TEST REPORT
IEC 60950-1
Information technology equipment – Safety – Part 1: General requirements

Report Number. .....:	72128408-100
Date of issue. .....:	2017-11-10
Total number of pages. .....:	25
Applicant's name.....:	Johnson Outdoors
Address .....:	1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005
Test specification:	
Standard .....:	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013
Test procedure .....:	Informative Test Report
Non-standard test method.....:	
Test Report Form No.....:	IEC60950_1F
Test Report Form(s) Originator.....:	SGS Fimko Ltd
Master TRF.....:	Dated 2014-02

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	Recreational chart plotter
Trade Mark ..... :	HUMMINBIRD®
Manufacturer..... :	Johnson Outdoors 1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005
Model/Type reference ..... :	SOLIX™ Series
Ratings ..... :	12Vdc (no tolerance) Class III T_{MA} 50°C

Testing procedure and testing location:			
☒	**Testing Laboratory:**	TÜV SÜD America, Inc.	
Testing location/ address .....:		5945 Cabot Parkway, Suite 100 Alpharetta, GA 30005	
☐	**CBTL Testing Laboratory:**		
Testing location/ address .....:			
Tested by (name + signature).....:		Rylan London	
Approved by (name + signature).....:		Doug Massey	
☐	**Testing procedure: TMP**		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature).....:			
☐	**Testing procedure: WMT**		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Witnessed by (name + signature).....:			
Approved by (name + signature).....:			
☐	**Testing procedure: SMT**		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature).....:			
Supervised by (name + signature) ...:			
☐	**Testing procedure: RMT**		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature).....:			
Supervised by (name + signature) ...:			

List of Attachments (including a total number of pages in each attachment):

1. Country deviations (44 pages)
2. Photos (13 pages)
3. IEC 60950-22 (17 pages)

Summary of testing:

The unit was powered and running simulation modus as provided from the customer. The SOLIX 15 was tested as representative **of all** models covered in this report.

Tests performed (name of test and test clause):	**Testing location:**
All required for this investigation.	TÜV SÜD America 5945 Cabot Parkway, Suite 100 Alpharetta, GA 30005

Summary of compliance with National Differences

List of countries addressed: Refer to complete list in Attachment 1.

☒ **The product fulfils the requirements of IEC 60950-1:2005 + Am 1:2009 + Am 2:2013**
Also evaluated to:
EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013; AS/NZS 60950.1 – 2011
National Differences specified in this Test Report.

Remarks / comments pertaining to particular clauses:

1.7.2 Safety instructions and marking.	English language verified. Instructions and equipment marking related to safety is applied in a language which is acceptable in the country in which the equipment is to be sold.
The following schematics were reviewed during this investigation:	SOLIX 15 – 413618 rev. D **SOLIX 10 – 413619 rev. C (Modification 1)**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Label shown above is representative of all models in the series.

Test item particulars ..... :	
Equipment mobility ..... :	[X] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains ..... :	[] pluggable equipment [] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [X] not directly connected to the mains
Operating condition ..... :	[X] continuous [] rated operating / resting time:
Access location ..... :	[X] operator accessible [] restricted access location
Over voltage category (OVC) ..... :	[] OVC I [] OVC II [] OVC III [] OVC IV [X] other: For connection to a 12V marine battery
Mains supply tolerance (%) or absolute mains supply values ..... :	N/A
Tested for IT power systems ..... :	N/A
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	[] Class I [] Class II [X] Class III [] Not classified
Considered current rating of protective device as part of the building installation (A) ..... :	N/A
Pollution degree (PD) ..... :	[] PD 1 [] PD 2 [X] PD 3
IP protection class ..... :	IPx7 (claimed by manufacturer)
Altitude during operation (m) ..... :	2000
Altitude of test laboratory (m) ..... :	368m above mean sea level
Mass of equipment (kg) ..... :	SOLIX 15: 4.4 (largest unit) **SOLIX 10: 2.3 (smallest unit) (Modification 1)**
Dimensions of equipment (cm) ..... :	SOLIX 15: 11.5 x 42.0 x 25.5 (DxWxH) (largest unit) **SOLIX 10: 7.5 x 30 x 10 (DxWxH) (smallest unit) (Modification 1)**

Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	2017-05-23 **and 2017-11-08 (Modification 1)**
Date (s) of performance of tests ..... :	2017-05-30 to 2017-06-08

General remarks:

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

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

To reduce the environmental impact of printed hard copies, this report is prepared in accordance with IECEE OD-2020:2015, Annex E.18. For sections where the complete chapter of the standard is not applicable due to the nature of the product covered in the report, only the chapter's header is included in the report.

General product information:

The EUT's are recreational chart plotters provided in a two-piece clamshell with a display on the front and connectors on the rear for connection of power and various accessories. The units are intended to be mounted in a boat via a bracket secured to the back sides of the unit via two hand-tightened thumb screws.

The units are only for connection to a single 12Vdc battery. The manual instructs the user to provide a fuse in the wiring harness. Proper fuse rating is provided in the installation manual.

Evaluated with the equipment is a remote and a GPS antenna. The remote is a two-piece plastic and a single PCB powered by a non-rechargeable coin cell battery (CR2032 size). The Remote communicates to the main unit via Bluetooth radio.

Also evaluated is the optional GSP antenna. It connects to the rear of the unit and can be used for improved GSP positioning. The Antenna is powered by the unit and the power is current limited to LPS by a 0.5A PTC.

The SOLIX 15 was tested as representation of all other models listed in this report as it was determined to be the worst case.

On the next page are a list of all the models covered in this report.

Modification 1: The original Test report ref. no. 72128408-000, dated 2017-06-23 was modified on 2017-11-10 to 72128408-100 to include the following additions and/or changes:

1. **Added SOLIX 10 model. No testing was required after the review of 413619 rev. C schematics.**

Changes to this report are in bold text. This test report was issued in its entirety.

Abbreviations used in the report:

- normal conditions	**N.C.**	**- single fault conditions**	**S.F.C**
- functional insulation	**OP**	**- basic insulation**	**BI**
- double insulation	**DI**	**- supplementary insulation**	**SI**
- between parts of opposite polarity	**BOP**	**- reinforced insulation**	**RI**
- Power Supply Unit	**PSU**	**- Equipment Under Test**	**EUT**

Indicate used abbreviations (if any)

Models covered in this report:

The report covers all the models listed below. Each model is listed by US domestic SKU and International SKU.

Models vary by installed options and differences in SELV circuits, language, and packaging.

The only difference between the -1 and the -1M are languages included in the model and the only difference in the -1 and the -1NAV or -1KVD is packaging.

SOLIX 10 MODEL MATRIX		SOLIX 12 MODEL MATRIX		SOLIX 15 MODEL MATRIX	
410470-1	**SOLIX 10**	410390-1	SOLIX 12	410410-1	SOLIX 15
410490-1 (Modification 1)	**SOLIX 10 SI**	410400-1	SOLIX 12 SI	410420-1	SOLIX 15 SI

Accessories:
Remote ships under two part numbers:

410180-1	RC 2
409480-1	AS RC1

GPS antenna ships under two part numbers:

408400-1	AS GPS HS
408920-1	AS GRP

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications, and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers	No isolating transformer in the equipment.	N/A
1.5.5	Interconnecting cables	No interconnecting cables.	N/A
1.5.6	Capacitors bridging insulation	No capacitors bridging double or reinforced insulation.	N/A
1.5.7	Resistors bridging insulation	No resistors bridging critical 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		N/A
1.5.9	Surge suppressors	No surge suppressors.	N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	**Power interface**		P
1.6.1	AC power distribution systems	Class III.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor	Class III.	N/A
1.7	**Marking and instructions**		P
1.7.1	Power rating and identification markings	All required markings are silkscreened or marked on durable labels.	P
1.7.1.1	Power rating marking	No mains connection, power rating marking not required.	N/A
	Multiple mains supply connections .....:	No mains connection.	N/A
	Rated voltage(s) or voltage range(s) (V) .....:	No mains connection, not required or provided.	N/A
	Symbol for nature of supply, for d.c. only.....:	No mains connection, not required or provided.	N/A
	Rated frequency or rated frequency range (Hz) ...:	For d.c. only.	N/A
	Rated current (mA or A) .....:	Class III, not required.	N/A
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark .....:	Tradename molded into plastic enclosure and letters are silkscreened.	P
	Model identification or type reference .....:	Marked on durable label, provided on the rear of the unit.	P
	Symbol for Class II equipment only .....:		N/A
	Other markings and symbols .....:		N/A
1.7.1.3	Use of graphical symbols	None used.	P
1.7.2	Safety instructions and marking		P
1.7.2.1	General	Adequate installation and user instructions are provided.	P
1.7.2.2	Disconnect devices	None.	N/A
1.7.2.3	Overcurrent protective device	None.	N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	No operator areas requiring a tool.	N/A
1.7.2.6	Ozone	None.	N/A
1.7.3	Short duty cycles	Intended for continuous operation.	N/A
1.7.4	Supply voltage adjustment .....:	None.	N/A
	Methods and means of adjustment; reference to installation instructions .....:		N/A
1.7.5	Power outlets on the equipment .....:	No power outlets in the equipment.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	None.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7	Wiring terminals	No wiring terminals provided.	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	None affecting safety.	N/A
1.7.8.1	Identification, location and marking .....:		N/A
1.7.8.2	Colors .....:		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 .....:	Not for multiple power sources.	N/A
1.7.10	Thermostats and other regulating devices .....:	None.	N/A
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No removable parts.	N/A
1.7.13	Replaceable batteries .....:	Battery in remote only fits one type of battery, CR2032 type coin cell, no hazard possible from replacement with incorrect type.	P
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations .....:		N/A

2	**PROTECTION FROM HAZARDS**		P
2.1	**Protection from electric shock and energy hazards**		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	SELV circuits only.	P
	Test by inspection .....:		P
	Test with test finger (Figure 2A) .....:		P
	Test with test pin (Figure 2B) .....:		N/A
	Test with test probe (Figure 2C) .....:		N/A
2.1.1.2	Battery compartments	No TNV circuits in equipment.	N/A
2.1.1.3	Access to ELV wiring	SELV circuits only.	N/A
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	SELV circuits only.	N/A
2.1.1.5	Energy hazards .....:	No energy hazard in operator access area.	P
2.1.1.6	Manual controls	None.	N/A
2.1.1.7	Discharge of capacitors in equipment	Test not applicable, SELV circuits only.	N/A
	Measured voltage (V); time-constant (s).....:		—
2.1.1.8	Energy hazards – d.c. mains supply	Class III, not for connection to d.c. mains.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply .....:		N/A
2.1.1.9	Audio amplifiers .....:	No audio amplification.	N/A
2.1.2	Protection in service access areas	No service access areas.	N/A
2.1.3	Protection in restricted access locations	Not for RAL.	N/A
2.2	**SELV circuits**		P
2.2.1	General requirements	Class III product, SELV circuits only.	P
2.2.2	Voltages under normal conditions (V) .....:	< 42.4V peak and < 60Vdc.	P
2.2.3	Voltages under fault conditions (V) .....:	< 42.4V peak and < 60Vdc.	P
2.2.4	Connection of SELV circuits to other circuits .....:	SELV to SELV only.	P
2.3	**TNV circuits**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
2.4	**Limited current circuits**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
2.5	**Limited power sources**		P
	a) Inherently limited output	All I/O ports are signal only, except for power to the external GPS, see below.	P
	b) Impedance limited output	Power output to GPS antenna is limited by a PTC, refer to list of critical components for details.	P
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		P
	Use of integrated circuit (IC) current limiters		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....:		—
	Current rating of overcurrent protective device (A) .:		—
	Use of integrated circuit (IC) current limiters		N/A
2.6	**Provisions for earthing and bonding**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
2.7	**Overcurrent and earth fault protection in primary circuits**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.8	**Safety interlocks**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
2.9	**Electrical insulation**		P
2.9.1	Properties of insulating materials	No natural rubber, hygroscopic, or asbestos materials used. Functional insulation only.	P
2.9.2	Humidity conditioning	Class III.	N/A
	Relative humidity (%), temperature (°C) .....:		—
2.9.3	Grade of insulation	Functional.	P
2.9.4	Separation from hazardous voltages	Class III.	N/A
	Method(s) used .....:		—
2.10	**Clearances, creepage distances and distances through insulation**		P
	The requirements of this sub-clause are not relevant to the equipment. SELV, functional insulation only. Functional insulation complies with 5.3.4 c).		—
3	**WIRING, CONNECTIONS AND SUPPLY**		P
3.1	**General**		P
	The requirements of this sub-clause are not relevant to the equipment.		—
3.2	**Connection to a mains supply**		N/A
	The requirements of this sub-clause are not relevant to the equipment. Not for connection to mains.		—
3.3	**Wiring terminals for connection of external conductors**		N/A
	The requirements of this sub-clause are not relevant to the equipment. Not for connection to mains.		—
3.4	**Disconnection from the mains supply**		N/A
	The requirements of this sub-clause are not relevant to the equipment. Not for connection to mains.		—
3.5	**Interconnection of equipment**		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits .....:	SELV only.	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment	All I/O is signal only.	P
4	**PHYSICAL REQUIREMENTS**		P
4.1	**Stability**		P
	Angle of 10°	Not free-standing.	N/A
	Test force (N) .....:	Not floor standing.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.2	**Mechanical strength**		P
4.2.1	General		P
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N	Functional insulation only.	N/A
4.2.3	Steady force test, 30 N	No covers or doors.	N/A
4.2.4	Steady force test, 250 N	Performed on all sides.	P
4.2.5	Impact test	Performed on the side and the back of units. Test not applicable for front flat panel display as it has no major dimension exceeding 450mm on any of the models.	P
	Fall test	No cracking or deforming of the enclosure occurred after tests. Test performed after -20°C conditioning for 24hrs, according to manufacturer's temperature specifications.	P
	Swing test		N/A
4.2.6	Drop test; height (mm) .....:		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified .....:		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		N/A

4.3	**Design and construction**		P
4.3.1	Edges and corners	No sharp edges or corners.	P
4.3.2	Handles and manual controls; force (N) .....:	None.	N/A
4.3.3	Adjustable controls	None.	N/A
4.3.4	Securing of parts	Adequately secured with screws.	P
4.3.5	Connection by plugs and sockets	No misconnection hazards.	P
4.3.6	Direct plug-in equipment	Not 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 heating elements.	N/A
4.3.8	Batteries	The remote is provided with a coin cell battery	P
	- Overcharging of a rechargeable battery	Coin cell not rechargeable.	N/A
	- Unintentional charging of a non-rechargeable battery	No charging circuits in remote.	N/A
	- Reverse charging of a rechargeable battery	Coin cell not rechargeable.	N/A
	- Excessive discharging rate for any battery	Coin cell was short circuited, no hazard.	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.9	Oil and grease	No exposure to oil and grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment does not produce dust or use powder, liquid or gases.	N/A
4.3.11	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		P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation	No ionizing radiation.	N/A
	Measured radiation (pA/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiation.	N/A
	Part, property, retention after test, flammability classification ..... :		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers (including laser diodes)	No lasers.	N/A
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)	LED's provided for backlight of keys. LED's are diffuse indicating type only.	P
4.3.13.6	Other types ..... :	No other radiation sources.	N/A

4.4	**Protection against hazardous moving parts**	N/A
	The requirements of this sub-clause are not relevant to the equipment.	—

4.5	**Thermal requirements**		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L ..... :	Refer to summary of testing.	—
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 ..... :	Class III.	N/A

4.6	**Openings in enclosures**		P
4.6.1	Top and side openings	No openings provided.	P
	Dimensions (mm) ..... :		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6.2	Bottoms of fire enclosures	When the display is positioned normally, the rear enclosure half acts as the bottom of the fire enclosure. This section of the enclosure has no openings. The front face of the equipment becomes the bottom side only when rotated on its mounting bracket with display facing down, which is not considered as a normal operating condition. In this orientation, keypads are considered to be openings, as they have a flame rating of HB. Internal barriers of metal or V-1 rated PWB block these openings.	P
	Construction of the bottom, dimensions (mm) ..... :		—
4.6.3	Doors or covers in fire enclosures	None.	N/A
4.6.4	Openings in transportable equipment	Not 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	None used.	N/A
4.6.5	Adhesives for constructional purposes	None relied upon for safety.	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	Method 1 is used for all parts.	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	Refer below:	P
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all parts.	P
4.7.2.2	Parts not requiring a fire enclosure	None.	N/A
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification. Refer to appended table 1.5.1.	P
4.7.3.2	Materials for fire enclosures	Fire enclosure made of V-0 rated plastic.	P
4.7.3.3	Materials for components and other parts outside fire enclosures	None.	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Other materials inside fire enclosure are minimum V-2 material.	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N/A
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N/A
5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		P
5.1	**Touch current and protective conductor current**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
5.2	**Electric strength**		N/A
	The requirements of this sub-clause are not relevant to the equipment.		—
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	None provided.	N/A
5.3.3	Transformers	Class III, none provided.	N/A
5.3.4	Functional insulation ..... :	Complies with 5.3.4 c).	P
5.3.5	Electromechanical components	None provided.	N/A
5.3.6	Audio amplifiers in ITE ..... :	No audio amplifiers.	N/A
5.3.7	Simulation of faults	Refer to table 5.3	P
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.1	During the tests	No fire occurred.	P
5.3.9.2	After the tests		N/A
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		N/A
	Telecommunication requirements not applicable to the evaluated product.		—
7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		N/A
	Cable distribution systems requirements not applicable to the evaluated product.		—
A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
	Annex A tests not applicable to the evaluated product.		—
B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**		N/A
	Annex B tests and requirements not applicable to the evaluated product.		—
C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		N/A
	Annex C tests and requirements not applicable to the evaluated product.		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)**		N/A
	Annex D tests and requirements not applicable to the evaluated product.		—
E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)**		N/A
	Annex E tests and requirements not applicable to the evaluated product.		—
F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)**		N/A
	Annex F tests and requirements not applicable to the evaluated product.		—
G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		N/A
	Annex G tests and requirements not applicable to the evaluated product.		—
H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		N/A
	Annex H tests and requirements not applicable to the evaluated product.		—
J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		N/A
	Annex J tests and requirements not applicable to the evaluated product.		—
K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)**		N/A
	Annex K tests and requirements not applicable to the evaluated product.		—
L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	Refer to summary of testing.	P
M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		N/A
	Annex M tests and requirements not applicable to the evaluated product.		—
N	**ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)**		N/A
	Annex N tests and requirements not applicable to the evaluated product.		—
P	**ANNEX P, NORMATIVE REFERENCES**		N/A
	Annex P tests and requirements not applicable to the evaluated product.		—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		N/A
	Annex Q tests and requirements not applicable to the evaluated product.		—
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N/A
	Annex R tests and requirements not applicable to the evaluated product.		—
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		N/A
	Annex S tests and requirements not applicable to the evaluated product.		—
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		N/A
	Annex T tests and requirements not applicable to the evaluated product.		—
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		N/A
	Annex U tests and requirements not applicable to the evaluated product.		—
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		N/A
	Annex V tests and requirements not applicable to the evaluated product.		—
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		N/A
	Annex W tests and requirements not applicable to the evaluated product.		—
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)**		N/A
	Annex X tests and requirements not applicable to the evaluated product.		—
Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)**		N/A
	Annex Y tests and requirements not applicable to the evaluated product.		—
Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**		N/A
	Annex Z tests and requirements not applicable to the evaluated product.		—
AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**		N/A
	Annex AA tests and requirements not applicable to the evaluated product.		—
BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**		N/A
	Annex BB tests and requirements not applicable to the evaluated product.		—
CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		N/A
	Annex CC tests and requirements not applicable to the evaluated product.		—
DD	**ANNEX DD, Requirements for the mounting means of rack-mounted equipment**		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Annex DD tests and requirements not applicable to the evaluated product.		—
EE	**ANNEX EE, Household and home/office document/media shredders**		N/A
	Annex EE tests and requirements not applicable to the evaluated product.		—

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Enclosure (front and rear clamshell) Knob Retainer (GPS)	Sabic	C6600	Rated V-0, Minimum thickness all models: 1.5mm	UL94	UL
Enclosure (front and rear clamshell) Alternate Knob Retainer(GPS)	Formosa	AC310	Rated V-0, Minimum thickness all models: 1.5mm	UL94	UL
Keypad/buttons	Shin Etsu	KE-951U and KE-971TU	Rated HB Minimum 8.9mm thick	UL94	UL
Keypad/buttons	Dow Corning	RBB-6650-50	Rated HB Minimum 8.9mm thick	UL94	UL
Retainer for keypad Trim, SD	Sabic	945A	V-2 min, 1.5mm thick	UL94	UL
Door	Sabic	954ASR	V-0, min 1.8mm thick	UL94	UL
SOLIX 12 LCD panel	Mitsubishi	AA121TD11	SELV	UL60950-1	UL
SOLIX 15 LCD panel	Data Image	JOME154	SELV	IEC 60950-1	Tested in the equipment
Oher internal parts					
PTC used for LPS compliance for GPS antenna R1039	Littlefuse	miniSMDC050F	24V, I_{hold} 0.5A I_{trip} 1.0A	UL1434 EN 60730-1	UL, TUV
Printed Wiring Boards	Interchangeable	Interchangeable	Min. V-1, 105°C	UL 94	UL
GPS antenna					
Enclosure	Albis Plastic GmbH	Luran S 778T	Rated HB Minimum 1.5mm thick	UL94	UL
Enclosure Alternate	UMG ABS Ltd.	Dialac S311	Rated HB Minimum 1.5mm thick	UL94	UL
Remote					
Enclosure	Chimei	PA-746	Rated HB Minimum 1.8mm thick	UL94	UL
Keypad	Dow Corning	SH 871U	Rated HB Minimum 1.8mm thick	UL94	UL
Printed Wiring Boards	Interchangeable	Interchangeable	Min. V-1, 105°C	UL 94	UL

Coin cell battery	Duracell	DL2032	3Vdc 225mA	UL1642	UL

Supplementary information:

[1)] **Provided evidence ensures the agreed level of compliance. See OD-2039**.

1.5.1	**TABLE: Opto Electronic Devices**	N/A
Manufacturer .....:		
Type.....:		
Separately tested .....:		
Bridging insulation .....:		
External creepage distance.....:		
Internal creepage distance .....:		
Distance through insulation.....:		
Tested under the following conditions.....:		
Input.....:		
Output.....:		
Supplementary information: No opto's.		

1.6.2	**TABLE: Electrical data (in normal conditions)**					P
U (Vdc)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (mA)	Condition/status
12	3.6	—	—	—	—	Refer below
Supplementary information: Test performed for informative purposes only. Test performed using a laboratory DC source.						

2.1.1.5 c) 1)	**TABLE: max. V, A, VA test**				N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
—	—	—	—	—	
Supplementary information: Class III.					

2.1.1.5 c) 2)	**TABLE: stored energy**	N/A
Capacitance C (µF)	Voltage U (V)	Energy E (J)
—	—	—
Supplementary information: Class III.		

2.2	**TABLE: evaluation of voltage limiting components in SELV circuits**		N/A
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
—	—	—	—
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
—	—		
Supplementary information: Class III.			

2.5	TABLE: limited power sources						N/A
Output / Circuit Tested	Test Condition	Duration	Uoc (V)	I_{sc} (A)		VA	
				Meas.	Limit	Meas.	Limit
—	—	—	—	—	—	—	—
Supplementary information: PTC used for LPS compliance, refer to clause 2.5.							

2.10.2	Table: working voltage measurement			N/A
Location	Peak voltage (V)	RMS voltage (V)	Comments	
—	—	—	—	
Supplementary information: Class III.				

2.10.3, 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:							
—	—	—	—	—	—	—	
Basic/supplementary:							
—	—	—	—	—	—	—	
Reinforced:							
—	—	—	—	—	—	—	
Supplementary information: Class III.							

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
—	—	—	—	—	—	
Supplementary information: Class III.						

4.3.8	TABLE: Batteries	P
The tests of 4.3.8 are applicable only when appropriate battery data is not available		P
Is it possible to install the battery in a reverse polarity position?	Yes, however the battery does not make electrical contact.	P

	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	7.53 mA	10 mA	—	—	—	—	—	—	—
Max. current during fault condition 1	400 mA	10 mA	—	—	—	—	—	—	—

Supplementary information:

Test results:		Verdict
- Chemical leaks	No chemical leaks.	P
- Explosion of the battery	No hazard.	P
- Emission of flame or expulsion of molten metal	No flame or molten metal.	P
- Electric strength tests of equipment after completion of tests		N/A

4.3.8	TABLE: Batteries	P
Battery category ..... :	Lithium	
Manufacturer ..... :	Panasonic	
Type / model..... :	CR2032	
Voltage ..... :	3.0V	
Capacity ..... :	225 mAh	
Tested and Certified by (incl. Ref. No.) ..... :	UL	
Circuit protection diagram:	None required, no charge circuit	

4.5	TABLE: Thermal requirements						P
	Supply voltage (V) .....:	—	—	—	12Vdc		—
	Ambient T_{min} (°C) .....:	—	—	—	—	—	—
	Ambient T_{max} (°C) .....:	—	—	—	—	—	—
	Elapsed time (hours).....:	—	—	—	2 hrs, 53 min		—
Maximum measured temperature T of part/at::							Allowed T_{max} (°C)
Ambient		—	—	—	49.2	—	—
U300 Heatsink		—	—	—	93.0	—	105
C1915		—	—	—	78.2	—	105
T1601		—	—	—	78.5	—	95
T1990		—	—	—	85.1	—	105
T1600		—	—	—	85.3	—	105
L203		—	—	—	89.7	—	105
U1708		—	—	—	86.3	—	105
U700		—	—	—	84.3	—	105
P100		—	—	—	85.3	—	105
PWB Near U300		—	—	—	92.1	—	85
L1300		—	—	—	104.7	—	85
Q1301		—	—	—	107.3	—	85
L103		—	—	—	93.7	—	85
U1200		—	—	—	84.5	—	105
External Front Bottom Center LCD		—	—	—	60.7	—	105
External Top Right of Center		—	—	—	55.6	—	105
External Bottom Right of Center		—	—	—	52.3	—	85
External Front D-Pad Button		—	—	—	52.3	—	85
Supplementary information: **The SOLIX 15 was tested as representation of all other models listed in this report as it was determined to be the worst case.**							

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm) ..... :	≤ 2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)
—		—	—
Supplementary information: Class III.			

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Enclosure (front and rear clamshell)	Sabic	C6600	1.5mm min.	V-0	UL
Enclosure (front and rear clamshell) Alternate	Formosa	AC310	1.5mm min.	V-0	UL
Keypad/buttons	Shin Etsu	KE-951U and KE-971TU	8.9mm min.	V-0	UL
Keypad/buttons	Dow Corning	RBB-6650-50	8.9mm min.	HB	UL
Retainer for keypad Trim SD	Sabic	945A	1.5mm min.	V-2	UL
Door	Sabic	954ASR	1.8mm min.	V-0	UL
Printed Wiring Boards	Interchangeable	Interchangeable	—	V-1 min.	UL
GPS antenna					
Enclosure	Albis Plastic GmbH	Luran S 778T	1.3mm min.	HB	UL
Enclosure Alternate	UMG ABS Ltd.	Dialac S311	1.3mm min.	HB	UL
Remote					
Enclosure	Chimei	PA-746	1.7mm min.	HB	UL
Keypad	Dow Corning	SH 871U	1.7mm min.	HB	UL
Printed Wiring Boards	Interchangeable	Interchangeable	—	V-1 min.	UL
Supplementary information:					

5.1	TABLE: touch current measurement					N/A
Terminal A (Switch “s”) of Measuring Instrument Connected to:	Switch “e” Position	Touch Current (mA_{RMS}) Polarity P1/Primary Switch Condition				LIMIT (mA_{RMS})
		Normal/On	Normal/Off	Reverse/On	Reverse/Off	
—	—	—	—	—	—	—
Supplementary information: Class III.						

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
—		—	—	—
Supplementary information: Class III, F.I. only.				

5.3	TABLE: Fault condition tests						P
	Ambient temperature (°C) .....:			23-25°C			—
	Power source for EUT: Manufacturer, model/type, output rating .....:			DC power supply			—
Com-ponent No.	Fault	Supply voltage (Vdc)	Test time (hours)	Fuse #	Fuse current (A)	Observation	
C105	Short	12V	5 mins	—	9.38	Current spiked, then the unit turned off. No hazard.	
C106	Short	12V	5 mins	—	9.38	Current spiked, then the unit turned off. No hazard.	
C109	Short	12V	5 mins	—	9.38	Current spiked, then the unit turned off. No hazard.	
Supplementary information: Test performed with DC supply set to a max current of 9.4A based upon a fuse rating of 7.5A x1.25%.							

C.2	TABLE: transformers						N/A
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
—	—	—	—	—	—	—	—
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
—	—	—	—	—	—	—	—
Supplementary information: Class III, no transformers.							

Transformer

END OF TEST REPORT

Attachment No. 1

ATTACHMENT TO TEST REPORT
IEC 60950-1:2005 + A1:2009 + A2:2013
EUROPEAN GROUP DIFFERENCES
and
NATIONAL DEVIATIONS

Information Technology Equipment – Safety –
Part 1: General Requirements

Report Reference No.: 72128408-100

Dated of issue: 2017-11-10

Explanation for Abbreviations (if any differ from main report)**:**

SAME as base report

Possible test case verdicts:

- test case does not apply to the test object ..... : ☒ N/A / ☐ N (Not Applicable)
- test object does meet the requirement ..... : P (Pass)
- test object does not meet the requirement ..... : F (Fail)

Remarks:

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

IEC 60950-1:2005 (ed.2) (per IECEE CB Bulletin Website)			
Group	**Group standard references**	**Last modification**	**File downloaded**
CENELEC	EN 60950-1:2006	2008-09-24	X
CENELEC	EN 60950-1:2006 + A11:2009	2009-06-23	X
CENELEC	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011	2011-08-19	X
CENELEC	EN 60950-1:2006/A2:2013	2013-09-03	X

IEC 60950-1:2005 (ed.2) (per IECEE CB Bulletin Website)			
Country	**National standard reference**	**Last modification***	**File downloaded**
Denmark – DK	DS/EN 60950-1:2006 and DS/EN 60950-1/A11:2009	2009-04-16	X
Denmark – DK	Group standard reference: EN 60950-1/A11:2009	2010-04-09	X
Finland – FI	EN 60950-1	2009-12-01	X
Germany –DE	DIN EN 60950-1 (VDE0805-1)	2007-05-29	X
Ireland – IE	EN 60950-1	2007-05-29	X
Norway – NO	EN 60950-1	2007-05-29	X
Spain – ES	UNE EN 60950-1	2012-01-09	X
Sweden – SE	SS-EN 60950-1:2006 + A11:2009 + A12:2011	2011-04-19	X
Switzerland – CH	SN EN 60950-1:2006	2009-12-15	X
United Kingdom – GB	EN 60950-1	2007-05-29	X

IEC 60950-1:2005 (ed.2) + A1:2009
(per IECEE CB Bulletin Website)

Country	National standard reference	Last modification*	File downloaded
Denmark – DK	DS/EN 60950-1:2006/A1:2010	2010-06-03	—
Finland – FI	—	2010-04-20	X
Germany –DE	**VDE 0805-1:2011-01**	**2014-01-09**	**X**
Slovenia – SI	SIST EN 60950:2006+A1:2010	2010-04-23	—
Sweden – SE	SS-EN 60950-1:2006 + A11:2009 + A1:2010	2011-04-19	X
United Kingdom – GB	BSEN60950-1:2006 + A1:2010	2010-07-12	X

IEC 60950-1:2005 (ed.2) + A1:2009 + A2:2013
(per IECEE CB Bulletin Website)

Country	National standard reference	Last modification*	File downloaded
Austria - AT	EN60950-	2013-08-21	—
Denmark – DK	DS/EN 60950-1:2006 + A11:2009 + A1:2010	2013-07-04	X
Italy – IT	**EN 60950-1/A2:2013**	**2014-02-19**	**X**
Sweden – SE	SS-EN 60950-	2013-10-31	X
United Kingdom – GB	**BSEN60950-1:2006 + A1:2010 + A2:2013**	**2014-03-05**	**—**

* The last modified date indicates the last time the standard reference / attachment for this standard was modified. .

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
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it´s amendmets are prefixed “Z”		P
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 4.7.3.1 Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note; 6.1.2.1 Note 2 6.2.2.1 Note 2; EE.3 Note		P

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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.		P
1.1.1 (A1:2010)	**Replace** the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	Not a portable sound system.	N/A
(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	Not a portable sound system.	N/A
1.5.1 (Added info*)	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. New Directive 2011/65/11 *		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.	Not a portable sound system.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Not a portable sound system.	N/A
	Zx Protection against excessive sound pressure from personal music players		N/A
	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.	Not a personal music player.	N/A
	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.	Not a personal music player.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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. – 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.	Not a personal music player.	N/A
	For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.	Not a personal music player.	N/A
	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.	Not a personal music player.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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; andc) 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.	Not a personal music player.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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.	Not a personal music player.	N/A
	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.	Not a personal music player.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	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.	Not a listening device.	N/A
	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.	Not a listening device.	N/A
	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.	Not a listening device.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	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/A
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; 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.	Class III.	N/A
2.7.2	This subclause has been declared ‘void’.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Class III.	N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1	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.	Class III.	N/A
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A
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	Class III.	N/A
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).	Manufacturer to provide reports as requested by national authorities.	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	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.	The unit does not emit X-Ray radiation.	N/A
Bibliography	Additional EN standards.		—

ZA ANNEX (informative) **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**			
Clause	Requirement + Test	Result - Remark	Verdict
Annex ZA (A2:2013)	INFORMATIVE publication notice: Replace the entire Annex ZA by the following in Amenddment A2:2013	Taken into consideration.	P

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.	Class III.	N/A
1.2.13.14 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.	Class III.	N/A
1.5.7.1 (A11:2009)	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.	Class III.	N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Class III.	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.	Class III.	N/A
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”	Class III.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1 (A11:2009)	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.	No connection to cable distribution system.	N/A
	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/A
	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/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
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."	Class III.	N/A
1.7.5 1.7.5 (A11:2009)	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.	Class III, no socket-outlets.	N/A

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. 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	Class III, no socket-outlets.	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.	Class III.	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.	Class III.	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.	Class III.	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.	Class III.	N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Class III.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Class III.	N/A
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:	Class III.	N/A
	SEV 6532-2.1991 Plug Type 15 3P+N+PE SEV 6533-2.1991 Plug Type 11 L+N SEV 6534-2.1991 Plug Type 12 L+N+PE	250/400 V, 10 A 250 V, 10 A 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:	Class III.	N/A
	SEV 5932-2.1998: Plug Type 25, 3L+N+PE SEV 5933-2.1998: Plug Type 21, L+N, SEV 5934-2.1998: Plug Type 23, L+N+PE	230/400 V, 16 A 250 V, 16A 250 V, 16 A	—
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.	Class III.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
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	Class III.	N/A
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.	Class III.	N/A
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.	Class III.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	Class III.	N/A
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.	Class III.	N/A
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.	Class III.	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.	Class III.	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.	Not DIRECT PLUG-IN EQUIPMENT.	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.	Not DIRECT PLUG-IN EQUIPMENT.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Class III.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
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. 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.	Class III, no TNV.	N/A

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	Class III, no TNV.	N/A
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	Class III, no CDS.	N/A
7.3 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	Class III, no CDS.	N/A

ANNEX ZD (informative)
IEC and CENELEC code designations for flexible cords

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60277 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

DK – Denmark

ATTACHMENT TO TEST REPORT IEC 60 950-1, Ed. 2 (2005)
DANISH NATIONAL DIFFERENCES
Information technology equipment – Safety –
Part 1: General requirements

Differences according to.....: National standard DS/EN 60950-1:2006
+ A11:2009 + A1:2010 + A12:2011 + A2:2013

Attachment Form No.....: DK_ND_IECEN60950_1E

Attachment Originator .....: TÜV SÜD America, Inc.

Master Attachment.....: Date (2013-07-04)

	National Differences + A2:2013-07-04 Bulletin Information		P
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets	Class III.	N/A
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	Class III. No socket-outlets.	N/A
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.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

FI – Finland
ATTACHMENT TO TEST REPORT IEC 60950-1 **FINLAND NATIONAL DIFFERENCES** Information technology equipment – Safety – Part 1: General requirements
Differences according to.....: EN 60950-1:2006 + A11:2009 **+ A1:2010-04-20 Bulletin Information**
Attachment Form No.....: FI_ND_IEC60950_1A **Attachment Originator .....**: SGS Fimko Ltd **Master Attachment**.....: Date (2009-09)

	National Differences + A1:2010-04-20 Bulletin Information		P
General	The clause 6.1.2.1 in this test report form replaces the clause in Test Report Form No. EU_GD_IEC60950_1A concerning Finnish differences to IEC 60950-1:2005		P
1.5.7.1	In **Finland** resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	Class III.	N/A
1.5.9.4	In **Finland** the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	Class III.	N/A
1.7.2.1	In **Finland** 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"	Class III.	N/A
2.3.2 (A1:2009)	In **Finland** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A
2.10.5.13 (A1:2009)	In **Finland** there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
FI – Finland			
5.1.7.1	In **Finland** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
FI – Finland			
6.1.2.1	In **Finland** 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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - 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. 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 60384-14:2005 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 60384-14:2005; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14:2005, in the sequence of tests as described in EN 60384-14:2005.	Class III. No TNV circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
FI – Finland			
6.1.2.2	In **Finland** 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.	Class III. No TNV circuits.	N/A
7.2	In **Finland** 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.	Class III. No TNV or CDS circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
DE – Germany			
	National Differences+ A1:2011-02-15 Bulletin Information		P
1.7.2.1	**Germany** (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.	Refer to summary of testing. English only was reviewed.	N/A
(A1)	VDE 0805-1:2011-01, Annex ZC, cl. 1.7.2.1: According to GPSG, section 2, clause 4: If certain rules on the use, supplementation or maintenance of an item of technical work equipment or ready-to-use commodity must be observed in order to guarantee safety and health, instructions for use in German must be supplied when it is brought into circulation.	Refer to summary of testing. English only was reviewed.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IE – Ireland			
	National Differences		P
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.	Class III.	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.	Class III. Not DIRECT PLUG-IN EQUIPMENT.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
NO – Norway			
	National Differences		P
1.5.7.1	In **Norway**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	Class III.	—
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).	Class III device not directly connected to AC Mains.	P
1.5.9.4	In **Norway**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	Class III.	N/A
1.7.2.1	In N**orway**, 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: “Apparatet må tilkoples jordet stikkontakt”	Class III.	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.	Class III.	N/A
2.3.2	In **Norway**, there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A
2.10.5.13	In **Norway**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
NO – Norway			
5.1.7.1	In **Norway**, TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
NO – Norway			
6.1.2.1	In **Norway**, 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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - 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. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.	Class III. No TNV circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
NO – Norway			
6.1.2.2	In **Norway**, 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.	Class III. No TNV circuits.	N/A
7.2	In **Norway**, 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.	Class III. No CDS circuits.	N/A
7.3	In **Norway**, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		—
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ES – Spain			
	National Differences		P
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.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

SE – Sweden

ATTACHMENT TO TEST REPORT IEC 60 950-1, Ed. 2 (2005)
SWEDISH NATIONAL DIFFERENCES
Information technology equipment – Safety –
Part 1: General requirements

Differences according to.....: National standard SS-EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013

Attachment Form No.....: SE_ND_IECEN60950_1E

Attachment Originator .....: TÜV SÜD America, Inc.

Master Attachment.....: Date (2013-07-04)

	National Differences + A11 + A1+ A12 + A2 : 2013-06-25 Bulletin Information		P
(A1:2009, and A2:2013)	Please see the EN version of the standard where the Swedish National and Special National Deviations are stated.	See additional information in the Group Differences.	—
1.5.1	**Sweden** (Ordinance 1990:944) Add the following: NOTE In **Sweden**, switches containing mercury are not permitted.	(Annex ZC A-DEVIATIONS) DELETED, see A11.	—
1.5.7.1	In **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1.	(Annex ZB SNC) REPLACED, see A11.	—
1.5.9.4	In **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	Class III.	N/A
1.7.2.1 (A2:2013)	In **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: “Apparaten skall anslutas till jordat uttag”	Class III.	N/A
2.3.2	In **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A
2.10.5.13	In **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	Class III. No TNV circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
SE – Sweden			
5.1.7.1	In **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.	Class III.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
SE – Sweden			
6.1.2.1	In **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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - 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. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.	Class III. No TNV circuits.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
SE – Sweden			
6.1.2.2	In **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.	Class III. No TNV circuits.	N/A
7.2	In **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.	Class III. No CDS circuits.	N/A
7.3	In **Sweden**, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		—

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
CH – Switzerland			
	National Differences		
1.5.1	**Switzerland** Ordinance on environmentally hazardous substance SR 814.81, Annex 1.7, Mercury – Annex 1.7 of SR 814.81 applies for mercury. NOTE In **Switzerland**, switches containing mercury such as thermostats, relays and level controllers are not allowed.	No components containing mercury are used.	P
1.7.13	Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries. Annex 2.15 of SR 814.81 applies for batteries containing cadmium and mercury. Note: Ordinance relating to environmentally hazardous substances, SR 814.013 of 1986-06-09 is not longer in force and superseded by SR 814.81 of 2009-02-01 (ChemRRV).	No NiMH or NiCd batteries.	N/A
3.2	Supply cords of portable electrical appliances having a rated current not exceeding 10 A shall be provided with a plug complying with IEC 60884-1 (3. Ed.)+am1, SEV 1011 and one of the following dimension sheets:	Class III.	N/A
	- SEV 6532-2:2009 Plug type 11, L + N, 250V 10A - SEV 6534-2:2009 Plug type 12, L + N + PE, 250V 10A - SEV 6532-2:2009 Plug type 15, 3L + N + PE, 250/400V 10A		—
	Supply cords of portable electrical appliances having a rated current not exceeding 16 A shall be provided with a plug complying with IEC 60884-1 (3. Ed.)+am1, SEV 1011 and one of the following dimension sheets:	Class III.	N/A
	- SEV 5933-2:2009 Plug type 21, L + N, 250V 16A - SEV 5934-2:2009 Plug type 23, L + N + PE, 250V 16A - SEV 5932-2:2009 Plug type 25, 3L + N + PE, 250/400V 16A NOTE: 16 A plugs are not often used in Swiss domestic installation system.		—
	See TRF Template Regulatory Requirements Switzerland on IECEE Website R.R. TRF templates		P

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
GB United Kingdom			
	National Differences + A1:2010-07-12 Bulletin Information		P
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.	Class III.	N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Class III.	N/A
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.	Class III.	N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.	Class III.	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:	Class III.	N/A
	• 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		—
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.	Class III. Not DIRECT PLUG-IN EQUIPMENT.	N/A

IEC 60950-1 + A1 +A2 – National Deviation ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

---------- END REPORT ----------

Attachment No. 2

PHOTOGRAPHS

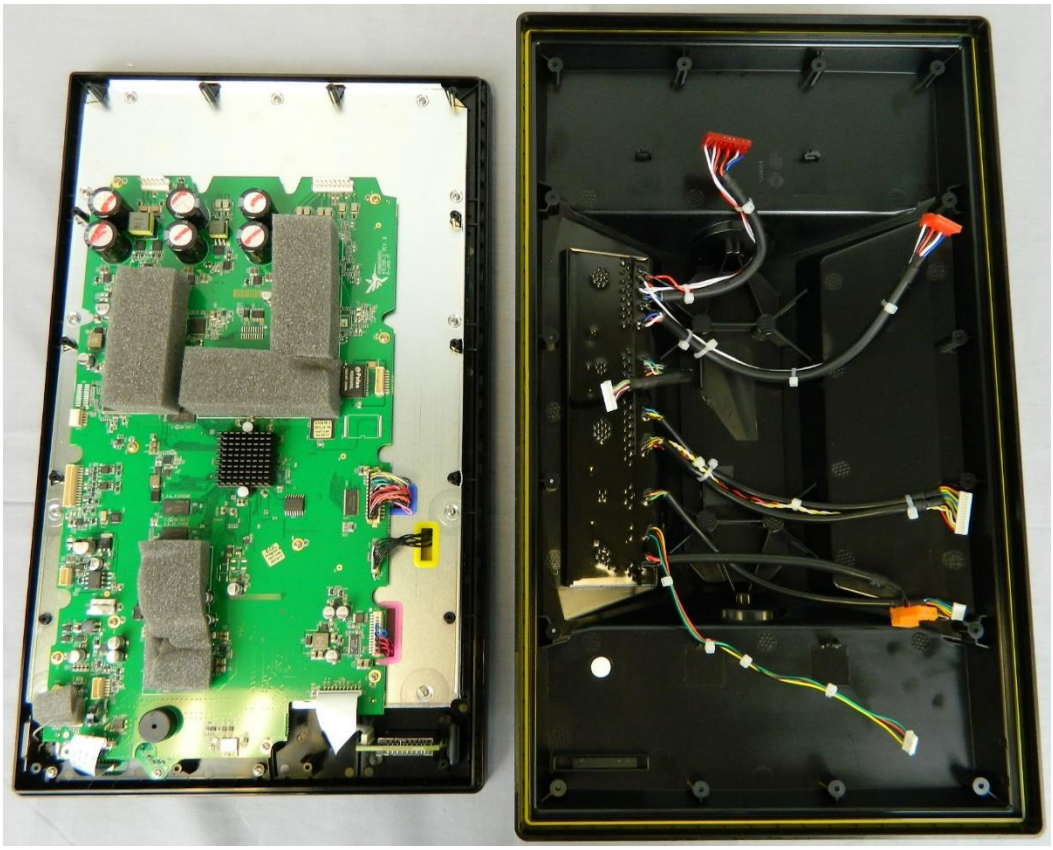
Attachment contains

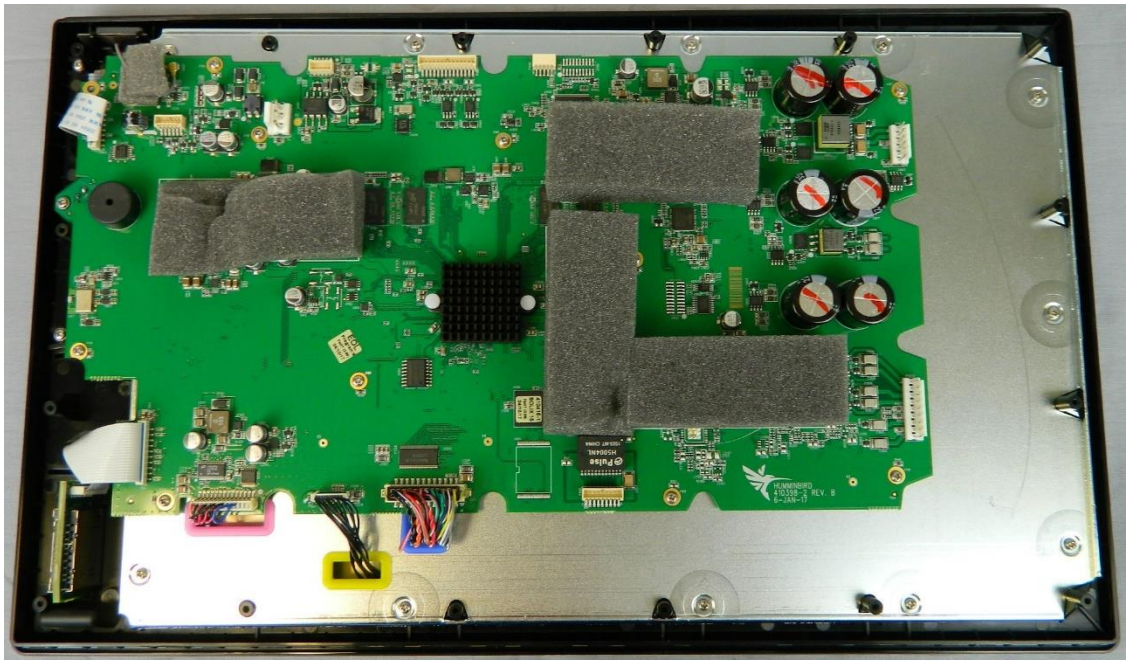
Total:	**13 pages**
Cover page:	**1 page**
PHOTOS:	**12 pages**

Photographs: (SOLIX 15 External with accessories)

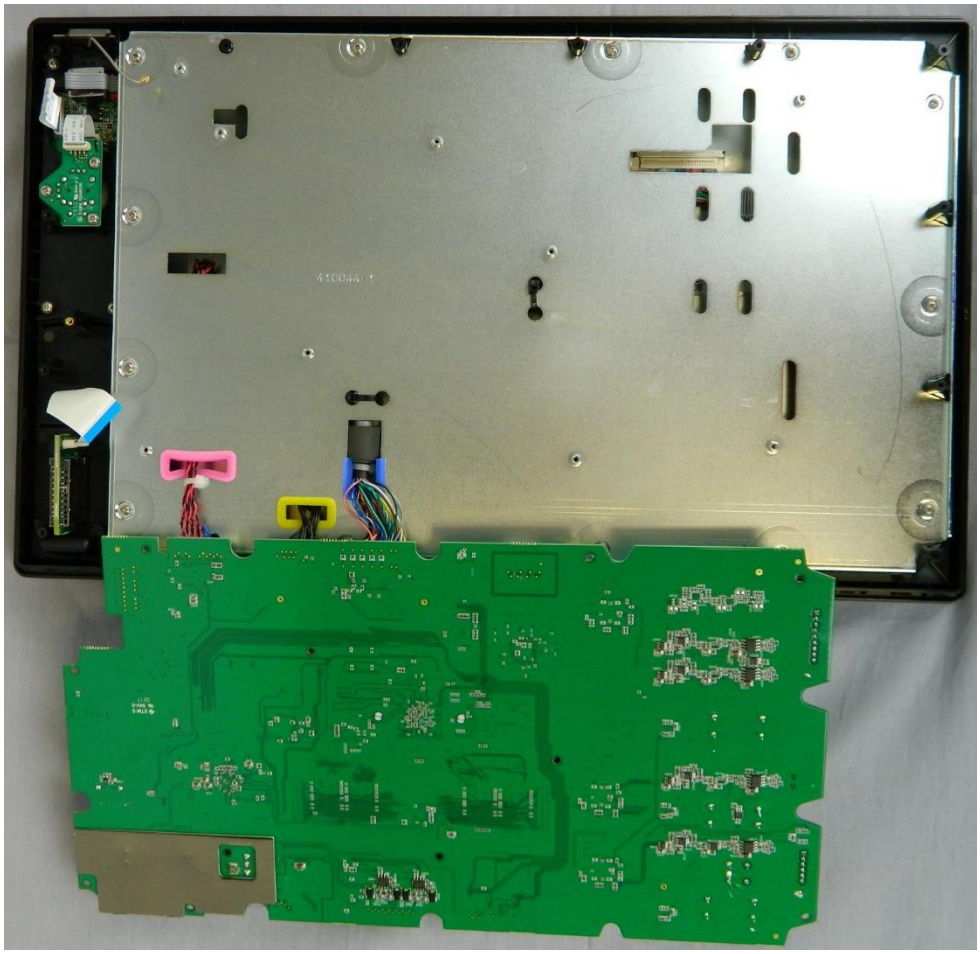
Photographs: (Solix 15 External)

Photographs: (Solix 15 Internal View)

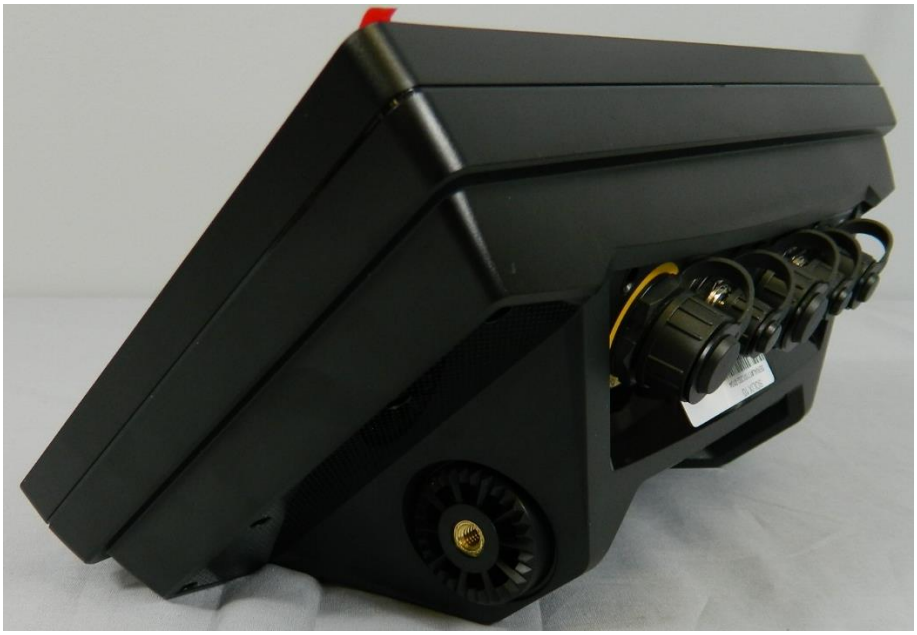




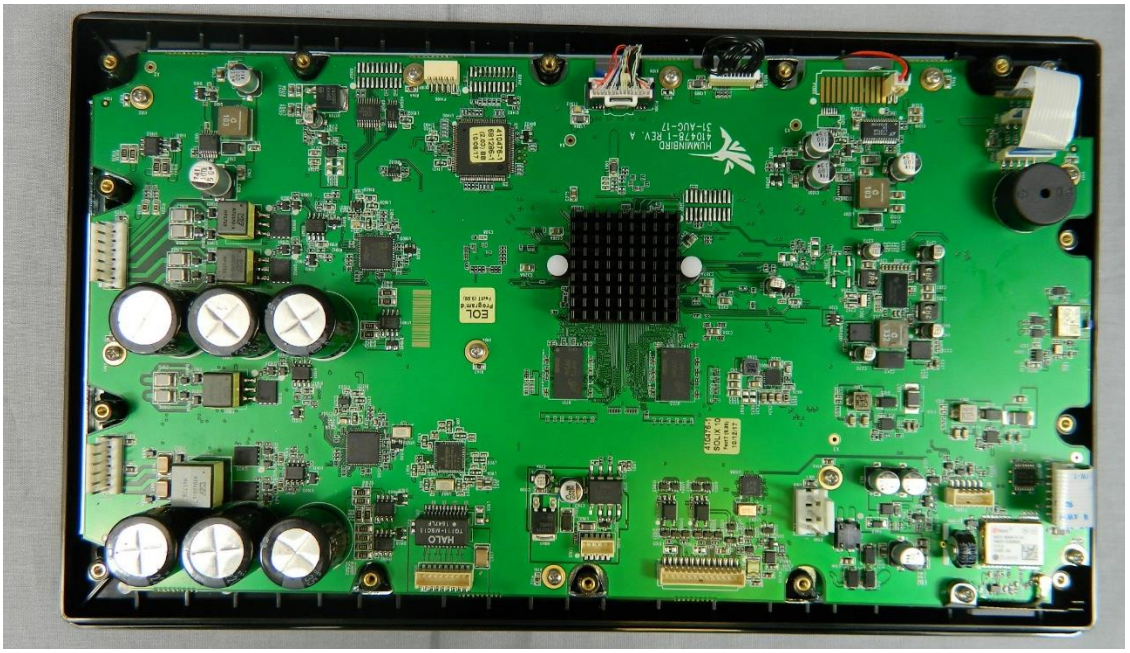
Photographs: (Solix 15 Internal)

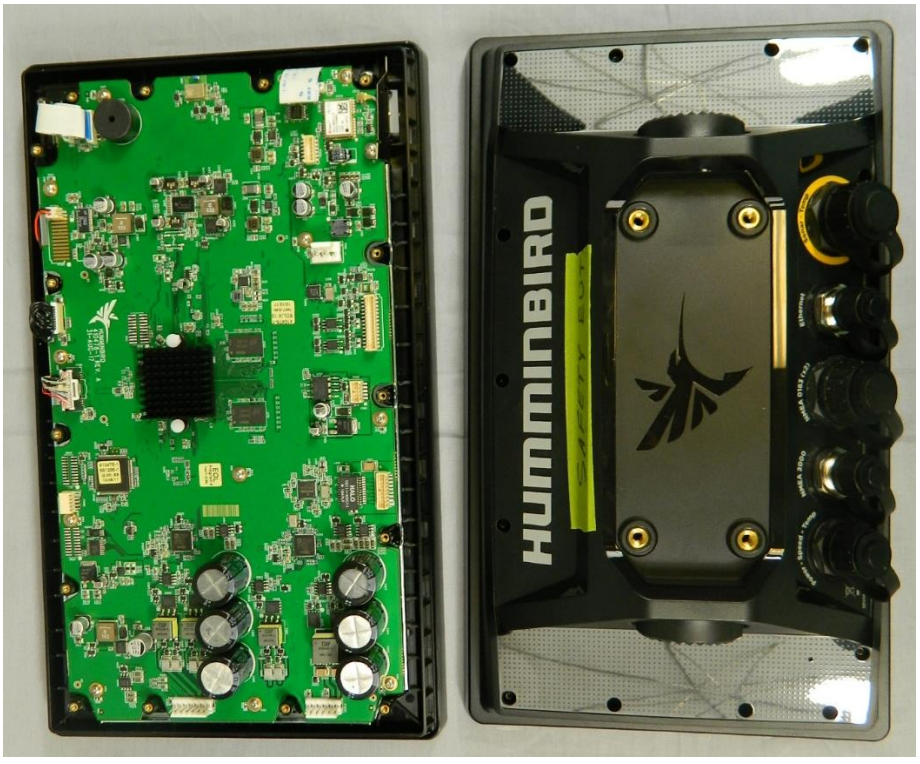


Photographs: (Solix 10 External)

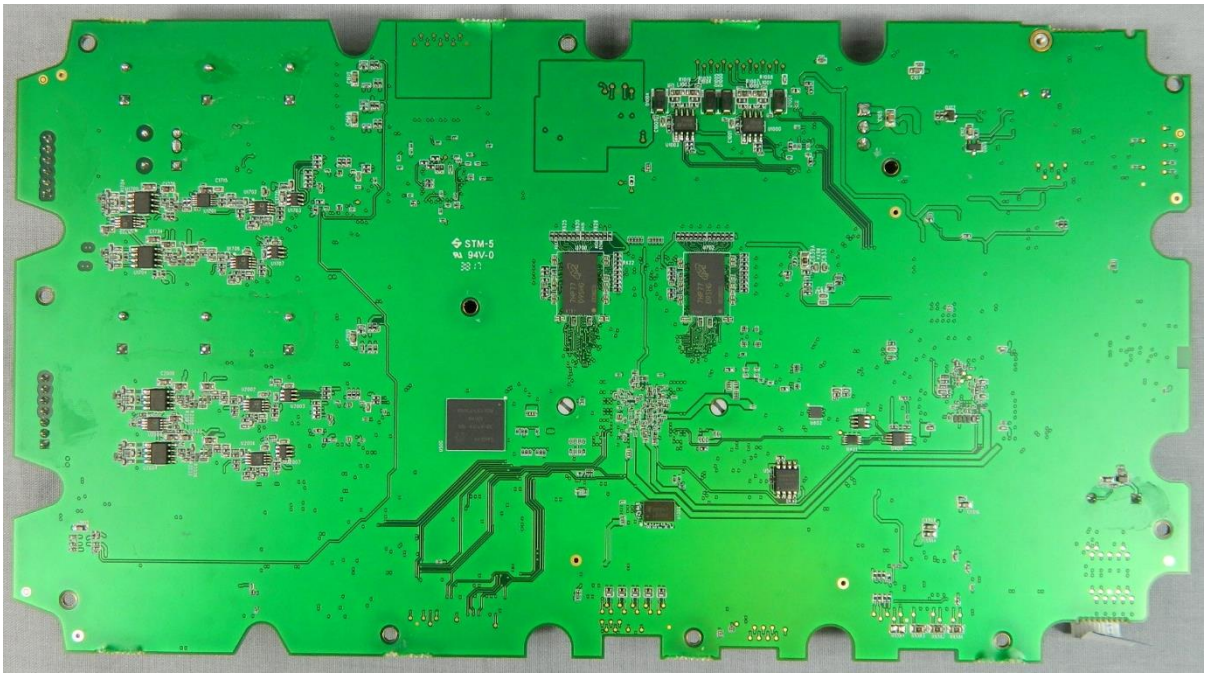


Photographs: (Solix 10 Internal View)



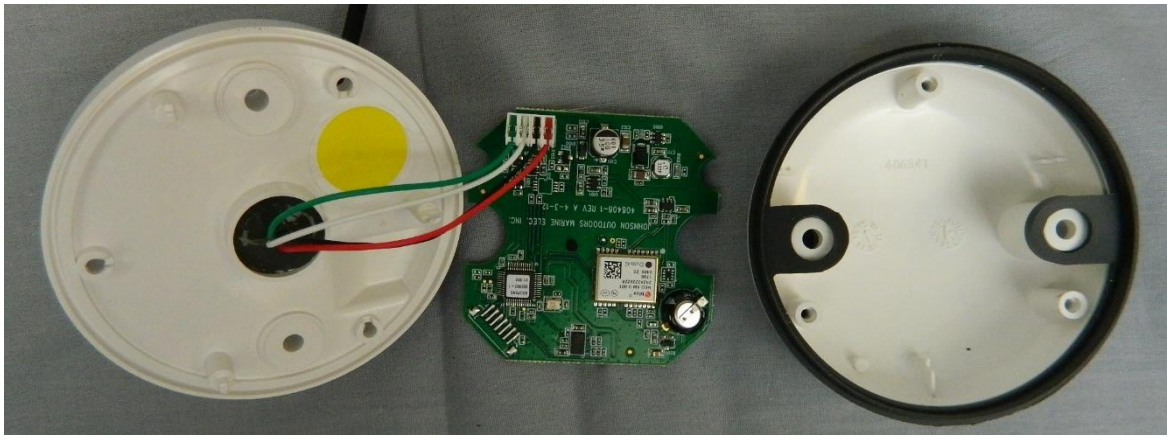


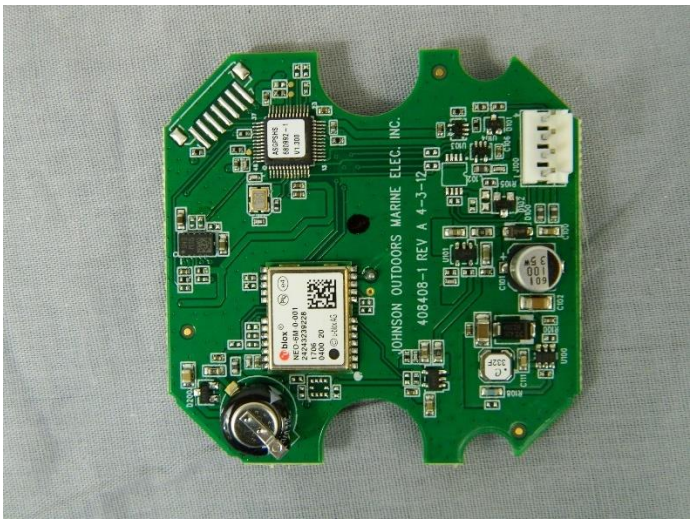
Photographs: (Solix 10 Internal)



Photographs: (GPS External)

Photographs: (GPS Internal)

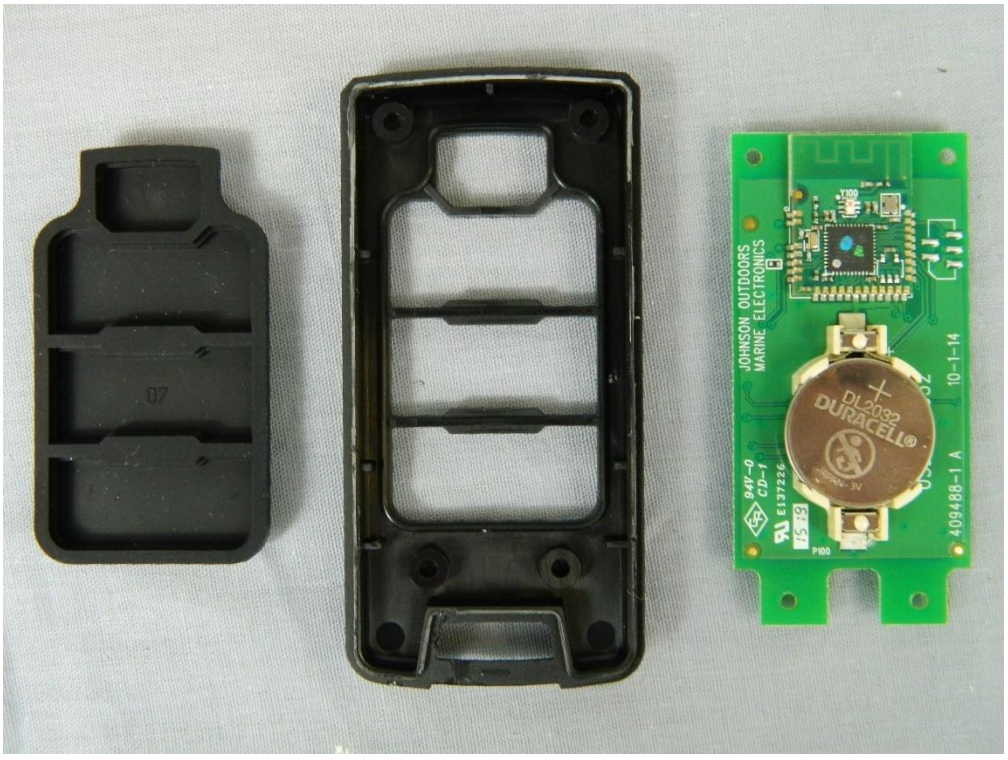


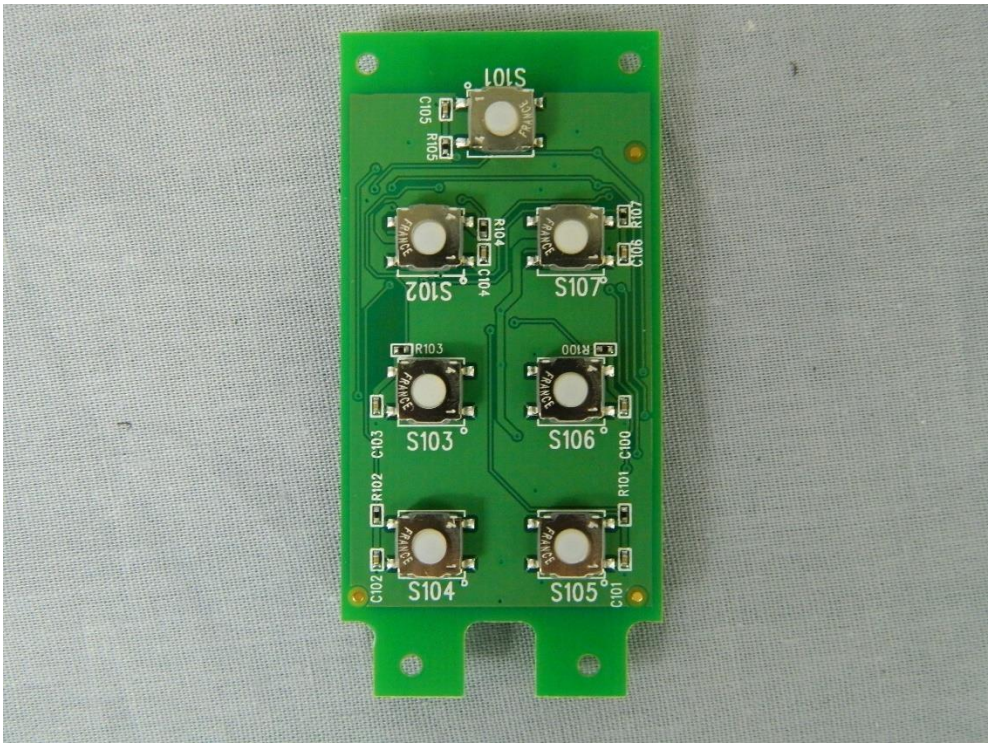


Photographs: (Bluetooth Remote External)

Photographs: (Bluetooth Remote Internal)

Photographs: (Bluetooth Remote Internal)





Attachment No. 3

IEC 60950-22
TEST REPORT

Attachment contains

Total:	**17 pages**
Cover page:	**1 page**
Report:	**16 pages**

TEST REPORT
IEC 60950-22
Information technology equipment
Safety – Part 22: Equipment to be installed outdoors

Report Reference No. ..... :	72128408-100
Date of issue ..... :	2017-11-10
Total number of pages	17
CB Testing Laboratory ..... :	TÜV SÜD America Inc. Product Safety Services
Address ..... :	5610 West Sligh Ave., Suite 100 Tampa, FL 33634 USA
Applicant's name ..... :	Johnson Outdoors
Address ..... :	1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005
Test specification:	
Standard ..... :	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013
Test procedure ..... :	Informative Test Report
Non-standard test method..... :	N/A
Test Report Form No. ..... :	IEC60950_22A
Test Report Form(s) Originator ..... :	The Standards Institution of Israel Ltd.
Master TRF ..... :	Dated 2007-03

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description ..... :	Recreational chart plotter
Trade Mark ..... :	HUMMINBIRD®
Manufacturer ..... :	Johnson Outdoors 1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005
Model/Type reference ..... :	SOLIX™ Series
Ratings ..... :	12Vdc (no tolerance) Class III T_{MA} 50°C

Testing procedure and testing location:	
Testing Laboratory:	TÜV SÜD America, Inc.
Testing location/ address .....:	5945 Cabot Parkway, Suite 100 Alpharetta, Georgia 30005
Summary of testing:	
Tests performed (name of test and test clause): **Refer to main test report.**	**Testing location:** TÜV SÜD America, Inc. 5945 Cabot Parkway, Suite 100 Alpharetta, Georgia 30005
Summary of compliance with National Differences: **Not for use in Canada or USA.**	
Copy of marking plate **Refer to main test report for details.**	

Test item particulars.....:	
Temperature range .....:	-20 to 50°C
Overvoltage category.....:	[] OVC I [] OVC II [] OVC III [] OVC IV [X] other: For connection to a 12V marine battery
IP protection class .....:	N/A
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	2017-05-23 **and 2017-11-08 (Modification 1)**
Date (s) of performance of tests.....:	2017-06-07 to 2017-06-08

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.

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

This Test Report Form is intended for the investigation of safety of equipment to be installed outdoors in accordance with IEC 60950-22. It can only be used together with the IEC 60950-1 requirements.

General product information:

Refer to main test report for details.

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict
4	**CONDITIONS FOR OUTDOOR EQUIPMENT**		P
4.1	Ambient air temperature		—
	Suitability for use at any temperature in the range specified by the manufacturer. If not specified by the manufacturer, the range is taken as -33°C to +40°C	-20 to 50°C.	P
4.2	AC mains supply		—
	Suitability for the highest Overvoltage Category expected in the installation location	Not for connection to mains.	N/A
	Components used to reduce the Overvoltage Category comply with IEC 61643-series	No such components used.	N/A
	Reference to installation instructions .....:		N/A
4.3	Rise of earth potential		—
	Special earthing conditions	No Hazardous voltages. Refer above.	N/A
	Reference to installation instructions .....:		N/A
5	**MARKING AND INSTRUCTIONS**		N/A
	Special installation features for protection from conditions in the OUTDOOR LOCATION (see 1.7.2 of IEC 60950-1)	No special installation features required.	N/A
	OUTDOOR ENCLOSURE classification according to IEC 60529 (IP Code)	Not an outdoor enclosure.	N/A
6	**PROTECTION FROM ELECTRICAL SHOCK IN AN OUTDOOR LOCATION**		P
6.1	Voltage limits of user-accessible parts in OUTDOOR LOCATIONS (2.2.2 and 2.2.3 of IEC 60950-1 with voltage limits of IEC60950-22)		—
	Voltages under normal conditions (V) .....:	Complies.	P
	Voltages under fault conditions (V).....:	Complies.	P
6.2	Limited current circuits in outdoor locations		
	The requirements of 2.4 of IEC60950-1 apply without change	No primary circuits.	N/A
7	**WIRING TERMINALS FOR CONNECTION OF EXTERNAL CONDUCTORS**		N/A
	The mains supply terminations powered via the normal building installation wiring are as specified in 3.3 of IEC 60950-1	Not for connection to mains.	N/A
	The mains supply terminations powered directly from the mains distribution system are as specified in IEC 60364		N/A

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict
8	**CONSTRUCTION REQUIREMENTS FOR OURDOOR ENCLOSURES**		P
8.1	General		—
	Protection against corrosion by use of suitable materials or by application of a protective coating		—
	Parts serving as a functional part of an OUTDOOR ENCLOSURE (e.g., dials, connectors, etc.) comply with the same environmental protection requirements as for the OUTDOOR ENCLOSURE	Not an outdoor enclosure.	N/A
	Use of OUTDOOR ENCLOSURE to carry current during normal operation	Not an outdoor enclosure.	N/A
	Connection of a conductive part of an OUTDOOR ENCLOSURE to protective earth for carrying fault currents (see 2.6 of IEC 60950-1 and 8.3 of this standard)	Not an outdoor enclosure.	N/A
8.2	Resistance to ultra-violet radiation		—
	Resistance of non-metallic parts of an OUTDOOR ENCLOSURE to degradation by ultra-violet (UV) radiation	Not an outdoor enclosure.	—
	Parts providing mechanical support:		—
	Tensile strength test (ISO 527)		N/A
	Flexural strength test (ISO 178)		N/A
	Parts providing impact resistance:		N/A
	Charpy impact test (ISO 179)		N/A
	Izod impact test (ISO 180)		N/A
	Tensile impact test (ISO 8256)		N/A
	All parts:		—
	Flammability classification (1.2.12 and annex A of IEC 60950-1)		N/A
8.3	Resistance to corrosion		—
8.3.1	General		P
	Resistance of metallic parts of an OUTDOOR ENCLOSURE to the effects of water-borne contaminants	Not an outdoor enclosure	N/A
	Alternate method for 8.3.2-8.3.4 (IEC 61587-1)		N/A
8.3.2	Test apparatus		N/A
	Salt-spray test (IEC 60068-2-11)		N/A
	Test in a water-saturated sulphur dioxide atmosphere (water-saturated sulphur dioxide atmosphere as described in Annex A; chamber as described in ISO 3231)		N/A

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict
8.3.3	Test procedure		N/A
8.3.4	Compliance criteria		N/A
8.4	Bottoms of FIRE ENCLOSURES		—
	Comply with 4.6.2 of IEC 60950-1	Complies, refer to main report.	P
	Bottom of FIRE ENCLOSURE of OUTDOOR EQUIPMENT mounted directly and permanently on a non-combustible surface (e.g., concrete or metal)	Not required.	N/A
8.5	Gaskets		—
	If gaskets are used as the method for protection against the ingress of potential contaminants, requirements of 8.5.1 through 8.5.3 apply	Checked by inspection. Gaskets not subject to stretching or compression. Testing deemed not necessary.	—
8.5.1	General		—
8.5.2	Oil resistance	Not subject to oil or coolant.	N/A
8.5.3	Securing means	Secured mechanically.	P
9	**PROTECTION OF EQUIPMENT WITHIN AN OUTDOOR ENCLOSURE**		P
9.1	Protection from moisture (see Table 2)	Complies, device energized continuously. IPX7 rating claimed by manufacturer.	P
9.2	Protection from plants and vermin	Not considered likely. Device to be mounted on boat.	N/A
9.3	Protection from excessive dust	No hazard from ingress of dust.	N/A
10	**MECHANICAL STRENGTH OF ENCLOSURES**		P
10.1	General		—
10.2	Impact test (4.2.5 of IEC 60950-1)	No cracking or deforming of the enclosure occurred after tests. Test performed after -20°C conditioning for 24hrs, according to manufacturer's temperature specifications.	P
	Compliance criteria:		—
	- after test the level of protection remains in accordance with 9.1 of this standard	Enclosure still intact, no gaps or splits occurred on the enclosure.	N/A
	- after test the requirements of 4.2.1 of IEC 60950-1 are met	Not connected to mains.	N/A

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict
11	**OUTDOOR EQUIPMENT CONTAINING VENTED BATTERIES**		N/A
	Adequate ventilation in the compartment housing a vented battery, where gassing is possible during normal usage or over-charging	No batteries.	N/A
	Protection against the risk of ignition of local concentrations of hydrogen and oxygen in a compartment containing both a battery and electrical components		N/A
	Hydrogen gas concentration measurement test		N/A
	Measured hydrogen gas concentration (% by volume) ..... :		—
	Max. allowed gas concentration for the mixture location in proximity to an ignition source (% by volume) ..... :		—
	Max. allowed gas concentration for the mixture location not in proximity to an ignition source (% by volume) ..... :		—
	Overcharging of rechargeable battery (see 4.3.8 of IEC 60950-1)		N/A
A	**ANNEX A, WATER-SATURATED SULPHUR DIOXIDE ATMOSPHERE (see 8.3.2 and 8.3.3)**		N/A
B	**ANNEX B, WATER SPRAY TEST (see 9.1)**		N/A
C	**ANNEX C, ULTRAVIOLET LIGHT CONDITIONING TEST (see 8.2)**		N/A
C.1	Test apparatus .....:		N/A
C.2	Mounting of test samples .....:		N/A
C.3	Carbon-arc light-exposure apparatus .....:		N/A
C.4	Xenon-arc light-exposure apparatus .....:		N/A
D	**ANNEX D, GASKET TESTS (see 8.5)**		N/A
D.1	Gasket tests	Not exposed to oil or coolant.	N/A
D.2	Tensile strength and elongation tests (for gaskets that can stretch)		N/A
	Tensile strength (%) .....:		N/A
	Elongation (%) .....:		N/A
	Visible deterioration, deformation, melting, cracking or hardening of the material .....:		N/A
D.3	Compression test (for gaskets with closed cell construction)		N/A

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict
	Initial thickness of the specimen (mm) .....:		N/A
	Thickness of the specimen after test a) (mm), compression set after test a) (%).....:		N/A
	Thickness of the specimen after test b) (mm), compression set after test b) (%).....:		N/A
	Thickness of the specimen after test c) (mm), compression set after test c) (%).....:		N/A
	Visible cracks or deterioration .....:		N/A
D.4	Oil immersion test		N/A
	Swelling (%).....:		N/A
	Shrinking (%).....:		N/A

E	**ANNEX E, RATIONALE**		N/A
E.1	General		—
E.2	Electric shock		—
E.3	Energy related hazards		—
E.4	Fire		—
E.5	Mechanical hazards		—
E.6	Heat related hazards		—
E.7	Radiation		—
E.8	Chemical hazards		—
E.9	Biological hazards		—
E.10	Explosion hazards		—

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2a)	Tensile strength test (ISO 527)	N/A
Material identification (manufacturer, type designation) .....:		—
Shape and dimensions of test samples.....:		—
Conditioning for Set 1 of samples.....:		—
Conditioning for Set 2 of samples (including Annex C) .....:		—
Test conditions (T °C, RH %) .....:		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Tensile strength (MPa)	Test sample #	Tensile strength (MPa)
—	—	—	—

Arithmetic mean for Set 1 (MPa) .....:	—
Arithmetic mean for Set 2 (MPa) .....:	—
Retention (%).....:	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2b)	Flexural strength test (ISO 178)	N/A
Material identification (manufacturer, type designation) .....:		—
Shape and dimensions of test samples.....:		—
Conditioning for Set 1 of samples.....:		—
Conditioning for Set 2 of samples (including Annex C) .....:		—
Test conditions (T °C, RH %) .....:		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Flexural strength (MPa)	Test sample #	Flexural strength (MPa)
—	—	—	—

Arithmetic mean for Set 1 (MPa) .....:	—
Arithmetic mean for Set 2 (MPa) .....:	—
Retention (%).....:	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2c)	Charpy impact test (ISO 179) - unnotched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (according to Tables 2 and 3 of ISO 179) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Charpy impact strength (kJ/m^2)	Test sample #	Charpy impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2d)	Charpy impact test (ISO 179) - notched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (according to Tables 2 and 3 of ISO 179) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Charpy impact strength (kJ/m^2)	Test sample #	Charpy impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2e)	Izod impact test (ISO 180) - unnotched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (according to Table 1 of ISO 180) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Izod impact strength (kJ/m^2)	Test sample #	Izod impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2f)	Izod impact test (ISO 180) - notched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (according to Table 1 of ISO 180) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Izod impact strength (kJ/m^2)	Test sample #	Izod impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2g)	Tensile impact test (ISO 8256) - unnotched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (A or B) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Tensile impact strength (kJ/m^2)	Test sample #	Tensile impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information:

IEC 60950-22			
Clause	Requirement + Test	Result - Remark	Verdict

8.2	**TABLE: Resistance to ultra-violet radiation**	
8.2h)	Tensile impact test (ISO 8256) - notched	N/A
Material identification (manufacturer, type designation) ..... :		—
Shape and dimensions of test samples..... :		—
Conditioning for Set 1 of samples..... :		—
Conditioning for Set 2 of samples (including Annex C) ..... :		—
Test method (A or B) ..... :		—
Test conditions (T °C, RH %) ..... :		—

Set 1 (without Annex C conditioning)		Set 2 (after Annex C conditioning)	
Test sample #	Tensile impact strength (kJ/m^2)	Test sample #	Tensile impact strength (kJ/m^2)
—	—	—	—

Arithmetic mean for Set 1 (kJ/m^2)..... :	—
Arithmetic mean for Set 2 (kJ/m^2)..... :	—
Retention (%)..... :	—

Supplementary information: