



SAFETY TEST REPORT

Report No.: SRTC2019-9003(R)-0025
Product Name: nBlue Bluetooth® 5.0 Module
Product Model: BR-LE5.0-S1A
Applicant: BlueRadios, Inc.
Manufacturer: BlueRadios, Inc.
Specification: IEC60950-1:2005+A1:2009+A2:2013 and/or
EN60950-1:2006+A11:2009+A1:2010
+A12:2011+A2:2013

The State Radio_monitoring_center Testing Center (SRTC)
15th Building, No.30 Shixing Street, Shijingshan District, Beijing,
P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

TEST REPORT

IEC 60950-1:2005 (2nd Edition) and/or EN 60950-1:2006 Information technology equipment – Safety – Part 1: General requirements

Report Reference No.	SRTC2019-9003(R)-0025
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Testing Laboratory	The State Radio_monitoring_center Testing Center (SRTC)
Address	15th Building, No.30 Shixing Street, Shijingshan District, Beijing, P.R.China
Applicant's name	BlueRadios, Inc.
Address	8310 S. Valley Highway, Suite 275
Manufacture's name	BlueRadios, Inc.
Address	8310 S. Valley Highway, Suite 275
Factory's name	BlueRadios, Inc.
Address	8310 S. Valley Highway, Suite 275
Test specification:	
Standard	<p>■ IEC 60950-1:2005 (2nd Edition) + A1:2009 +A2:2013and/or</p> <p>■ EN 60950-1:2006+A11:2009+A1:2010+A12:2011 +A2:2013</p>
Non-standard test method	N/A

Testing procedure and testing location:

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Summary of testing:

The test subject has been assessed for safety with respect to the above test specification and found to comply with the requirements of IEC 60950-1:2005 (2nd Edition) and/or EN 60950-1:2006.

Test performed (name of test and test clause):

The submitted samples were found to comply with the requirements of:

-IEC60950-1:2005+A1:2009+A2:2013

-EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013

Testing location:

The State Radio_monitoring_center
Testing Center (SRTC)

15th Building, No.30 Shixing Street,
Shijingshan District, Beijing, P.R.China

Summary of compliance with National Differences:

Compliance with European Group differences and National differences for IEC 60950-1 (2nd Edition)

Copy of marking plate:



EUT Label

Note: The artwork above may be only a draft.

Test item particulars.....:	
Equipment Mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains.....:	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Operating condition.....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating/resting time
Access location.....:	<input type="checkbox"/> operator accessible <input checked="" type="checkbox"/> restricted access location
Over voltage category (OVC).....:	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: SELV Equipment
Mains supply tolerance (%) or absolute mains supply values	N/A
Tested for IT power systems.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)....:	N/A
Class of equipment.....:	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Pollution degree(PD).....:	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation(m)	<5000
Altitude of test laboratory(m).....:	<500
Mass of equipment (kg)	<7kg
Possible test case verdicts:	
Test case does not apply to the test object.....:	N/A
Test item does meet the requirement.....:	P (Pass)
Test item does meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item	2019-01-21
Date(s) of performance of test	2019-01-21 -2019-02-19

General remarks:

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

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

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

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

Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.

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

Attachment: European group of differences and national differences

Attachment: Photograph of EUT

General product information:

The Equipment Under Test (EUT) Model BR-LE5.0-S1A was produced by BlueRadios, Inc.

The model BR-LE5.0-S1A is a nBlue Bluetooth® 5.0 Module for general use.

The EUT's maximum operating temperature is 85°C.

The manual for installation and maintains should be in a language which is acceptable in the country in which the equipment is to be used.

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	General		P
1.5	Components		P
1.5.1	General	Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards.	P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC and /or national standards are used correctly within their ratings.	P
1.5.3	Thermal controls	No thermal controls provided.	N/A
1.5.4	Transformers	No transformer used.	N/A
1.5.5	Interconnecting cables	No interconnection cables.	N/A
1.5.6	Capacitors bridging insulation		N/A
1.5.7	Resistors bridging insulation		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		N/A
1.5.8	Components in equipment for IT power systems	Equipment was not applied for the IT power system.	N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A

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

1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		N/A
1.6.1	AC power distribution systems	DC input.	N/A
1.6.2	Input current	(see appended table 1.6.2)	N/A
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		N/A

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	Class III equipment.	P
1.7.1.1	Power rating markings		P
	Rated voltage(s) or voltage range(s) (V) :	1.7V-3.6Vdc	P
	Symbol for nature of supply, for d.c.only :	DC	P
	Rated frequency or rated frequency range (Hz)... :		N/A
	Rated current (mA or A) :		N/A
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark :	BlueRadios, Inc.	P
	Model identification or type reference :	BR-LE5.0-S1A	P
	Symbol for Class II equipment only :	Class III equipment.	N/A
	Other markings and symbols :		N/A
1.7.2	Safety instructions and marking		N/A
1.7.2.1	General	User manual provided in English.	N/A
1.7.2.2	Disconnect devices	Not directly connect to mains.	N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool		N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles	Continuous operation.	N/A
1.7.4	Supply voltage adjustment	No such device.	N/A
1.7.5	Power outlets on the equipment	No power outlets.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	No fuse.	N/A
1.7.7	Wiring terminals	No such wiring terminals.	N/A
1.7.7.1	Protective earthing and bonding terminals.....		N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No such device.	N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	No multiple power sources.	N/A
1.7.10	Thermostats and other regulating devices		N/A
1.7.11	Durability		N/A
1.7.12	Removable parts	No marking is located on the removable parts.	N/A
1.7.13	Replaceable batteries		N/A
	Language(s)	English	—
1.7.14	Equipment for restricted access locations.....		N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	No hazardous energized parts.	P
	Test by inspection	Operator cannot contact any hazardous energized parts.	P
	Test with test finger (Figure 1A)	No hazardous parts accessed with test finger.	P
	Test with test pin (Figure 2B)	No hazardous parts accessed with test pin.	P
	Test with test probe (Figure 2C)		N/A
2.1.1.2	Battery compartments	No TNV circuit in battery compartments.	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring.	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)	(see appended table 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage circuit wiring in operator accessible area.	N/A
2.1.1.5	Energy hazards	No energy hazard accessible.	P
2.1.1.6	Manual controls	No conductive shafts of operating knobs and handles.	N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Time-constant (s); measured voltage (V)		—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply..:		N/A
	b) Internal battery connected to the d.c. mains supply..... :		N/A
2.1.1.9	Audio amplifiers.....:	See 2.1.1.1, or	N/A

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

		see separate test report of IEC/EN 60065.	
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

2.2	SELV circuits		P
2.2.1	General requirements	42.4V peak or 60V d.c.is not exceeded in SELV circuit under normal operation or single fault condition.	P
2.2.2	Voltages under normal conditions (V)..... :	Within SELV limit.	P
2.2.3	Voltages under fault conditions (V)..... :	Within SELV limit.	P
2.2.4	Connection of SELV circuits to other circuits	Only intended to be connected with SELV circuits.	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

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

2.4	Limited current circuits		N/A
2.4.1	General requirements	No limited current circuits.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		—
	Measured current (mA).....		—
	Measured voltage (V)		—
	Measured voltage (V)		—
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		N/A
	a) Inherently limited output	(see appended table 2.5)	N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....	(see appended table 2.5)	—
	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

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Clause	Requirement – Test	Result – Remark	Verdict
	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		—
2.6.3.4	Resistance 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, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthingconductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

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

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	No primary circuit.	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, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits		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	(see appended table 5.2)	N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		P

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.9.2	Humidity conditioning	No hygroscopic materials used	N/A
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation	Functional insulation.	P
2.9.4	Separation from hazardous voltages	Class III equipment, no hazardous voltage.	N/A
	Method(s) used		—

2.10	Clearances, creepage distances and distances through insulation		N/A
2.10.1	General	Class III equipment, functional insulation only.	N/A
2.10.1.1	Frequency		N/A
2.10.1.2	Pollution degrees		N/A
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
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

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.3.4	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.3.5	Clearances in circuits having starting pulses	(see appended table 2.10.3 and 2.10.4)	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		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 a 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 tests		—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	N/A
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5	Cemented joints	(see appended table 2.10.3	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
		and 2.10.4)	
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		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
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° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test	(see appended table 2.10.5)	—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards		N/A
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3	N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
		and 2.10.4)	
2.10.6.2	Coated printed boards	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation	(see appended table 2.10.5)	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		N/A
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	(see appended table 5.2)	N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		N/A
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.1.4	Insulation of conductors	(see appended table 5.2)	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		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

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

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

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	No such 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, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

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		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A

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

3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits :	SELV to SELV only.	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuits.	N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	Hand-held equipment.	N/A
	Test force (N) :		N/A

4.2	Mechanical strength		P
4.2.1	General	No hazardous moving part or part at hazardous voltage is in the equipment.	N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. No energy or other hazards.	N/A
4.2.5	Impact test		N/A
	Fall test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Swing test		N/A
4.2.6	Drop test; height (mm) :		N/A
4.2.7	Stress relief test	No energy or other hazards.	N/A
4.2.8	Cathode ray tubes	No cathode ray tubes.	N/A
	Picture tube separately certified :		N/A
4.2.9	High pressure lamps	No high-pressure lamps.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :	Not wall or ceiling mounted equipment.	N/A
4.2.11	Rotating solid media		N/A
4.3	Design and construction		N/A
4.3.1	Edges and corners	Edges and corners are rounded and smoothed.	N/A
4.3.2	Handles and manual controls; force (N) :	No handles and manual controls.	N/A
4.3.3	Adjustable controls	No such parts.	N/A
4.3.4	Securing of parts		—
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Torque :		—
	Compliance with the relevant mains plug standard :		N/A
4.3.7	Heating elements in earthed equipment	No such elements.	N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery	(see appended table 4.3.8)	N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No oil and grease.	N/A
4.3.10	Dust, powders, liquids and gases	No dust, powders, liquids and gases.	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases.	N/A
4.3.12	Flammable liquids	No flammable liquids.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation	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 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	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers(including laser diodes)		N/A
	Laser class		N/A
4.3.13.5.2	Light emitting diodes(LEDs)		N/A
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

4.4.1	General	No hazardous moving parts.	N/A
4.4.2	Protection in operator access areas :		N/A
	Household and home/office document/media shredders	(see Annex EE)	N/A
4.4.3	Protection in restricted access locations :		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection in operator access areas		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a)..... :		N/A
	Is considered to cause pain. not injury. b)..... :		N/A
	Considered to cause injury. c)..... :		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning..... :		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning..... :		N/A

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

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	No opening.	N/A
	Dimensions (mm) :		—

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Clause	Requirement – Test	Result – Remark	Verdict
4.6.2	Bottoms of fire enclosures	No opening.	N/A
	Construction of the bottom, dimensions (mm) :		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
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		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	Use of materials with the required flammability classes.	P
	Method 1, selection and application of components wiring and materials	(See appended table 4.7)	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	See 4.7.1.	N/A
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	(See appended table 4.7)	N/A
4.7.3.2	Materials for fire enclosures		N/A
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	PCB: V-0.	P

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Clause	Requirement – Test	Result – Remark	Verdict

4.7.3.5	Materials for air filter assemblies	No such material.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N/A
5.1	Touch current and protective conductor current		N/A
5.1.1	General		N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA)		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	telecommunication network or to a cable distribution system		
	Supply voltage (V) :		—
	Measured touch current (mA) :		—
	Max. allowed touch current (mA) :		—
5.1.8.2	Summation of touch currents from telecommunication networks	No 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	(see appended table 5.2)	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		N/A
5.3.1	Protection against overload and abnormal operation		N/A
5.3.2	Motors	(see appended table 5.3)	N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation..... :	(see appended table 5.3)	N/A
5.3.5	Electromechanical components	No electromechanical components other than motor.	N/A
5.3.6	Audio amplifiers in ITE :	No such part.	N/A
5.3.7	Simulation of faults	(see appended table 5.3)	N/A
5.3.8	Unattended equipment	Equipment is not unattended equipment.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

5.3.9.1	During the tests		N/A
5.3.9.2	After the tests		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	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	(see appended table 5.2)	N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

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	(see appended table 5.2)	N/A
6.2.2.2	Steady-state test	(see appended table 5.2)	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		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		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	equipment		
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	(see appended table 5.2)	N/A
7.4.3	Impulse test	(see appended table 5.2)	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
A.2.1	Samples, material :		—
	Wall thickness (mm) :		—

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Clause	Requirement – Test	Result – Remark	Verdict
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria	See A.2.7.	N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No vibration motor	N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures	(see appended table 5.3)	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
B.4	Running overload test	(see appended table 5.3)	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	Electronic drive circuits	N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) :		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.8	Electric strength test; test voltage (V) :	(see appended table 5.3)	N/A
B.9	Test for motors with capacitors	(see appended table 5.3)	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

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Clause	Requirement – Test	Result – Remark	Verdict
C.2	Insulation	(see appended table 5.2)	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		N/A
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES see 2.10 and Annex G)		N/A
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 d.c. mains supplies :		N/A
G.2.3	Unearthed d.c. mains supplies :		N/A
G.2.4	Battery operation :		N/A
G.3	Determination of telecommunication network transient voltage (V) :		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks :		N/A
G.4.2	Transients from telecommunication networks :		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems N/A		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances :		N/A
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(s) used :		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		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	(see appended table 5.3)	N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		N/A
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		N/A

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
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)		—
	Cadence; time (s), voltage (V)		—
	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 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, .3.2, 7.3.2, 7.4.3 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		—
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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
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Clause	Requirement – Test	Result – Remark	Verdict
	a) Preferred climatic categories		N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A
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
		(see appended table 1.5.1)	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
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		N/A
W.1.1	Floating circuits		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipment		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		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		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 2.10.3.2 and Clause G.2)		N/A
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		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

	–MOUNTED EQUIPMENT		
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
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 mopingparts.....		N/A
	Use of markings or symbols		N/A
EE.5	Protection against hazardous moping parts		N/A
	Test with test finger (Figure 1A).....		N/A
	Test with wedge probe (Figure EE1 and EE2)		N/A

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to.....	EN 60950-1:2006+A11:2009+A1:2010+A12:2011 +A2:2013
Attachment Form No.	EU_GD_IEC60950_1B_II
Attachment Originator	SGS Fimko Ltd
Master Attachment	Date (2011-08)

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

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

	IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)						
Contents	Add the following annexes:						N/A
	Annex ZA (normative)		Normative references to international publications with their corresponding European publications				
	Annex ZB (normative)		Special national conditions				
General	Delete all the "country" notes in the reference document according to the following list:						N/A
	1.4.8	Note 2	1.5.1	Note 2&3	1.5.7.1	Note	
	1.5.8	Note 2	1.5.9.4	Note	1.7.2.1	Note 4,5&6	
	2.2.3	Note	2.2.4	Note	2.3.2	Note	
	2.3.2.1	Note 2	2.3.4	Note 2	2.6.3.3	Note 2&3	
	2.7.1	Note	2.10.3.2	Note 2	2.10.5.13	Note 3	
	3.2.1.1	Note	3.2.4	Note 3	2.5.1	Note 2	
	4.3.6	Note 1&2	4.7	Note 4	4.7.2.2	Note	
	4.7.3.1	Note 2	5.1.7.1	Note 3&4	5.3.7	Note 1	
	6	Note 2&5	6.1.2.1	Note 2	6.1.2.2	Note	
	6.2.2	Note 2	6.2.2.1	Note 2	6.2.2.2	Note	
	7.1	Note 2	7.2	Note	7.3	Note 1&2	
	G.2.1	Note 2	Annex H	Note 2			
	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		

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Clause	Requirement – Test	Result – Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 a new method of measurement is described in EN 50332-1, Sound system equipment:</p> <p>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:</p> <p>Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>		N/A
(A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete the addition of 1.3.Z1 / EN 60950-1:2006</p> <p>Delete the definition of 1.2.3.Z1 / EN 60950-1:2006/A1:2010</p>		N/A
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>		N/A
1.7.2.1 (A1:2010)	<p>In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p>		N/A
1.7.2.1 (A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete NOTE Z1 and the addition for Portable Sound System.</p>		N/A
	Add the following clause and annex to the existing standard and amendments.		—
	Zx. Protection against excessive sound pressure from personal music players		N/A
	<p>Zx.1General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p>		N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> - 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. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> - hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>		
	<p>- analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN71-1 apply.</p>		N/A
	<p>Zx.2 Equipment Requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> - equipment provided as a package (personal music player with its listening device), 		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	<p>where the acoustic output $L_{Aeq,T} \leq 85$ dBA measured while playing the fixed “programme simulationnoise” as described in EN 50332-1; and</p> <p>- a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mVmeasured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</p> <p>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 alsoZx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>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</p> <p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating amode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package(player with lts listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and</p> <p>2) a personal music player provided withan analogue electrical output socket for a listeningdevice, the electrical output shall be ≤ 150 mVmeasured as described in EN 50332-2, whileplaying the fixed “programme simulation noise”described in EN 50332-1.</p> <p>For music where theaverage sound pressure (long term $L_{Aeq,T}$)measured over the duration of the song is lower than the average produced by the programmesimulation</p>		

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Clause	Requirement – Test	Result – Remark	Verdict
	<p>noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyze the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		
	<p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> - the symbol of Figure 1 (IEC 60417-6044) with a minimum height of 5 mm; and - the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div data-bbox="683 1137 938 1393" data-label="Image"> <p>The image shows a warning symbol consisting of an equilateral triangle with a thick border. Inside the triangle is a stylized human ear with sound waves emanating from it. The entire symbol is enclosed in a dashed rectangular frame with corner brackets.</p> </div> <p>Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level</p>	N/A	
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<p>Zx.4.1 Wired listening devices with analogue input</p> <p>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.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85 dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A
	Zx.4.2 Wired listening devices with digital input		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	<p>With any playing device playing the fixed“programme simulation noise” described in EN50332-1 (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.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization,etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		
	<p>Zx.4.3Wireless listening devices</p> <p>In wireless mode:</p> <ul style="list-style-type: none"> - with any playing and transmitting device playing the fixed programme simulation noise described inEN 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.)setto the combination of positions that maximizethe measured acoustic output for theabovementioned programme simulationnoise, the acoustic output $L_{Aeq,T}$ of thelistening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device isa Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods</p> <p>Measurements shall be made in accordance withEN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c);</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>		N/A

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Clause	Requirement – Test	Result – Remark	Verdict				
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>						
2.7.1	<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 providedby protective devices in the building installation;</p> <p>c)it is permitted for PLUGGABLE EQUIPMENTTYPE B or PERMANENTLY CONNECTEDEQUIPMENT, 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 played on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENTTYPE A the building installation shall be regarded as providing protection in accordance with threating of the wall socket outlet.</p>		N/A				
2.7.2	<p>This subclausehas been declared `void'.</p>		N/A				
3.2.3	<p>Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.</p>		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><td>0,75 ^{a)}</td><td> </td></tr></table>	Up to and including 6		0,75 ^{a)}			N/A
Up to and including 6		0,75 ^{a)}					

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Clause	Requirement – Test	Result – Remark	Verdict
	<p> Over 6 up to and including 10 (0,75)^{b)} 1,0 </p> <p> Over 10 up to and including 16 (1,0)^{c)} 1,5 </p> <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>		
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <p> Over 10 up to and including 16 1.5 to 2.5 1,5 to 4 </p> <p>Delete the fifth line: conductor sizes for 13 to 16 A</p>		N/A
4.3.13.6 (A1:2010)	<p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).</p>		N/A
	Standards taking into account mentioned Recommendation and directive which demonstrate compliance with the applicable EU directive are indicated in the OJEC.		N/A
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μ Sv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		N/A
Bibliography	Additional EN standards.		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATONS		—
ZB	ANNEX ZB,SPECIAL NATIONAL CONDITIONS (EN)		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
(normative)			
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230V).		N/A
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
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 suojaamaadoituskoskettimillä varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing - and to a cable distribution system using coaxial cable, may in some</p>		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	<p>circumstances create a fire hazard.</p> <p>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 1,5 kV r.m.s., 50 Hz or 60 Hz for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>"Utstyr som er koplet til beskyttelsesjord via nettplugg og/ellervia annetjordtilkoplet utstyr - og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet."</p> <p>Translation to Swedish:</p> <p>"Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolatorfinnas mellan utrustningen och kabel-TV nätet."</p>		
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1 b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		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.		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		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.		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		N/A

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Clause	Requirement – Test	Result – Remark	Verdict																		
	PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.																				
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/A																		
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table><tr><td>SEV 6532-2.1991</td><td>Plug Type 15 3P+N+PE</td><td>250/400 V, 10 A</td></tr><tr><td>SEV 6533-2.1991</td><td>Plug Type 11 L+N</td><td>250 V, 10A</td></tr><tr><td>SEV 6534-2.1991</td><td>Plug Type 12 L+N+PE</td><td>250 V, 10 A</td></tr></table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table><tr><td>SEV 5932-2.1998</td><td>Plug Type 25 3L+N+PE</td><td>230/400 V, 16 A</td></tr><tr><td>3EV 5933-2.1998</td><td>Plug Type 21 L+N</td><td>250 V, 16 A</td></tr><tr><td>SEV 5934-2.1998</td><td>Plug Type 23 L+N+PE</td><td>250 V, 16 A</td></tr></table>	SEV 6532-2.1991	Plug Type 15 3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11 L+N	250 V, 10A	SEV 6534-2.1991	Plug Type 12 L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25 3L+N+PE	230/400 V, 16 A	3EV 5933-2.1998	Plug Type 21 L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23 L+N+PE	250 V, 16 A		N/A
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, 10A																			
SEV 6534-2.1991	Plug Type 12 L+N+PE	250 V, 10 A																			
SEV 5932-2.1998	Plug Type 25 3L+N+PE	230/400 V, 16 A																			
3EV 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																			
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																		

IEC/EN 60950-1			
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 13A.		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
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		N/A

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>telecommunicationcentre; and</p> <ul style="list-style-type: none"> has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON <p>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</p> <p>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</p>		
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> 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, whichshallpass 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 strengthtest 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 duringmanufacturing,using a test voltage of 1,5 Kv <p>It is permitted to bridge this insulation with anopt coupler 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 Y3as 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; 		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	- 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.		
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/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.		N/A
7.3	In Norway and Sweden , there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹⁾	
PCB	EVERTEKELECTRONIC (KUNSHAN) COLTD	HLF-2	HLF-2	UL796	UL E320009	
¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance.						
Supplementary information:						

1.6.2	TABLE: Electrical data (in normal conditions)						N/A
U / Freq.	I(A)	Irated(A)	P(W)	FUSE#	Ifuse(A)	Condition/status	
—	—	—	—	—	—	—	
—	—	—	—	—	—	—	
Supplementary information:							

2.5	TABLE: Limited power source measurement					N/A
Measured U_{OC} (V) with all load circuits disconnected						
Condition:	U_{OC} (V)	I_{max} (A)		S_{max} (VA)		
		Meas.	Limit	Meas.	Limit	
Normal condition	—	—	—	—	—	
Single fault condition (short control boardPin1 and Pin4)	—	—	—	—	—	
Supplementary information:						

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						N/A
Clearance(cl) and creepage distance(cr) at/of/between:	U peak (V)	U r.m.s (V)	Required cl(mm)	cl (mm)	Required cr(mm)	cr (mm)	
Functional:							

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Clause	Requirement – Test	Result – Remark	Verdict

Basic / supplementary:			
Reinforced:			
Supplementary information:			

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:		U peak (V)	U r.m.s (V)	Test voltage (V)	Required DTI(mm)	DTI (mm)
Supplementary information:						

4.3.8	TABLE: Batteries								N/A	
The tests of 4.3.8 are applicable only when appropriate battery data is not available										
For Battery Pack Li3715T42P3h654251										
Is it possible to install the battery in a reverse polarity position?					Impossible					
	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.	
Max. current during normal condition	—	—	—	—	—	—	—	—	—	
Max. current during fault condition	—	—	—	—	—	—	—	—	—	
Test result:									Verdict	
- Chemical leaks									N/A	
- Explosion of the battery									N/A	
- Emission of flame or expulsion of molten metal									N/A	

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Clause	Requirement – Test	Result – Remark	Verdict

- Electric strength tests of equipment after completion of test	Function insulation only	N/A
Supplementary information:		

4.5	TABLE: Thermal requirements			P
	Supply voltage(V)	5Vd.c.	3.8Vd.c.	—
	Ambient T _{min} (°C)	30	30	—
	Ambient T _{max} (°C)	30	30	—
	Condition	empty battery charging mode	full battery discharging mode	
Maximum measured temperature T of part/at:		T(°C)		Allowed T _{max} (°C)
PCB near CPU		35.8	34.9	45

Supplementary information: Having a specified maximum ambient temperature of 85.0° C. The maximum temperatures are calculated based on a minimum test temperature of 85.0°C. Temperature limits is adjusted according to cl.1.4.12.3. Tested with the EUT turned on, running operation system and programs and (charging with empty battery pack / the battery fully charged.)

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T(°C)	Allowed T _{max} (°C)	Insulation class

Supplementary information:

4.5.5	TABLE: Ball pressure test of thermoplastic parts			N/A
	Allowed impression diameter(mm) :			—
Part		Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

4.7	TABLE: Resistance to fire					N/A
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
—	—	—	—	—	—	
—	—	—	—	—	—	
Supplementary information:						

IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests		N/A
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V) Breakdown Yes / No
Functional:			
Basic / supplementary:			
Reinforced:			
Supplementary information:			

5.3	TABLE: Fault condition tests					N/A
	Ambient temperature(°C) :				—	—
	Power source for EUT: Manufacturer, model/type, output rating :				—	—
Component No.	Fault	Supply Voltage (V)	Test time	Fuse#	Fuse Current (A)	Observation
—	—	—	—	—	—	—
Supplementary information:/						

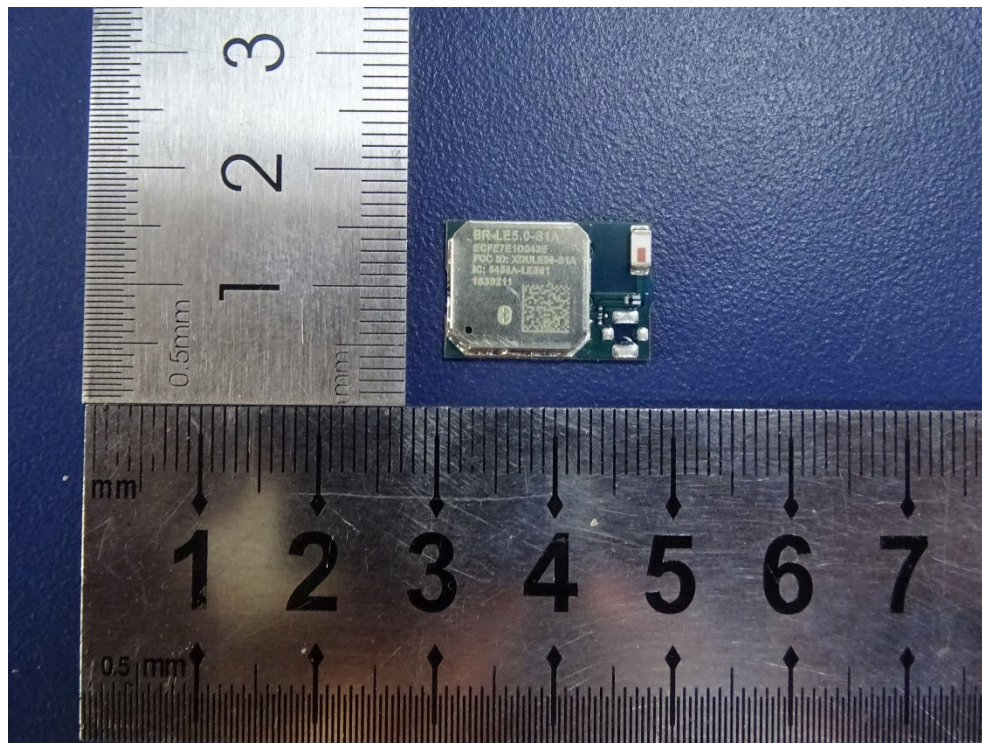
IEC/EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

List of test equipment used:

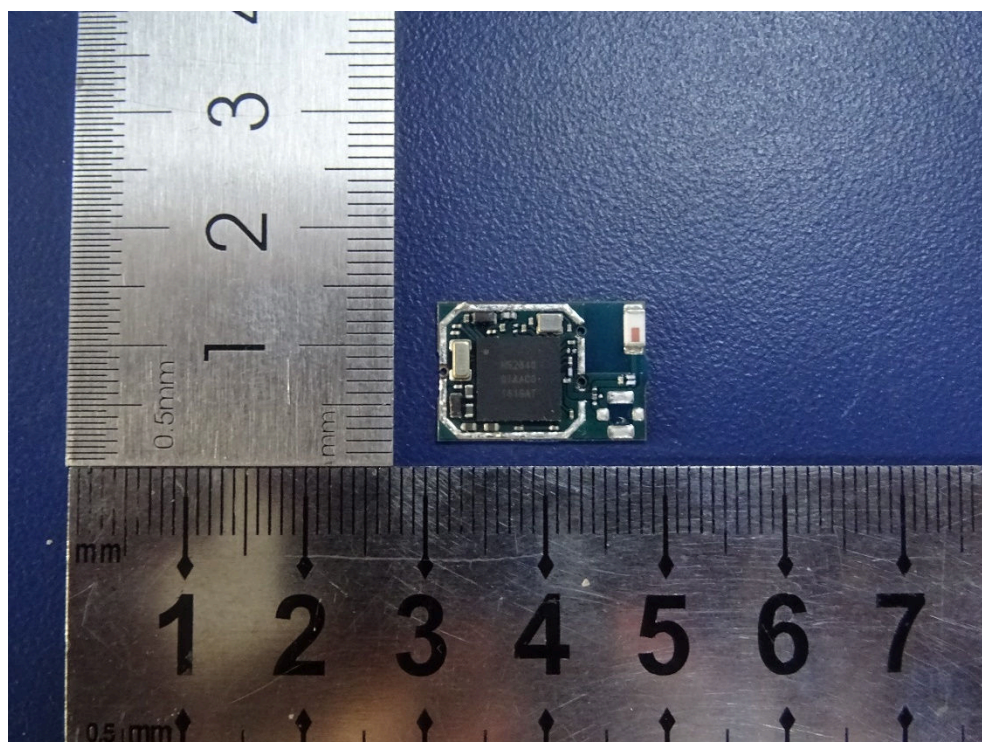
Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration Date	Calibration Due Date
1.6, 2.2, 2.5, 4.5, 5.3	Input measurement	Digital multi-meter: FLUKE 8846A, 1233023	0-1000V, 0-10A	2018-3-1	2019-2-28
1.7, 4.5, 5.3	Time measurement	Digital stop watch: CHAOSUDA PC2009, 2009044	—	2018-3-1	2019-2-28
2.5	Limit power source	Digital Power Meter: YOKOGAWAWT210, 91K415366	0-60V, 0-5A	2018-3-1	2019-2-28
2.5	Limit power source	DCElectronic Load: PLZ164W, QH003244	—	2018-8-20	2019-9-19
4.3.8	Battery test	Battery testequipment LISUN LX-PCBT-138-32D, 08012001	0-5V	2018-3-15	2019-3-14
4.5	Temperature test	Temperature recorder: Agilent 34970A Data Acquisition / Switch Unit, MY44022551	—	2018-3-1	2019-2-28
4.5	Temperature test	Temperature meter: SHINYEI M288-CTH, 2010-04	—	2018-3-1	2019-2-28
4.5, 5.3	Power supply	AC Power Supply: KIKUSUI PCR1000LA, MK005441	DC 1.4-212V	2018-3-15	2019-3-14
4.7.3.2, 4.7.3.4, A.2	Flammability test	High-temperature test chamber ESPEC SEG-020, 1060070014	20-210℃	2018-3-1	2019-2-28
4.7.3.2	Flammability test	Glow-wire tester: AG5113A, GW20150205	—	2018-4-27	2019-2-26
4.7.3.4	Flammability test	Needle flame tester: AG5202A, NF20150205	—	2018-4-27	2019-4-26
A.2	Thickness measurement	Electronic digital caliper: Sinoshan 150mm, F89494	0-150mm	2018-4-5	2019-4-4
	Weight measurement	Electronic Scale: HF-1000, 102193	0-1000N	2018-3-22	2019-3-21
Supplementary information:					

ATTACHMENT

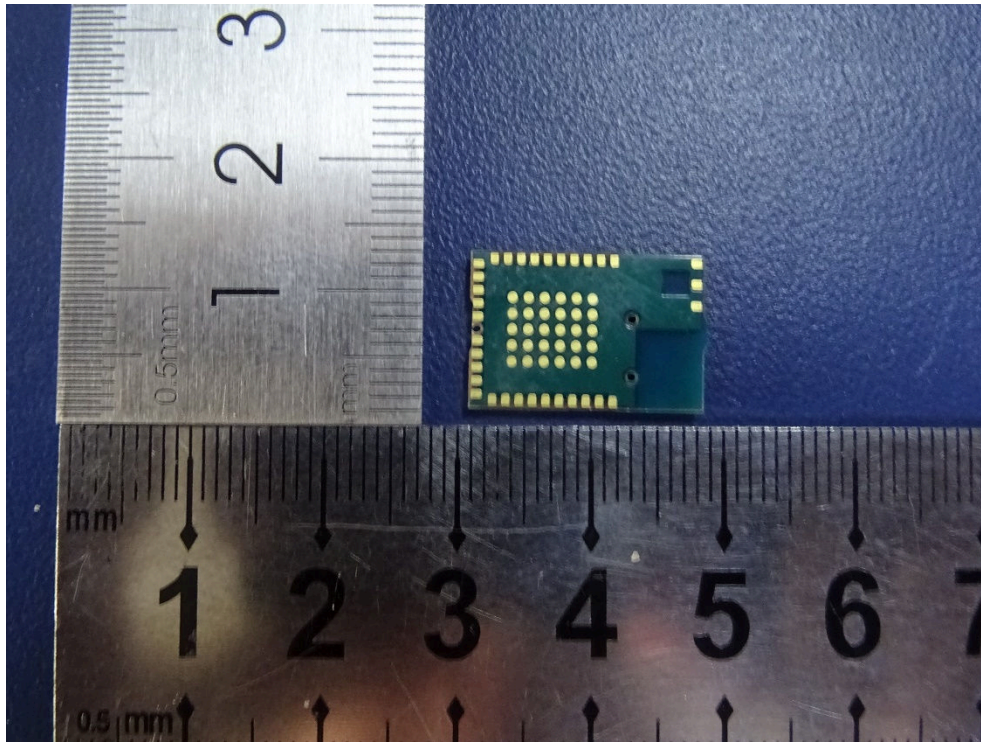
Photograph of EUT



nBlue Bluetooth® 5.0 Module External View 1



nBlue Bluetooth® 5.0 Module External View 2



nBlue Bluetooth® 5.0 Module External View 3