TEST REPORT

IEC 60950-1：2005(2nd Edition) and/or EN 60950-1：2006

Information Technology Equipment – Safety – Part 1:General requirements

Report No. ……	C161220Z02-LV
Report reference No. ……..…	C161020Z03-LV
Date of duration	Jan. 18, 2017 to Feb. 06, 2017
Testing laboratory ……	Compliance Certification Services (Shenzhen) Inc.
Location……	No.10-1 Mingkeda Logistics park, No.18 Huanguan South Road, Guan Lan Town, Baoan District, Shenzhen, Guangdong, China
Applicant……..	Image Recognition Integrated Systems S.A (I.R.I.S. S.A.)
Address: ……..	Rue du Bosquet 10, 1348 Louvain-La-Neuve, Belgium
Standards……	EN 60950-1:2006 + A11:2009 + A1:2010 +A12:2011+A2:2013 IEC 60950-1:2005(2nd Edition) + Am1:2009+Am2:2013
Procedure deviation……..	N/A
Non-standard test method……	N/A
Type of test equipment ……	IRISNotes™Air3
Trade mark……..	IRIS
Model/Type designation……	XN690, IRISN690
Manufacturer……..	Image Recognition Integrated Systems S.A (I.R.I.S. S.A.) Rue du Bosquet 10, 1348 Louvain-La-Neuve, Belgium
Rating……..	Input: 5.0V ⎓ 500mA

Declaration: CCS represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Institute of Metrology (NIM) of P.R.C.

CCS's reports apply only to the specific samples tested under conditions. It is manufacture's res-ponsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components.CCS shall have no liability for any declarations, inferences or generalizations drawn by the client or others from CCS issued reports.

CCS's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and CCS-self, extracts from the test report shall not be reproduced except in full with CCS's authorized written approval.

Tested by:（signature）	Reviewed by: （signature）
	
Jack Du	Bun Hu

Test item particulars:	
Equipment mobility ….....	Transportable equipment
Operating Condition..……	Continuous
Mains supply tolerance (%)…….	N/A
Tested for IT power systems……..	No
IT testing, phase-phase voltage (V)……..	N/A
Class of equipment……	Class III
Mass of equipment.(Kg)……..	0.03kg
Protection against ingress of water……	IPX0

Possible test case verdicts:	
-Test case does not apply to the test object.	N(.A.)
-Test object does meet the requirement.	P(ass)
-Test object does not meet the requirement.	F(ail)

General Remarks:

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

This report shall not be reproduced, except in full, without the written approval of the testing laboratory.

"(see Enclosure #) refers to additional information appended to the report.

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

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The report included following content:

1	Report		Page 1-48
2	Attachment – A.	EUT Photos	Page 49-54
3	Attachment – B.	Product ID Label	Page 55
4	Attachment – C.	Schematics and Layout	Page 56
5	Attachment – D.	Users Instruction	Page 57
6	Attachment – E.	Measuring Instrument List	Page 58-59

Report revise record:

No.	Issue Date	Report Number	Rev.	Revisions	Effect Page
00	2016-11-09	C161020Z03-LV	00	Original report	N/A
01	2017-02-06	C161220Z02-LV	00	1. Change applicant, 2. manufacturer, product name, trade mark, and label 3. Add model: IRISN690	All

Comments:

Sample Number: C161020Z03-S01

Brief description of the test sample:

The equipment under test is a class III Mobile Digital Pen. The unit will be charge through the micro USB port for computer.

Input of equipment: 5.0V ⎓ 500mA

All the tests are conducted on model XN690

The model IRISN690 is identical to the model XN690, except the models name.

The product was submitted and tested for use at the manufacturer's recommended ambient temperature (Tma) of 45°C.

Summary of compliance with National Differences

List of countries addressed: European difference and national difference.

IEC/EN 60950-1			
Clause	Requirement − Test	Result – Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	Comply with IEC60950 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC/EN component standards. (See appended table 1.5.1).	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC/EN and/or national standards are used correctly within their ratings. Components not covered by IEC/EN standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls.	N
1.5.4	Transformers	No transformer in the equipment.	N
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation	No primary circuit.	N
1.5.7	Resistors bridging insulation	No such resistor used.	N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power systems	The equipment is regarded as class III.	N
1.5.9	Surge suppressors	Considered for approved adaptor.	N
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	**Power interface**		P
1.6.1	AC power distribution systems	The equipment is regarded as class III.	N
1.6.2	Input current	See appended table 1.6.2	P

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment	N
1.6.4	Neutral conductor	The equipment is regarded as class III.	N

1.7	**Marking and instructions**		P
1.7.1	Power rating	The required marking is located on the outside surface of the equipment.	P
	Rated voltage(s) or voltage range(s) (V)……..:	See cover page	P
	Symbol for nature of supply, for d.c. only …….:	⎓	P
	Rated frequency or frequency range (Hz)…..:	DC supplied	N
	Rated current (A) :	See cover page	P
	Manufacturer's name or trademark or identification mark :	See cover page	P
	Type/model or type reference……:	See cover page	P
	Symbol for Class II equipment only :	Class III equipment	N
	Other symbols	Additional symbols or markings do not cause misunderstanding.	P
	Certification marks :	CE mark	P
1.7.2	Safety instructions and marking	See attachment D	P
1.7.2.1	General	See below	P
1.7.2.2	Disconnect devices	Class III equipment	N
1.7.2.3	Overcurrent protective device	Class III equipment	N
1.7.2.4	IT power distribution systems	Class III equipment	N
1.7.2.5	Operator access with a tool	All areas containing hazards are inaccessible to the operator	P
1.7.2.6	Ozone	The equipment not containing Ozone	N
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Supply voltage adjustment :	No such devices used	N
	Methods and means of adjustment; reference to installation instructions		N
1.7.5	Power outlets on the equipment :	No such devices used	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference):	Class III equipment	N
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
1.7.7.2	Terminal for a.c. mains supply conductors…..:	Not permanently connected equipment.	N
1.7.7.3	Terminal for d.c. mains supply conductors…..:	Not permanently connected equipment.	N
1.7.8	Controls and indicators	See below	P
1.7.8.1	Identification, location and marking	The function of controls affecting safety is obvious without knowledge of language etc	P
1.7.8.2	Colors:	For functional indication a LED display when equipment is operating	P
1.7.8.3	Symbols according to IEC 60417:	The functional switch is marked complies with IEC 60417-5009	P
1.7.8.4	Marking using figures :	No figures are used.	N
1.7.9	Isolation of multiple power sources……..:	Class III equipment.	N
1.7.10	Thermostats and other regulating devices		N
1.7.11	Durability	After test, the label is legible, no curling, no possible to remove marking plates easily.	P
1.7.12	Removable parts	No marking is placed on removable parts	P
1.7.13	Replaceable batteries		N
	Language(s)		—
1.7.14	Equipment for restricted access locations:	No such access location	N
2	**PROTECTION FROM HAZARDS**		P
2.1	**Protection from electric shock and energy hazards**		P
2.1.1	Protection in operator access areas	No hazard be operate access areas	P
2.1.1.1	Access to energized parts	Class III equipment	N
	Test by inspection……..:		—
	Test with test finger (Figure 2A)……:		—
	Test with test pin (Figure 2B)……..:		—
	Test with test probe (Figure 2C)……:		—
2.1.1.2	Battery compartments	No TNV circuits in the equipment.	N
2.1.1.3	Access to ELV wiring	Class III equipment	N
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation…….:		—
2.1.1.4	Access to hazardous voltage circuit wiring	Class III equipment	N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
2.1.1.5	Energy hazards	No energy hazard in operator access area. Checked by means of test finger.	P
2.1.1.6	Manual controls	No shafts of knobs etc. at ELV or hazardous voltage.	N
2.1.1.7	Discharge of capacitors in equipment	Class III equipment	N
	Time-constant (s); measured voltage (V)……:		—
2.1.1.8	Energy hazards – d.c. mains supply	The equipment is not connected to DC mains.	N
	a) Capacitor connected to the d.c. mains supply .		N
	b) Internal battery connected to the d.c. mains supply		N
2.1.1.9	Audio amplifiers:		N
2.1.2	Protection in service access areas:	Class III equipment, SELV circuits only	N
2.1.3	Protection in restricted access locations:	The equipment is not intended to be used in restricted locations	N
2.2	**SELV circuits**		P
2.2.1	General requirements	SELV limits are not exceeded under normal condition and after a single fault.	P
2.2.2	Voltages under normal conditions (V)……:	Within SELV limits.	P
2.2.3	Voltages under fault conditions (V)……:	Within SELV limits.	P
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits.	P
2.3	**TNV circuits**		N
2.3.1	Limits	See below	N
	Type of TNV circuits……:	No TNV circuits.	—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed……:		—
2.3.4	Connection of TNV circuits to other circuits		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
	Insulation employed……..:		—
2.3.5	Test for operating voltages generated externally		N
2.4	**Limited current circuits**		N
2.4.1	General requirements	Class III equipment	N
2.4.2	Limit values		—
	Frequency (Hz)……:		—
	Measured current (mA) :		—
	Measured voltage (V) :		—
	Measured capacitance (μF) :		—
2.4.3	Connection of limited current circuits to other circuits		N
2.5	**Limited power sources**		N
	Inherently limited output	Data ports are inherently limited, refer to appended table 2.5.	N
	Impedance limited output		N
	Overcurrent protective device limited output		N
	Regulating network limited output under normal operating and single fault condition		N
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition……..:		N
	Output voltage (V), output current (A), apparent power (VA)……:	Refer to appended table 2.5.	N
	Current rating of overcurrent protective device (A)	No such parts used.	N
2.6	**Provisions for earthing and bonding**		N
2.6.1	Protection earthing	Class III equipment	N
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of the protective earthing conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG……..:		—
2.6.3.3	Size of the protective bonding conductors		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
	Rated current (A), cross-sectional area (mm^2), AWG……..:		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)…….:		N
2.6.3.5	Color of insulation		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type and nominal thread diameter (mm)…….:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance	No such parts	N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network		N
2.7	**Overcurrent and earth fault protection in primary circuits**		N
2.7.1	Basic requirements	Class III equipment.	N
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices		N
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel		N
2.8	**Safety interlocks**		N
2.8.1	General principles	No safety interlock provided.	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
2.8.4	Fail-safe operation		N
2.8.5	moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gap (mm)……..:		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test :		N
2.8.8	Mechanical actuators		N
2.9	**Electrical insulation**		N
2.9.1	Properties of insulating materials	Class III equipment.	N
2.9.2	Humidity conditioning		N
	Humidity (%)……..:		—
	Temperature (℃) ……..:		—
2.9.3	Grade of insulation		N
2.9.4	Separation from hazardous voltages		N
	Method(s) used:		N
2.10	**Clearances, creepage distances and distances through insulation**		P
2.10.1	General	Class III equipment,	P
2.10.1.1	Frequency		P
2.10.1.2	Pollution degrees	Pollution degree 2	P
2.10.1.3	Reduced values for functional insualtion	See 5.3.4	P
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage		N
2.10.2.1	General		N
2.10.2.2	RMS working voltage		N
2.10.2.3	Peak working voltage		N
2.10.3	Clearances		N
2.10.3.1	General		N
2.10.3.2	Mains transient voltages		N
	a) AC mains supply		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
	b) Earthed d.c. mains supplies		N
	c) Unearthed d.c. mains supplies		N
	d) Battery operation		N
2.10.3.3	Clearances in primary circuits		N
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses	No such starting pulses	N
2.10.3.6	Transients from a.c. mains supply		N
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains suplply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances		N
2.10.4.1	General	See below	N
2.10.4.2	Material group and caomparative tracking index		N
	CTI tests.....		—
2.10.4.3	Minimum creepage distances		N
2.10.5	Solid insulation		N
2.10.5.1	General		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		—
2.10.5.11	Insulation in wound components		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
2.10.5.12	Wire in wound components		N
	Working voltage		N
	a) Basic insulation not under stress		N
	b) Basic, supplemetary, reinforced insulation		N
	c) Compliance with Annex U		N
	Two wires in contact inside wound component; angle between 45° and 90°		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		—
2.10.5.14	Additional insulation in wound components		N
	Working voltage		N
	- Basic insulation not under stress		N
	- Supplemetary, reinforced insulation		N
2.10.6	Construction of printed boards		N
2.10.6.1	Uncoated printed boards		N
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs)		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
3	**WIRING, CONNECTIONS AND SUPPLY**		P
3.1	**General**		P
3.1.1	Current rating and overcurrent protection	All adequate cross sectional areas are on internal wiring.	P
3.1.2	Protection against mechanical damage	Wire ways are smooth and free from edge. Wires are adequately fixed to prevent excessive strain on wire and terminals and avoiding from damage to the insulation of the conductors.	P
3.1.3	Securing of internal wiring	Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation.	P
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	P
3.1.5	Beads and ceramic insulators	Not used.	N
3.1.6	Screws for electrical contact pressure	No such screw	N
3.1.7	Insulating materials in electrical connections	No such material	N
3.1.8	Self-tapping and spaced thread screws	No such components used	N
3.1.9	Termination of conductors		N
	10 N pull test		N
3.1.10	Sleeving on wiring		N
3.2	**Connection to a mains supply**		P
3.2.1	Means of connection..... :	Class III equipment.	N
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections	Only one supply connection	N
3.2.3	Permanently connected equipment..... :	Not permanent connection.	N
	Number of conductors, diameter (mm) of cable and conduits……..:		—
3.2.4	Appliance inlets		P
3.2.5	Power supply cords ..... :		N
3.2.5.1	AC power supply cords		N
	Type……..:		—
	Rated current (A), cross-sectional area (mm2), AWG……..:		—

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorage and strain relief	No non-detachable power supply cord used.	N
	Mass of equipment (kg), pull (N) ..... :		—
	Longitudinal displacement (mm)..... :		—
3.2.7	Protection against mechanical damage	Direct plug-in equipment	N
3.2.8	Cord guards		N
	D (mm); Test: mass (g)..... :		—
	Radius of curvature of the cord (mm)..... :		—
3.2.9	Supply wiring space		N
3.3	**Wiring terminals for connection of external conductors**		N
3.3.1	Wiring terminals	Class III equipment.	N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screws terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2)……..:		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type and nominal thread diameter (mm)……..:		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	**Disconnection from the mains supply**		N
3.4.1	General requirement	Class III equipment.	N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles - single-phase and d.c. equipment		N
3.4.7	Number of poles - three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	plug as disconnect devices		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N
3.5	**Interconnection of equipment**		N
3.5.1	General requirements		N
3.5.2	Types of interconnection circuits		N
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	N
3.5.4	Data ports for additional equipment	Refer to appended table 2.5.	N
4	**PHYSICAL REQUIREMENTS**		P
4.1	**Stability**		N
	Angle of 10°	Mass of equipment less than 7 Kg	N
	Test: force (N) ……..…:	The unit is not floor-standing.	N
4.2	**Mechanical strength**		P
4.2.1	General	Complies with the requirements also after tests described below applied.	P
4.2.2	Steady force test, 10 N	No hazard.	N
4.2.3	Steady force test, 30 N	No internal enclosure.	N
4.2.4	Steady force test, 250 N	No hazard. The test is performed at all sides of enclosure.	P
4.2.5	Impact test		N
	Fall test		N
	Swing test		—
4.2.6	Drop test	Height: 1m, no hazard.	P
4.2.7	Stress relief test		P
4.2.8	Cathode ray tubes	No such equipment.	N
	Picture tube separately certified…		—
4.2.9	High pressure lamps	No such part.	N
4.2.10	Wall or ceiling mounted equipment; force (N)..:		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
4.3	**Design and construction**		P
4.3.1	Edges and corners	All edges and corners are rounded and smoothed.	P
4.3.2.	Handles and manual controls; force (N)…….:	No knobs, handles, grips etc.	N
4.3.3.	Adjustable controls	No hazardous adjustable controls.	N
4.3.4	Securing of parts	Screws, nuts, or similar parts are secured and withstand mechanical stress occurring in normal use	P
4.3.5	Connection of plugs and sockets	SELV connectors does not comply with IEC 60320-1 or IEC 60083	N
4.3.6	Direct plug-in equipment	Class III equipment.	N
	Torque ..... :		—
	Compliance with the relevant mains plug standard ..... :		—
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N
4.3.8	Batteries	Refer to cl. 1.7.13 and appended table 4.3.8.	P
	- Overcharging of a rechargeable battery	Refer to appended table 4.3.8	P
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery	Refer to appended table 4.3.8.	P
	- Excessive discharging rate for any battery	Refer to appended table 4.3.8	P
4.3.9	Oil and grease	Insulation is not exposed to oil, grease etc.	N
4.3.10	Dust, powders, liquids and gases	The equipment does not contain flammable liquids or gases.	N
4.3.11	Containers for liquids or gases	No container for liquids or gases in the equipment.	N
4.3.12	Flammable liquids	The equipment does not contain flammable liquids.	N
	Quantity of liquid (l)…….:		—
	Flash point (℃)		—
4.3.13	Radiation; type of radiation……..:		N
4.3.13.1	General		N
4.3.13.2	Ionizing radiation		N
	Measured radiation (pA/kg)……:		—
	Measured high-voltage (kV)……..:		—
	Measured focus voltage (kV)……:		—
	CRT markings ……:		—

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification……..:		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
	Part, property, retention after test, flammability classification……:		N
4.3.13.5	Laser (including LEDs)		N
	Laser class……..:		—
4.3.13.6	Other types……:		N
4.4	**Protection against hazardous moving parts**		N
4..4.1	General		N
4.4.2	Protection in operator access areas	No moving parts	N
4.4.3	Protection in restricted access locations	Not intended for installation in RAL.	N
4.4.4	Protection in service access areas		N
4.5	**Thermal requirements**		P
4.5.1	General	See below	P
4.5.2	Temperature tests	See appended table 4.5.1	P
	Normal load condition per Annex L ..... :		—
4.5.3	Temperature limits for materials	See appended table 4.5.1	P
4.5.4	Touch temperature limits	See appended table 4.5.1	P
4.5.5	Resistance to abnormal heat ..... :	No thermoplastic parts carrying hazardous voltage.	N
4.6	**Openings in enclosures**		N
4.6.1	Top and side openings	See 4.6.4	N
	Dimensions (mm)……..:		—
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottom……..:		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment	Small opening for ventilation and data ports ,no hazardous voltage and energy hazard For External power supply and internal lithium battery complying with LPS	N
4.6.4.1	Constructional design measures		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes	No barrier secured by adhesive inside enclosure.	N
	Conditioning temperature (°C)/time(weeks)….:		—
4.7	**Resistance to fire**		P
4.7.1	Reducing the risk of ignition and spread of frame	Method 1 is used.	P
	Method 1, selection and application of components wiring and materials	See appended table 1.5.1	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure	See below	P
4.7.2.1	Parts requiring a fire enclosure	See appended table 1.5.1	P
4.7.2.2	Parts not requiring a fire enclosure:		N
4.7.3	Materials		P
4.7.3.1	General		N
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1	P
4.7.3.3.	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures	See appended table 1.5.1	P
4.7.3.5	Materials for air filter assemblies		N
4.7.3.6	Materials used in high-voltage components		N
5	**Electrical requirements and simulated abnormal conditions**		P
5.1	**Touch current and protective conductor current**		N
5.1.1	General	Class III equipment.	N
5.1.2	Configuration of equipment under test (EUT)		N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply	See above	N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	See above	N
5.1.3	Test Circuit		N
5.1.4	Application of measuring instrument		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
5.1.5	Test procedure		N
5.1.6	Test measurements		N
	Test 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 3.5mA		N
5.1.7.1	General:		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N
	Test voltage (V)……:		—
	Measured touch current (mA)……:		—
	Max. allowed touch current (mA)……..…:		—
5.1.8.2	Summation of touch currents from telecommunication networks		N
	a) EUT with earthed telecommunication ports:		N
	b) EUT whose telecommunication ports have no reference to protective earth		N

5.2	**Electric strength**		P
5.2.1	General		P
5.2.2	Test procedure		P

5.3	**Abnormal operating and fault conditions**		P
5.3.1	Protection against overload and abnormal operation	See appended table 5.3.	P
5.3.2	Motors		N
5.3.3	Transformers	No transformer in the equipment.	N
5.3.4	Function insulation	Complies with c)	P
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	N
5.3.6	Audio amplifiers in ITE :	See appended table 5.3.	P

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
5.3.7	Simulation of faults	See appended table 5.3.	P
5.3.8	Unattended equipment		N
5.3.9	Compliance criteria for abnormal operating and fault conditions	See below.	P
5.3.9.1	During the tests	No flame emitted, no molten material emitted, no deformation of enclosure	P
5.3.9.2	After the tests	No hazard.	P
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		N
6.1	**Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment**		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth	No TNV circuits.	N
6.1.2.1	Requirements		N
	Test voltage (V)…….:		—
	Current in the test circuit (mA)……..:		—
6.1.2.2	Exclusions		N
6.2	**Protection of equipment users from overvoltages on telecommunication networks**		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure	No TNV circuits.	N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N
6.3	**Protection of telecommunication wiring system from overheating**		N
	Max. output current (A)……..:		—
	Current limiting method……..:		—
7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		N
7.1	General		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system.		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N
A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		N
A.1	**Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)**		N
A.1.1	Samples, material……:		—
	Wall thickness (mm)……....:		—
A.1.2	Conditioning of samples; temperature (℃)		N
A.1.3	Mounting of samples……:		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s)……..:		—
	Sample 2 burning time (s)……..:		—
	Sample 3 burning time (s)……..:		—
A.2	**Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosure (see 4.7.3.2 and 4.7.3.4)**		N
A.2.1	Samples, material……:		—
	Wall thickness (mm)……..:		—
A.2.2	Conditioning of samples		N
A.2.3	Mounting of samples		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
	Sample 1 burning time (s)……..:		—
	Sample 2 burning time (s)……..:		—
	Sample 3 burning time (s)……..:		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N
	Sample 1 burning time (s)……..:		—
	Sample 2 burning time (s)……..:		—
	Sample 3 burning time (s)……..:		—
A.3	**Hot flaming oil test (see 4.6.2)**		N
A.3.1	Mounting of samples……:		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (SEE 4.7.2.2 AND 5.3.2)**		N
B.1	**General requirements**		N
	Position……:		—
	Manufacturer……:		—
	Type……..:		—
	Rated values……:		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)……:		—
	Electric strength test: test voltage (V)……..:		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) .....:		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuit		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure; test time (h)……:		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
B.7.4	Electric strength test; test voltage (V) :		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V)……:		—
C	**ANNEX C, TRANSFORMERS (SEE 1.5.4 AND 5.3.3)**		N
	Position……:		—
	Manufacturers……:	See appended table 1.5.1	—
	Type……:	See appended table 1.5.1	—
	Rated values……:		—
	Method of protection……:		—
C.1	Overload test……:		N
C.2	Insulation		N
	Protection from displacement of winding		—
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (SEE 5.1.4)**		N
D.1	Measuring instrument		N
D.2	Alternative measuring instrument		N
E	**ANNEX E, TEMPERATURE RISE OF A WINDING** *Thermocouple method used*		N
F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)** *considered*		N
G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES** *The alternative method was not considered*		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (v)		N
G.2.1	AC mains supply		N
G.2.2	Earthed d.c. mains supplies		N
G.2.3	Unearthed d.c. mains supplies :		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
G.2.4	Battery operation :		N
G.3	Determination of telecommunication network transient voltage (V)……..:		N
G.4	Determination of required withstand voltage (v)		N
G.4.1	Mains transients and internal repetitive peaks		N
G.4.2	Transients from telecommunication networks		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient levels (V)……..:		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances…….:		N
H	**ANNEX H, IONIZING RADIATION (SEE 4.3.13)** *No ionizing radiation*		N
	Ionizing radiation		N
	Measured radiation (mR/h)……..:		—
	Measured high-voltage (kV)……:		—
	Measured focus voltage (kV)……..:		—
	CRT markings……:		—
J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (SEE 2.6.5.6)**		N
	Metal used……:		—
K	**ANNEX K, THERMAL CONTROLS (SEE 1.5.3 AND 5.3.8)**		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V):		N
K.3	Thermostat endurance test; operating voltage (V)……:		N
K.4	Temperature limiter endurance; operating voltage (V)……:		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPE OF ELECTRICAL BUSINESS EQUIPMENT (SEE 1.2.2.1 AND 4.5.1)**		P
L.1	Typewriters		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment	Max. normal load.	P
M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (SEE 2.3.1)**		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz)……:		—
M.3.1.2	Voltage (V)……:		—
M.3.1.3	Cadence; time (s), voltage (V)……..:		—
M.3.1.4	Single fault current (mA)……:		—
M.3.2	Tripping device and monitoring voltage……...:		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V)……:		N
N	**ANNEX N, IMPULSE TEST GENERATORS (SEE 2.10.3.4, 6.2.2.1, 7.3.2 AND CLAUSE G.5)**		N
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	**ANNEX P, NORMATIVE REFERENCES**		P
Q	**Annex Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		N
	a) Preferred climatic categories .....:		N
	b) Maximum continuous voltage .....:		N
	c) Pulse current .....:		N
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N
R.2	Reduced clearances (see 2.10.3)		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (SEE 6.2.2.3)**		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (SEE 1.1.2)**		N
	Protection against ingress of water	IPX0	N
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (SEE 2.10.5.4)**		N
	Separate test report		N
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (SEE 1.6.1)**		N
V.1	Introduction		N
V.2	TN power distribution systems		N
V.3	TT power systems		N
V.4	IT power systems		N
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated form earth		N
W.2.3	Common return, connected to protective earth		N
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (SEE CLAUSE C.1)** *Informative*		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (SEE 4.3.13.3)** *No ultraviolet light*		N
Y.1	Test apparatus		N
Y.2	Mounting of test samples		N
Y.3	Carbon-arc light-exposure apparatus		N
Y.4	Xenon-arc light exposure apparatus		N

IEC/EN 60950-1			
Clause	Requirement - Test	Result – Remark	Verdict
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—

ATTACHMENT TO TEST REPORT IEC 60950-1 **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** **Information technology equipment – Safety –** **Part 1: General requirements**	
Differences according to.....:	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013
Attachment Form No. .....:	EU_GD_IEC60950_1E
Attachment Originator .....:	SGS Fimko Ltd
Master Attachment .....:	Date (2013-09)

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		N
General (A2:2013)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		N

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.7.2.1 (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
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
	Zx Protection against excessive sound pressure from personal music players		N

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		N
	analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

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

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  **Figure 1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		N
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.		N

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;		N

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N
2.7.2	This subclause has been declared 'void'.		N
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N
3.2.5.1 (A2:2013)	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 | 0,75 [a)] | Over 6 up to and including 10| (0,75) [b)] 1,0 | Over 10 up to and including 16| (1,0) [c)] 1,5 | In the conditions applicable to Table 3B delete the words "in some countries" in condition [a)]. In NOTE 1, applicable to Table 3B, delete the second sentence. NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A		N
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation).		N
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N
Bibliography	Additional EN standards.		—

ZA	**NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**	—

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N

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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N
1.7.2.1 (A2:2013)	In Denmark, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in Denmark shall be as follows:In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”	Building-in equipment, shall be considered in the end use	N
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. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		N
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		N
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If 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.		N

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Clause	Clause	Clause
3.2.1.1 (A2:2013)	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c		N
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N
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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Clause	Clause	Clause
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Clause	Clause	Clause
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation 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 - 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.		N

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Clause	Clause	Clause
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N

1.5.1	**TABLE: List Of Critical Components**				**P**
Components	Manufacturers / Trademark	Types / Model	Technical data	Standard	Mark(s) of conformity
Plastic enclosure	MITSUBISHI ENGINEERING-PLASTICS CORP	GS2015MN+	Min. 0.75mm thick, V-0, 80°C	UL94	UL
-Alt	Various	Various	V-0, 80°C	UL94	UL
PCB	TEAN ELECTRONIC (DA YA BAY) CO LTD	ML1	V-0, 105°C	UL 796	UL
-Alt	Various	Various	V-0, 105°C	UL 796	UL
Battery	Advanced Electronics Energy Limited	AE291558P8H	3.7Vdc, 200mAh, 0.74Wh, Max. discharged current: 100mA	EN 62133	TUV Rh
The components be used in the equipment. And Compliance the used stand.					

1.6.2	**Input Test**						**P**
Fuse #	Irated (mA)	U (V)	P (W)	I (mA)	Ifuse (A)	Condition/status	
--	500	3.7	0.05	14.6	--	Normal operation	
--	500	5	0.8	160.8	--	Battery charged with Max. normal load	
Remarks: The measured input current at rated voltage not exceed 110% of rated current.							

2.5 (3.5.4)	**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 (normal condition)			
current (in A)			
apparent power (in VA)			
According to Table 2B/2C (normal condition)			
current (in A)			
apparent power (in VA)			
According to Table 2B/2C (normal condition)			
current (in A)			
apparent power (in VA)			
Note:			

4.3.8	Batteries Charging Circuit Test		P
location	condition	Test time	result
Overcharge			
Battery	normal	7hrs 57min	PCB for battery: 26.8°C Battery body: 26.9°C Ambient: 25.0°C No damage, no hazard.
Abnormal overcharge			
Battery B- to P-	s-c	14hrs41min	PCB of battery: 26.5°C Battery body: 26.8°C Ambient: 24.2°C No damage, no hazard.
Abnormal discharge			
Battery B- to P-	s-c	14hr37min	PCB of battery: 25.7°C Battery body: 26.1°C Ambient: 24.8°C No damage, no hazard.
Note: Supplementary information: s-c: short circuit			

4.5.1	Normal operating Test				P
Test condition		Normal operation	Battery charged with Max. normal load		—
Test voltage (V)		3.7Vdc	5Vdc		—
temperature T of part/at:		T (°C)			required T (°C)
1.PCB near IC		46.8	50.3		105
2.Battery body		46.7	51.5		--
3.PCB for Battery		46.7	49.7		105
4.Internal plastic enclosure		46.7	49.5		80
5.External plastic enclosure		46.5	49.3		95
6.Button		46.5	48.6		85
7.Ambient		45.0	45.0		--
Winding:	R_1 (Ω)	R_2 (Ω)	T (°C)	required T (°C)	insulation class
--	--	--	--	--	--
Remarks:					

5.3	**TABLE: Fault Condition Tests**		**P**
--	Ambient temperature (°C)	23.0	--
--	Model/type of power supply	MX12L1-0502500V	--
--	Rated markings of power supply	Input：100-240Vac 50-60Hz 0.35A, Output：DC5V 2.5A	--

No	Component No.	Fault	Test Voltage(V)	Test Time	Fuse No.	Fuse Current (A)	Result
1	Speaker	s-c	5Vdc	10mins	--	--	Unit normal operation. Just the speaker does not work, No damage, no hazard.
2	D20	s-c	5Vdc	10mins	--	--	Normal operation No damage, no hazard.
3	C1UP11	s-c	5Vdc	10mins	--	--	Normal operation No damage, no hazard.
4	UIUP5 PIN 1-5	s-c	5Vdc	10mins	--	--	Normal operation No damage, no hazard.
5	C2417	s-c	5Vdc	10mins	--	--	Normal operation No damage, no hazard.

Note: Supplementary information: s-c: short circuit, o-l: overload, o-c: open circuit.

Attachment –A.

EUT Photos

Photo # 1

Photo # 2

Photo # 3

Photo # 4

Photo # 5

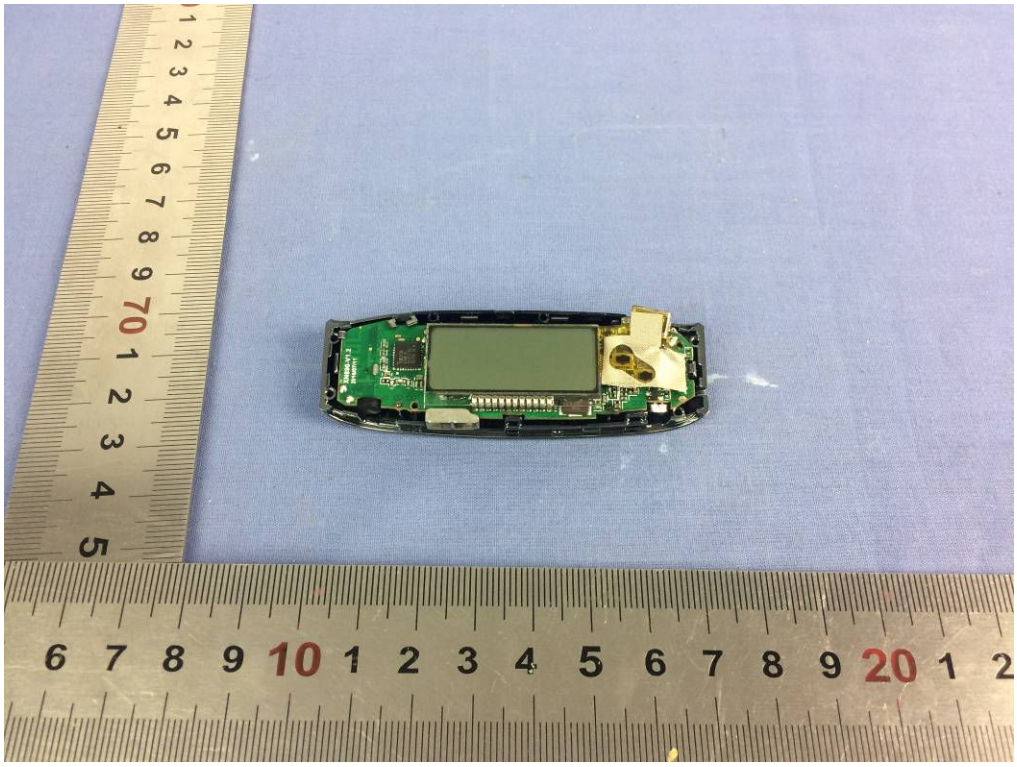


Photo # 6

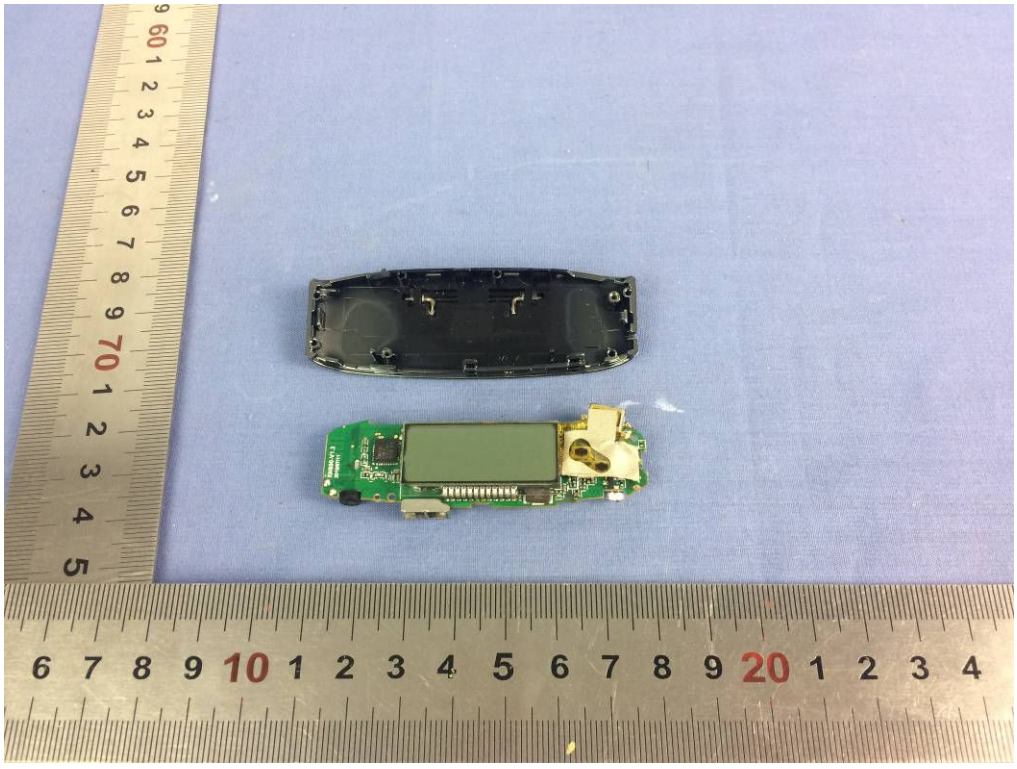


Photo # 7

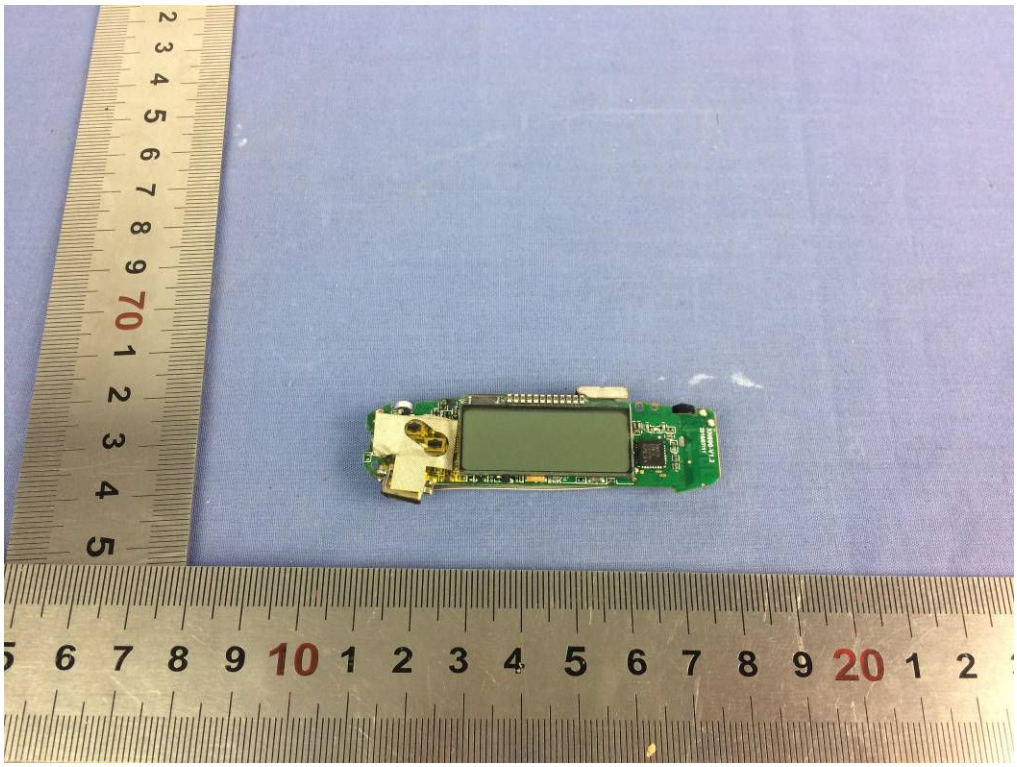


Photo # 8

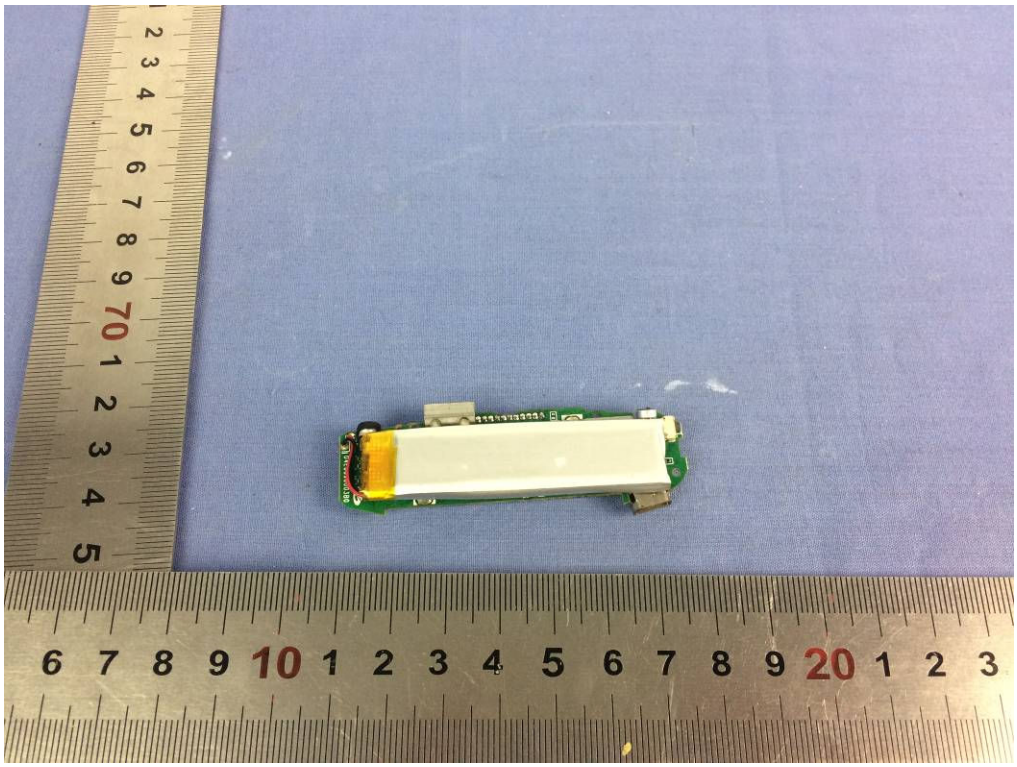


Photo # 9

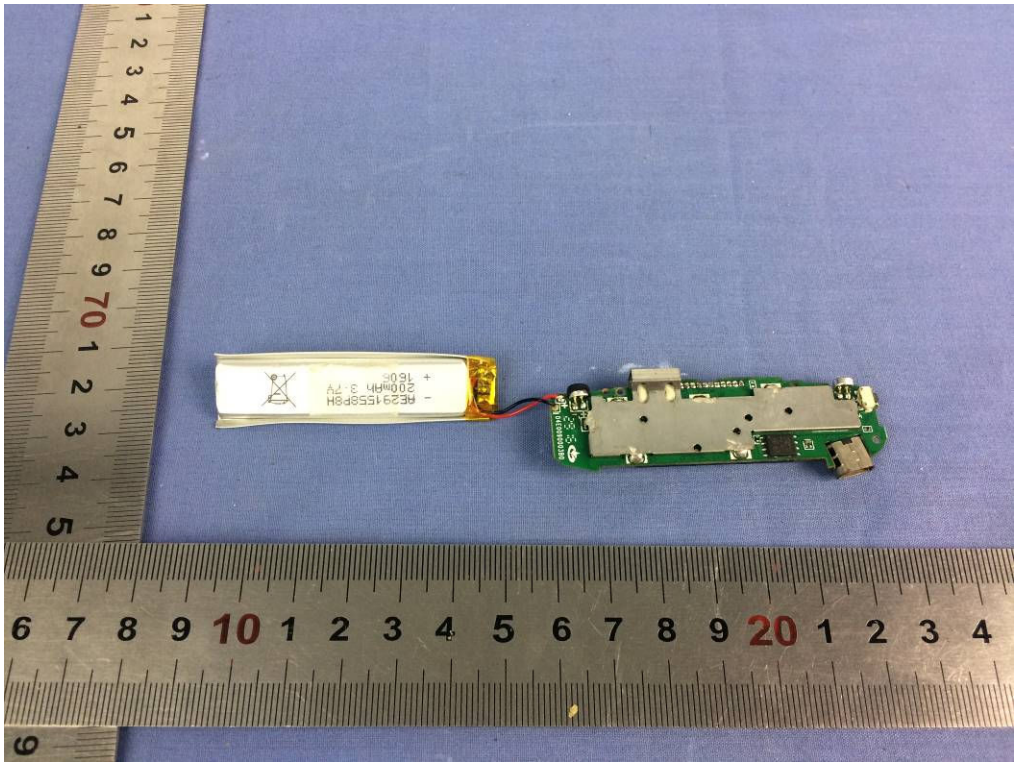
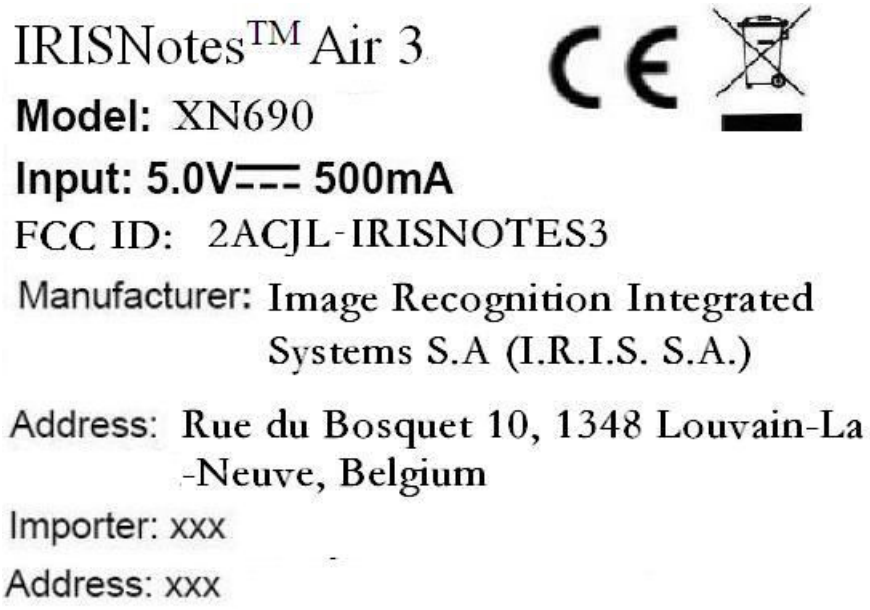


Photo # 10

Attachment - B.

Product ID Label



Attachment – C.

Schematics and Layout

(See attachment software copy)

Attachment – D.

User manual

(See attachment software copy)

Attachment - E.

Measuring Instrument List

ID NO	Instrument Type	Manufacture	Model	Scope	Cal. Date	Due Date
A00040	Data Acquisition Unit	YOKOGAWA	MX100	60 channels T: 0℃~300℃	2016-03-27	2017-03-26
A00030	Power meter	YOKOGAWA	WT310	0 - 600Vac, 0 - 20 A, 0 - 12KW	2016-03-24	2017-03-23
A00032	DC Electronic Load	PRODIGIT	3311F	0-60V/0-60A/300W	2016-03-24	2017-03-23
A00035	DC power supply	APE	ADC60-10	0-60V,0-10A	2016-03-24	2017-03-23
A00058	Digital Multimeter	FLUKE	289C	DC:0.1mV-1000V AC:0.1mV-1000V	2016-05-09	2017-05-08
A00044	Stop watch	TF	PC894	0.01s-24hours	2016-03-28	2017-03-27
A00013	Digital Scale	ZHONGSHAN HENGXIN	ACS-30JZ	0~30kg	2016-03-24	2017-03-23
A00020	Push-Pull Scales	AIGU	NK-500	500N/0.1N	2016-03-30	2017-03-29
A00065	Tape	SHENRONG	5M	5M	2016-05-13	2017-05-12