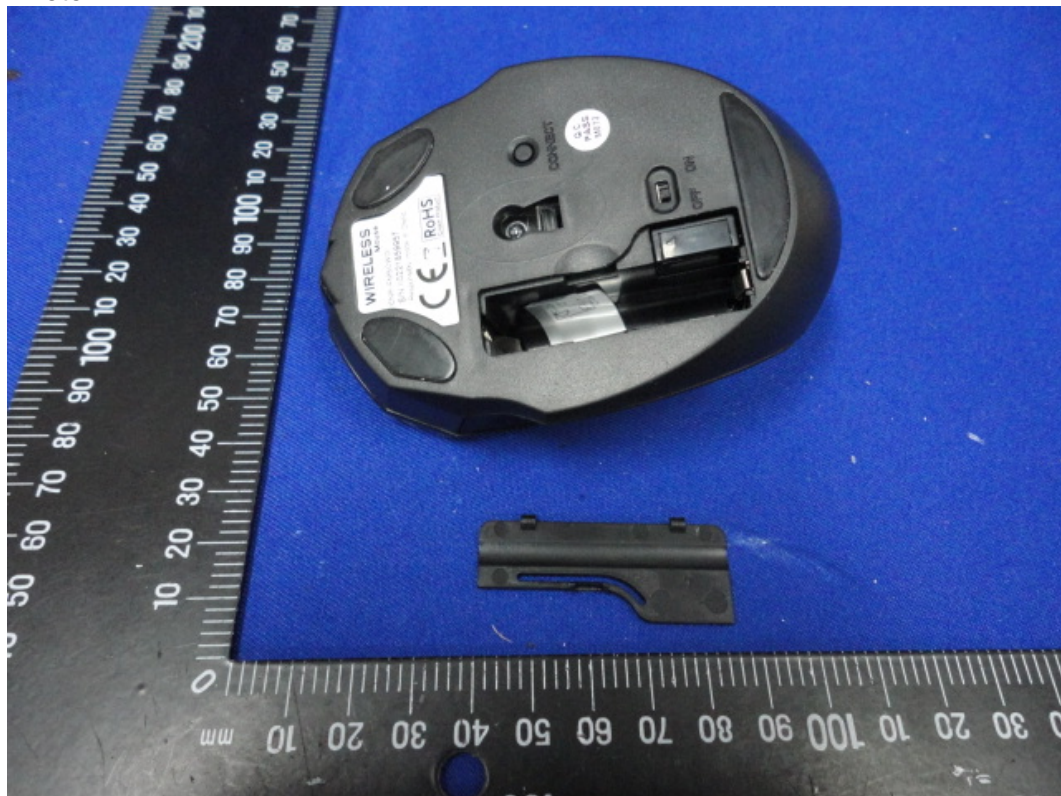


Photo 5



Photo 6

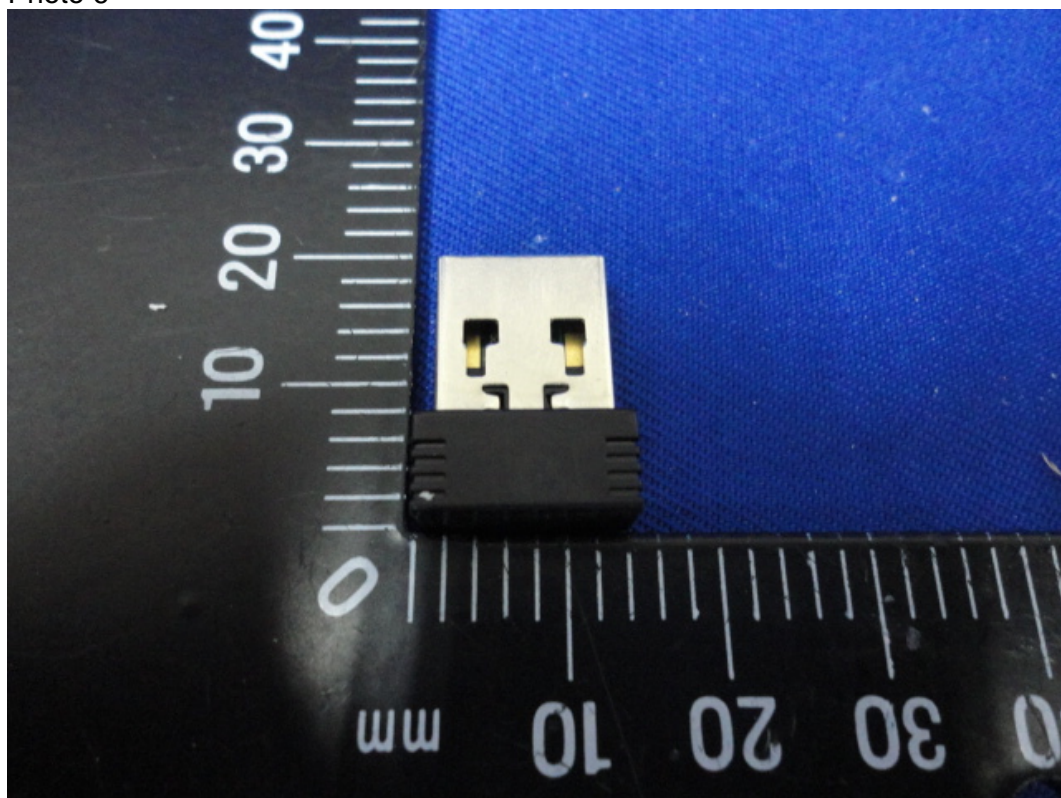


Photo 7



Photo 8



Photo 9

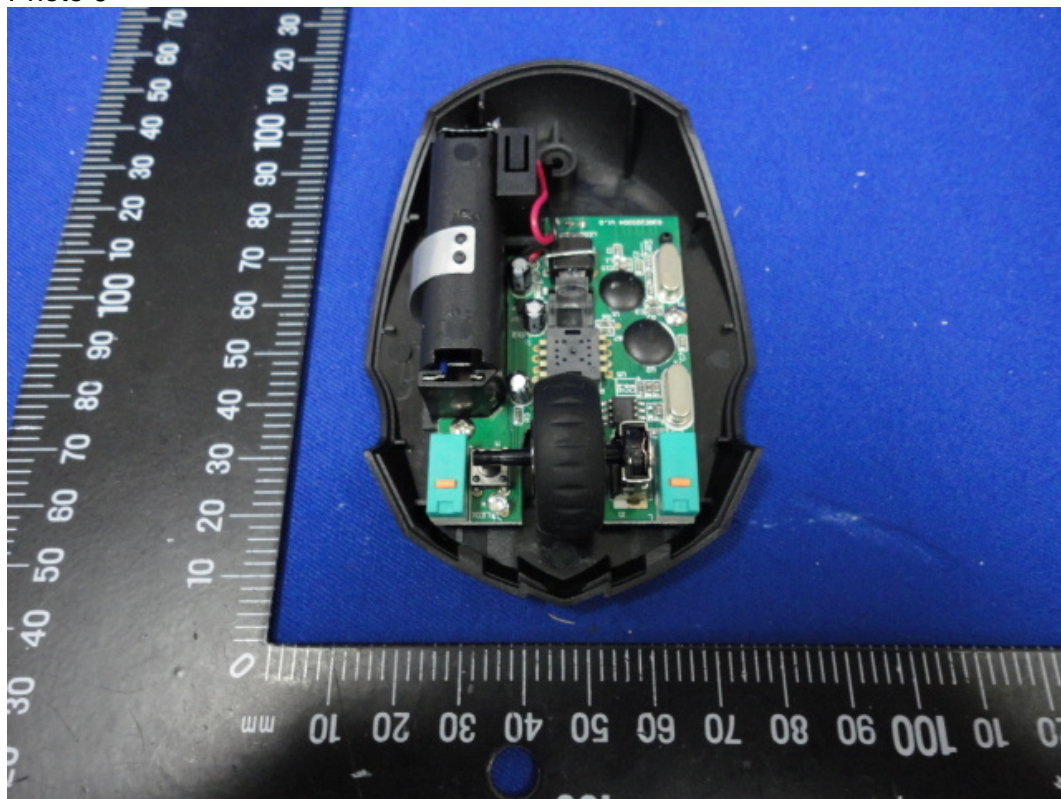
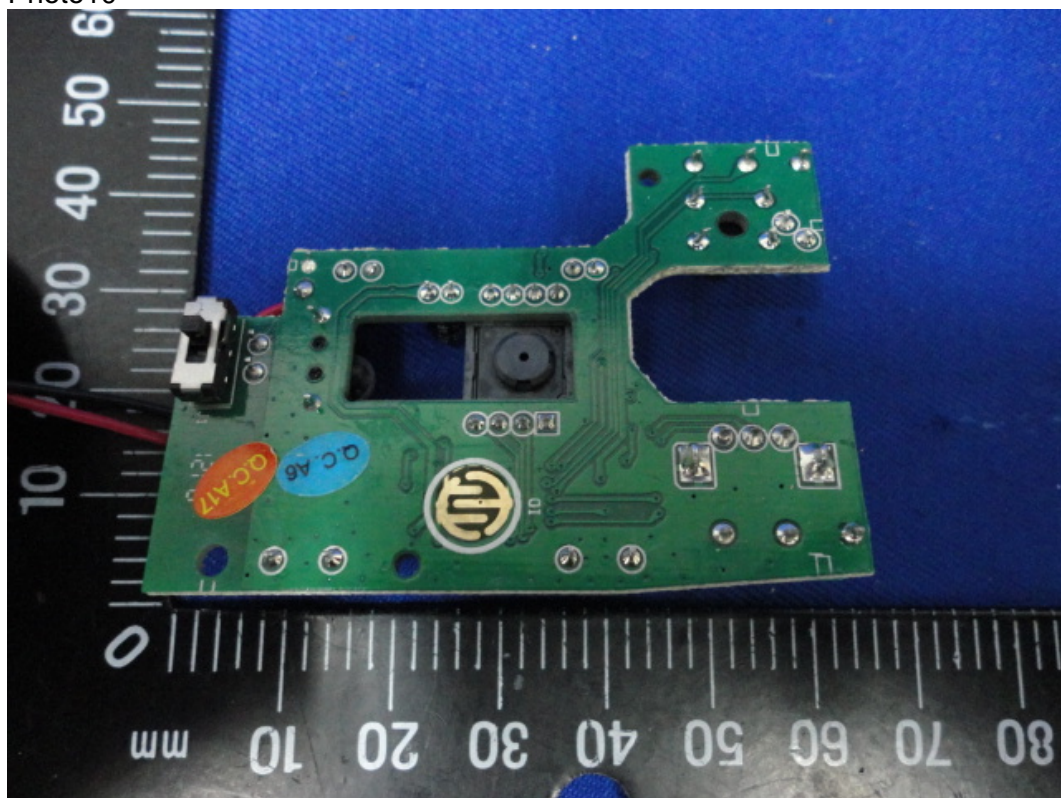


Photo10

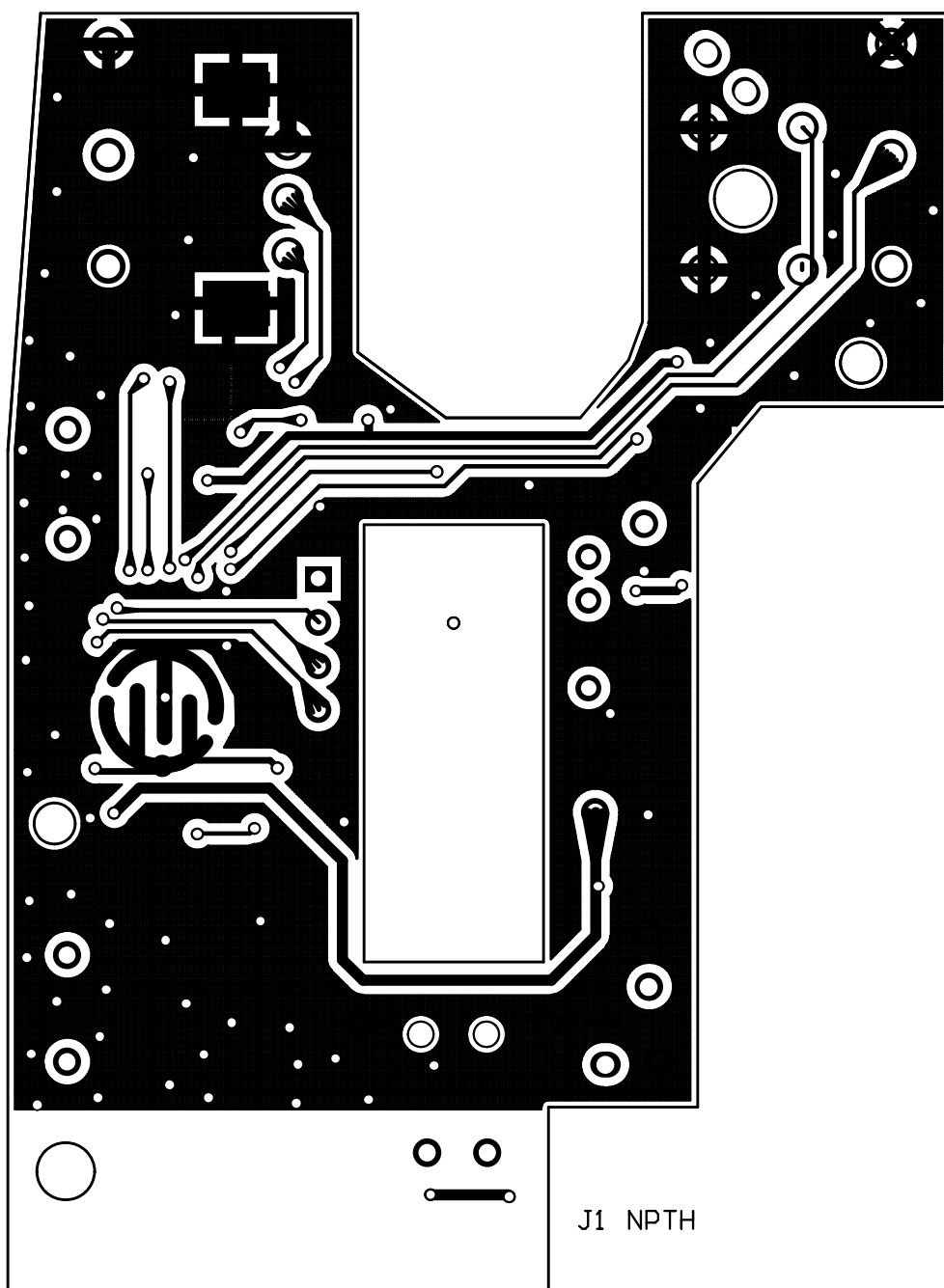


Attachment – B

Electric Circuit Diagram & Printed Wiring Board Layout

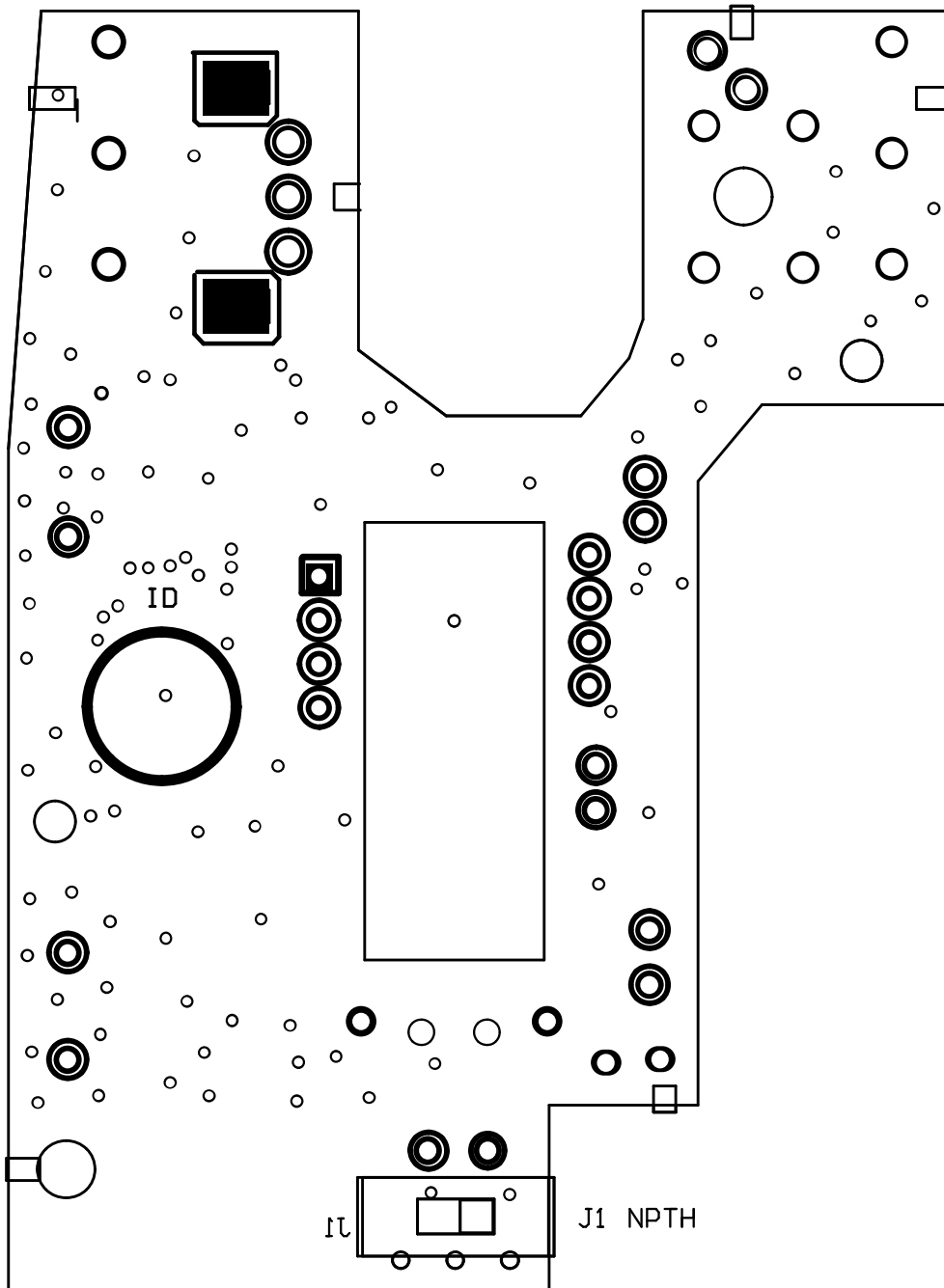
Appendix attached with total 5 pages

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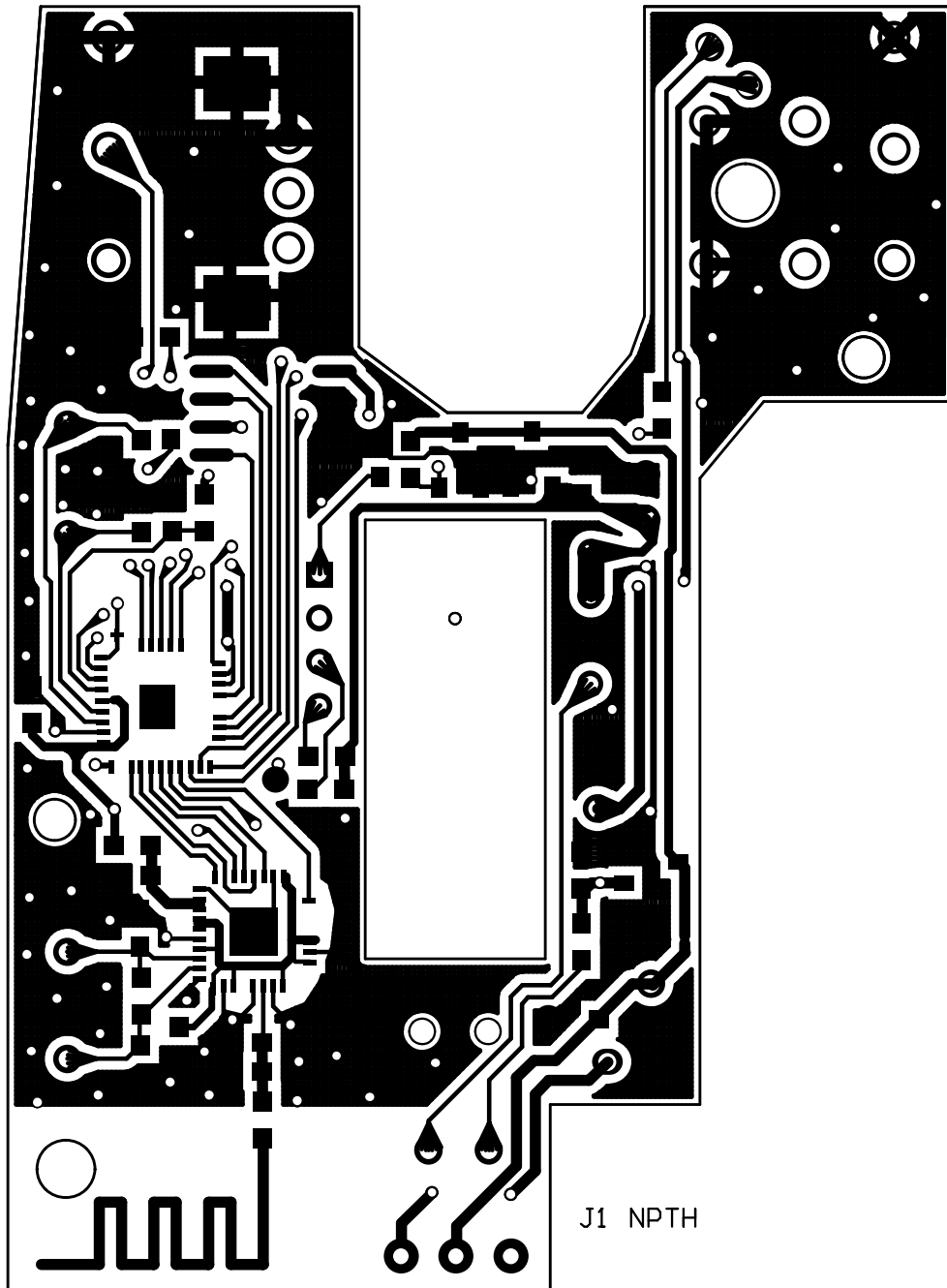
Bottom Layer

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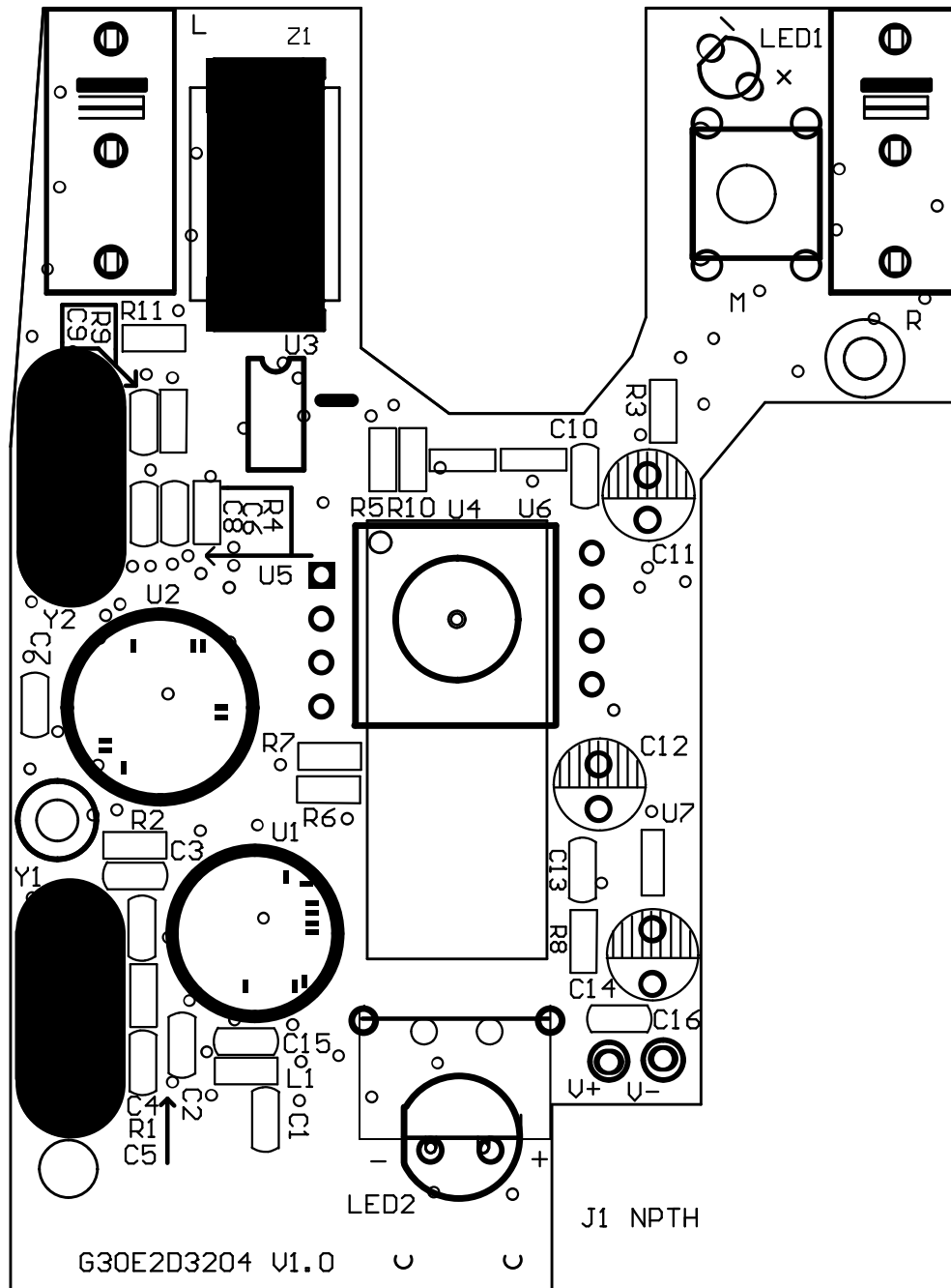
Bottom Overlay

G30E2D3204 V1.0



Top Layer

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Top Overlay