Technical Report No. 72128408-200
Rev. -
Dated: 2018-12-17

Client:	Johnson Outdoors 1220 Old Alpharetta road Suite 340 Alpharetta, GA 30005 USA Contact: Nancy Rimedio
Manufacturing place:	Johnson Outdoors 1220 Old Alpharetta road Suite 340 Alpharetta, GA 30005 USA
Test subject:	Product: Recreational chart plotter Type: SOLIX™ Series
Test specification:	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013
Purpose of examination:	**Modification2: All models updated to Generation 2.**
Test result:	*The test results show that the presented product is in compliance with* the specified requirements.

This technical report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.

1 Description of the test subject

1.1 Function

Manufacturer's specification for intended use:

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.

Modification 2: The Modification 1 Test report ref. no. 72128408-100, dated 2017-11-10 was modified on 2018-12-17 to 72128408-200 to include the following additions and/or changes:

1. ***Added Generation 2 models. The Gen 2 models are identical to Gen 1 models except for adding WiFi to the Bluetooth module and slight changes in circuits for the sonar. No testing was required after the review of Gen 2 schematics vs. Gen 1 schematics.***

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Manufacturer's specification for predictive misuse:

No restrictions provided.

1.2 Consideration of the foreseeable misuse

☐ *Not applicable*
☒ *Covered through the applied standard*
☐ *Covered by the following comment*
☐ *Covered by attached risk analysis*

1.3 Technical Data

12Vdc (no tolerance), 3.6A max. Class III TMA 50°C

2. Order

2.1 Date of Purchase Order, Customer's Reference

PO (#5010410951) — issued on: 2017-10-16
TUV Reference No: 72132224
Modification 2 – PO(#1165449 OP) — issued on:2018-11-02
Modification 2 – TUV Reference No: 72143922

2.2 Receipt of Test Sample

2017-05-23 **and 2017-11-08 (Modification 1)**
Modification 2 – No sample required

2.3 Date of Testing

2017-05-30 to 2017-06-07
Modification 2 – No testing required

2.4 Location of Testing

TUV SUD America
2945 Cabot Parkway, Suite 100
Alpharetta, GA 30005 USA

2.5 Points of Non-compliance or Exceptions of the Test Procedure

None.

3. Test Results

3.1 Positive Test Results

- *Electrical safety*
  EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013

- *Mechanical safety*
  EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 /A2:2013

"The test specifications are met."

3.2 Points of non-compliance according to the test specification

None.

4. Remark

The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

5. Summary

Positive
"The test specifications are met."

TÜV SÜD Product Service GmbH

Engineer: Terje Gronas — Technical Report checked: David B. Dorfner

Terje Gronas — Dave Dorfner

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

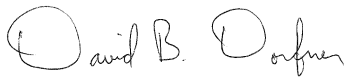
Report Number. .....:	**72128408-200**
Date of issue. .....:	**2018-12-17**
Total number of pages. .....:	25
Applicant's name.....:	Johnson Outdoors
Address .....:	1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005, USA
Test specification:	
Standard .....:	EN 60950-1:2006 / A11:2009 / A1:2010 / 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.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	Recreational chart plotter
Trade Mark ..... :	HUMMINBIRD®
Manufacturer..... :	Johnson Outdoors 1220 Old Alpharetta Road Suite 340, Alpharetta, GA 30005, USA
Model/Type reference ..... :	SOLIX™ Series
Ratings ..... :	12Vdc (no tolerance), 3.6A max. 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, USA	
☐	**CBTL Testing Laboratory:**		
Testing location/ address .....:			
Tested by (name + signature).....:		Terje Gronas	
Approved by (name + signature).....:		Dave Dorfner	
☐	**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 (76 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, USA

Summary of compliance with National Differences

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

☒ **The product fulfils the requirements of 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)** ***SOLIX 10 – 413652 rev. A (Modification 2)*** ***SOLIX 15 – 413618 rev. H (Modification 2)***

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)** **No sample required (Modification 2)**
Date (s) of performance of tests ..... :	2017-05-30 to 2017-06-08 **No sample required (Modification 2)**

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:

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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 10 Gen 2 MODEL MATRIX***
410470-1 SOLIX 10 **410490-1 SOLIX 10 SI** **(Modification 1)**	***411010-1 SOLIX 10 MSI G2*** ***411090-1CHO SOLIX 10 MDI G2 CHO*** ***(Modification 2)***
SOLIX 12 MODEL MATRIX	***SOLIX 12 Gen 2 MODEL MATRIX***
410390-1 SOLIX 12 410400-1 SOLIX 12 SI	***411030-1 SOLIX 12 MSI G2*** ***411100-1CHO SOLIX 12 MDI G2 CHO*** ***(Modification 2)***
SOLIX 15 MODEL MATRIX	***SOLIX 15 Gen 2 MODEL MATRIX***
410410-1 SOLIX 15 410420-1 SOLIX 15 SI	***411050-1 SOLIX 15 MSI G2*** ***411110-1CHO SOLIX 15 MDI G2 CHO*** ***(Modification 2)***

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 10 LCD Panel	Data Image	G10106COB	SELV	IEC 60950-1	Tested in the equipment
SOLIX 12 LCD panel	Mitsubishi	AA121TD11	SELV	UL60950-1	UL
SOLIX 12 LCD panel (Modification 2)	***AU OPTRONICS***	***G121EAC010***	***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	—	105
L103		—	—	—	93.7	—	105
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.: 72128408-200

Dated of issue: 2018-12-17

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**
Australia - AU	AS/NZS 60950.1 – 2011	2011-05-06	X
Canada – CA	CAN/CSA-C22.2 No 60950-1-07	2008-07-31	X
China -– CN	GB4943.1-2011	2013-09-26	X
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
Israel – IS	SI 60950 part 1 2009	2011-03-02	X
Korea, Republic Of – KR	K 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
USA – US	UL 60950-1, Second Edition	2007-08-08	X

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

Country	National standard reference	Last modification*	File downloaded
Canada – CA	CAN/CSA-C22.2 No 60950-1-07	2012-02-14	X
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**
Israel - IS	**—**	**2014-01-02**	**X**
Korea, Republic Of – KR	K 60950-1	2010-09-15	X
Korea, Republic Of – KR	K 60950-1	2010-12-16	X
Korea, Republic Of – KR	K 60950-1	2012-05-31	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
United States (USA) – US	UL 60950-1	2012-01-29	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	—
Canada – CA	**CAN/CSA-C22.2 No 60950-1-07**	**2014-09-13**	**X**
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**	**—**
United States (USA) – US	**UL 60950-1 Am.1; Am.2**	**2014-01-24**	**X**

* 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”		—
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		
	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 wired 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 wired 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 wired 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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	N/A
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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.	Considered.	P
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Not direct plug-in equipment.	N/A

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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	N/A
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.	Class III equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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

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	National Differences 2011-05-06 Bulletin Information		P
ZZ1	**INTRODUCTION** This appendix sets out variations and additional requirements to cover issues which have not been addressed by the International Standard. Therse variations indicated natinal variation for the purposes fo the IECEE CB System and will be published in the IECEE CB Bulletin.	Considered.	P
ZZ2	**VARIATIONS** The following varitions apply to the source text.	Considered.	N/A
1.2	*Insert* the following between 'person, service' and 'range, rated frequancey': POTENTIAL IGNIATION SOURCE 1.2.12	Considered.	N/A
1.2.12.201	*Insert* a new Clause 1.2.12.201 after Clause 1.2.12.15 as followers: **1.2.12.201 POTENTIAL IGNITION SOURCE** Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202 This definition is from AS/NZS 60065:2003.	Considered.	N/A
1.5.1	1. *Add* the following to the end of the first paragraph: 'or the relevant Australian/New Zealand Standard.' 2. In NOTE 1, add the following after the word 'standard': 'or an Australian/New Zealand Standard'	All critical components are IEC, UL or CSA certified.	P
1.5.2	*Add* the following to the end of the first and third dash items: 'or the relevent Austrailian/New Zealand Standard'	All critical components are IEC, UL or CSA certified.	P

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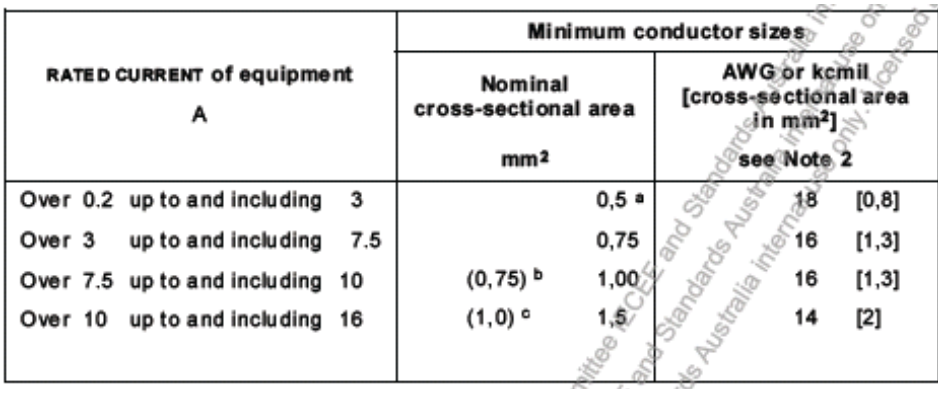
3.2.5.1	*Modify* Table 3B as follows: 1. *Delete* the fist four rows and replace with the following:  2. *Delete* NOTE 1. 3. *Delete* Footnote [a] and *replace* with the following: [a] This nominal cross-sectional area is only allowed for Class II appliacns if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0,5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191).	Power supply cord has not been evaluated, refer to Summary of Testing.	N/A
4.1.201	*Insert* a new Clause 4.1.201 after Cluase 4.1 as follows: **4.1.201 Display devices used for television purposes** Display Devices which may be used for television purposes, with a mas of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the addiational stability requirements for television receivers, specified in AS/NZS 60065.	Not a display device.	N/A
4.3.6	*Delete* the third parabraph and *replace* with the following: *Equipment with a plug portion, suitable for inserstion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shal comply with the requiremets in AS/NZS 3112 for equipment with intergral pins for insertion into socket-outlets.*	Not direct plug-in equipment.	N/A
4.3.13.5	*Add* the following to the end of the first paagraph: ‘, or AS/NZS 2211.1’	Added, LED is diffused indicating type.	P
4.7	*Add* the following new paragraph to the end of the clause: ‘For alternate tests refer to Clause 4.7.201’	Added.	N/A
4.7.201	*Insert* a new Clause 4.7.201 after Clause 4.7.3.6 as follows: **4.7.201 Resistance to fire – Alternative tests**	Alternative tests not used.	N/A

RATED CURRENT of equipment A

	Minimum conductor sizes	
	Nominal cross-sectional area mm²	AWG or kcmil [cross-sectional area in mm²] see Note 2
Over 0.2 up to and including 3	0,5 [a]	18 [0,8]
Over 3 up to and including 7.5	0,75	16 [1,3]
Over 7.5 up to and including 10	(0,75) [b] 1,00	16 [1,3]
Over 10 up to and including 16	(1,0) [c] 1,5	14 [2]

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	4.7.201.1 General Parts of non-metallic material shall be resistanct to ignition and spread of fire. This reequirement does not apply to decrative trimps, knobs and othe parts likely to be ignited or to propagate flames from inside the apparatus, or the following: (a) Components that are containd in an enclosure having a flammabilty category of V-0 according to AS/NZS 60695.11.10 and having openings completely, and for ventilation not exceeding 1 mm in width regardless of length. (b) The following parts which would contribute negligible fuel to a fire: – small mechnanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cames, belts and bearings; – small electrical componts, such as capacitors with a volume not exceeding 1,750 mm^3, integrated circuits, transistors and optocoupler packages, if thes components are mounte on material of flammabilty category V-1, or better, according to AS/NZS 60695.11.10 NOTE: in considering how to minimized progagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagagting from fire from one part to another. *Compliance shall be checked by the test of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5* *For the base material of printed boards, complance shall be checked by the test of 4.7.201.5.* The test shall be carried out on parts of non-matallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. Thest test are not carried out on internal wiring.		N/A
	4.7.201.2 Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out , such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classifed at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevent part.	Alternative tests not used.	N/A

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4.7.201.3 Testing of insulating materials

Parts of insulating material supporting POTENTIAL IGNISTION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.

The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.

NOTE Contacts in components such as switch contacts are considerd to be connections.

For Parts which withstand the glow-wire test but produce a flame, other parts above the connection with the envelop of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.

The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:

Alternative tests not used.

N/A

Clause of AS/NZS 60695.11.5	Change
9 Test procedure	
9.2 Application of needle-flame	*Replace* the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner *Replace* the second paragraph with: The duration of application of the test flame shall be 30 s ±1 s.
9.3 Number of test specimens	*Replace* with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.
11 Evaluation of test results	*Replace* with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.

The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevent part.

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	4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.	Alternative tests not used.	N/A

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	4.7.201.5 Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the – - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. Compliance shall be determined using the smallest thickness of the material. NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected	Alternative tests not used.	N/A
6.2.2	For Australia only, *delete* the first paragraph and Note, and *replace* with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.	No TNV.	N/A

AU – Australia (and New Zealand)

6.2.2.1	For Australia only, *delete* the first paragraph including the Notes, and *replace* with the following: *In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c, is:* *(i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and* *(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.* NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	No TNV.	N/A
6.2.2.2	For Australia only, *delete* the second paragraph including the Note, and *replace* with the following: *In Australia only, the a.c. test voltage is:* *(i) for 6.2.1 a): 3.0 kV; and* *(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.* NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	No TNV.	N/A
7.3	*Add* the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.	No PSTN interface.	N/A
Annex P	*Add* the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification – Plugs and socket-outlets	Added.	N/A

Index	1. *Insert* the following between 'asbestos, not to be used as insutional' and 'attitude see orientation': AS/NZS 2211.1 ..... 4.3.13.5 AS/NZS 3112 ..... 4.3.6 AS/NZS 3191 ..... 3.2.5.1 (Table 3B) AS/NZS 60064 ..... 4.1.201 AS/NZS 60695.2.11 ..... 4.7.201.2, 4.7.201.3 AS/NZS 60695.11.10 ..... 4.7.201.1, 4.7.201.5 AS/NZS 60695.11.5 ..... 4.7.201.3 2. *Insert* the following between 'positive temperature coefficient (PTC) device' and 'power': potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5		N/A

CA – Canada + A1:2014-09-13 Bulletin Information

Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA-C22.2 No. 60950-1 / UL 60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.

SPECIAL NATIONAL CONDITIONS

The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.

1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Class III equipment.	N/A
1.1.2	Baby monitors are required to comply with ASTM F2951, Consumer Safety Specification for Baby Monitors	Not a baby monitor.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	Class III equipment.	N/A

1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	No Class 2 outputs.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No Class 2 outputs.	N/A
2.6	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No standard supply outlets, receptacles, lampholders or such transformers.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Class III equipment.	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Class III equipment.	N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	Not for DC Mains connection.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not such equipment.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	Class III equipment.	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Class III equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Class III equipment.	N/A

3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).	Class III equipment.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	Class III equipment.	N/A
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Class III equipment.	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No such motors in the equipment.	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No such switches.	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Not for computer room applications.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids in the equipment.	N/A
4.3.13.5.1	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	No lasers.	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	The equipment has no combustible area greater than 27 cubic feet.	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	The equipment has no combustible material greater than 0.93m^2 or single dimension greater than 1.8m.	N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	The equipment does not produce ionizing radiation.	N/A

OTHER DIFFERENCES The following key national differences are based on requirements other than national regulatory requirements.			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	All critical components are IEC, CSA, or UL certified. See appended table 1.5.1 in this report.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.	Not for connection to DC Mains.	N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV.	N/A
2.6.3.3	The current rating of the circuit shall be taken as 20 A not 16 A.	Class III equipment.	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	Class III equipment.	N/A

4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	Not a CRT.	N/A
4.2.11 (A1)	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.	Not rack mount.	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	The equipment has no handles.	N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.	None provided.	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	No TNV.	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	No internal SELV circuit connectors and printed wiring board connectors are accessible to the operator.	N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document / media shredders instead of the Figure 2A test finger.	Not a document / media shredder.	N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV.	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV.	N/A
~~Annex NAF~~	~~Document (paper) shredders likely to be…~~	Deleted per A1.	—

CN – China GB4943.1-2011: Information technology equipment – Safety – Part 1: General requirements			
1.1.2	Revise the third dashed paragraph as: - equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000 m;		N/A
1.4.5	At the end of the third dashed paragraph ,added following paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. Delete the contents which behind the first dash.	Class III equipment.	N/A
1.4.12.1	T_{ma} in clause 1.4.12.1 amended as: T_{ma}: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: For equipment not to be operated at tropical climatic conditions, T_{ma}: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: For equipment is to be operated at 2000 m-5000 m above sea level, its temperature test conditions and temperature limits are under consideration.	Class III equipment.	N/A
1.5.2	Add a note behind the first dash: A component used shall comply with related requirements corresponding altitude of 5000 m..	Class III equipment.	N/A
1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.	Class III equipment.	N/A
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220 V (single phase) or 380 V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220 V or 380 V (three-phases), for multiple RATED VOLTAGES, one of them should be 220 V or 380 V (three-phases) and set on 220 V or 380 V (three-phases) when manufactured. And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50 Hz or include 50Hz.	Class III equipment.	N/A

1.7.2.1	Add requirements of warning for equipment intended to be used at altitudes NOT exceeding 2000 m or at NON-tropical climate regions: For equipment intended to be used at altitude NOT exceeding 2000 m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000 m."  If only symbol used, the explanation of the symbol shall be contained in the instruction manual. For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions."  If only symbol used, the explanation of the symbol shall be contained in the instruction manual. The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.	Class III equipment.	N/A
2.7.1	Amended as: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3. Delete note of Clause 2.7.1.	Class III equipment.	N/A
2.9	Humidity conditioning This section applies for equipment to be operated at tropical climatic conditions, humidity conditioning dealt with tropical climatic conditions. For equipment NOT to be operated at tropical climatic conditions, its humidity conditioning complies with rules of CTL 624/07.	Class III equipment.	N/A

2.9.2	First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature 40±2°C and a relative humidity of 93(±3)%. During this conditioning the component or subassembly is not energized. For equipment NOT to be operated at tropical climatic conditions, where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of 93(±3)%. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m – 5000 m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.	Class III equipment.	N/A
2.10.3.1	Change the third paragraph of Clause 2.10.3.1 to be: These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000 m given in Table A.2 of GB/T 16935.1 Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Class III equipment.	N/A

2.10.3.4	Add a new section above Table 2K and in Clause 2.10.3.4: Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at 2000 m – 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000 m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1. Add "(apply for up to 2000 m)" in header of Table 2K, 2L, and 2M.	Class III equipment.	N/A
3.2.1.1	Add a paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.	Class III equipment.	N/A
4.2.8	Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8.	None used.	N/A
Annex E	Last section amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise.	Resistance method not relied upon.	N/A
	And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.		N/A

Annex G.6	Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m – 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000 m given in Table A.2 of GB/T 16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T 16935.1 Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. A component that has been demonstrated to comply with National Industry standards or the relevant national standard shall be subjected to the applicable tests of this standard as part of the equipment.	Class III equipment.	N/A
Annex BB (informative)	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.	Considered.	P
Annex DD (normative)	Added annex DD: Instructions for the new safety warning labels.	Class III equipment.	N/A
	DD.1 Altitude warning label  Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000 m, therefore it's the only operating condition applied for the equipment. There may be some potential safety hazard if the equipment is used at altitude above 2000 m.	Class III equipment.	N/A
	DD.2 Climate warning label  Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefore it's the only operating condition applied for the equipment. There may be some potential safety hazard if the equipment is used in tropical climate region.	Class III equipment.	N/A

Annex EE (informative)	Added annex EE: Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language, and Uighu.	Class III equipment.	N/A
Other amendments	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3, and Annex U.	Class III equipment.	N/A
Quoting standards and reference documents	The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows: If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents.	Considered.	P
	For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.		P
	For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard.		P

	When quoting several chapters or clauses of the international standard, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted.		P
	Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011.		N/A

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 equipment.	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.	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 equipment.	N/A

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 equipment.	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.		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 equipment.	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 equipment.	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 equipment.	N/A

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 equipment.	N/A

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.	No TNV.	N/A

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.	No TNV.	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.	No TNV.	N/A

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.	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

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 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.	Class III equipment.	N/A

IS – Israel

Introduction to the Israel Standard

This standard is adoption of the Standards of the International Electrotechnical Communion, IEC 60950-1 (Second edition) of December 2005, including Corrigendum 1 of August 2006, approved as an Israel Standards with national deviation (additions and modifications).

The following elements of the standard are brought in the order given below:

- Scope clauses with national deviations (in Hebrew)
- Details of the national deviation in the clauses of the International Standard (in Hebrew)
- Translation of the Hebrew part of the Standard (into English)
- The International Standard (verbatim)

National footnotes are number alphabetically.

Additional clauses no referenced in the International Standard are numbered in this standard starting with the number 2001 or the decimal number X.201.

	National Differences	P
1	**Scope** (with national deviations) General notes: A. The national deviation in this clause are brought in a different font. B. Both this Standard and Israel Standard SI 60950 Part 1 of March 2003 are valid until 31 December 2010.	P
1.1.1	**Equipment covered by this Standard** This Standard is applicable to mains-powered or battery-powered information technology equipment, including electrical business equipment and associated equipment, with a rated voltage not exceeding 600 V. This Standard is also applicable to the information technology equipment mentioned below: - equipment designed for use as telecommunication terminal equipment and telecommunication network infrastructure equipment, independent of the source of power; - equipment designed and intended to be connected directly to, or used as infrastructure equipment in, a cable distribution systems, independent of the source of power; - equipment designed to use the general a.c. mains supply as a communication transmission medium (see clause 6, Note 4 and subclause 7.1, Note 4).	P
	This Standard is also applicable, to components and subassemblies intended for incorporation in information technology equipment. It is not expected that such components and subassemblies comply with every aspect of the Standard, provided that the complete information technology equipment, incorporating such components and subassemblies, does comply. **Note 1:** Examples of aspect with which uninstalled components and subassemblies may not comply include the marking of the power ratings and access to hazardous parts. **Note 2:** This Standard may be applied to the electronic parts of equipment even if that equipment does not wholly fall within its Scope, such as large-scale air condition systems, fire detection systems and fire extinguishing systems. Different requirements may be necessary for some applications.	P
	This Standard specifies requirements intended to reduce risks of fire ignition, electric shock or bodily injury for the operator and layman who may come into contact with the equipment and, where specifically stated, for a service person.	P
	This Standard is intended to reduce such risks with respect to installed equipment, whether it consists of a system or interconnected units or independent units, subject to installing, operating, and maintaining the equipment in the manner prescribed by the manufacturer.	P

IS – Israel

Examples of equipment that is in the scope of this Standard are the following: — P

Generic product type	Specific examples of generic type
Banking equipment	Monetary processing machines (counting, dispensing, etc.) for bills and coins, including automated teller machines (ATM)
Data and text processing machines and associated equipment	Data preparation equipment, data processing equipment, data storage equipment, personal computers, plotters, printers, scanners, text processing equipment and visual display units
Data network equipment	Bridges, data circuit terminating equipment, data terminal equipment and routers
Electrical and electronic retail equipment	Cash registers, point of sale terminals including associated electronic scales
Electrical and electronic office machines	Calculators, copying machines(A), dictation equipment, document shredding machines, duplicators, erasers, micrographic office equipment, motor-operated files, paper trimmers (punchers, cutting machines, separators), paper jogging machines, pencil sharpeners, staplers and typewriters
Other information technology equipment	Photoprinting equipment, public information terminals and multimedia equipment
Postage equipment	Mail processing machines and postage machines
Telecommunication network infrastructure equipment	Billing equipment, multiplexers, network powering equipment, network terminating equipment, radio base stations, repeaters, transmission equipment and telecommunication switching equipment
Telecommunication terminal equipment	Facsimile equipment, key telephone systems, modems, PABXs(B), pagers, telephone answering machines and telephone sets (wired and wireless)

Note 3: The requirement of Israel Standard SI 60065(e) may also be sued to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment.

The list of equipment (brought in the above table) is not intended to be comprehensive and exhaustive, and equipment that is not listed is not necessarily excluded from the Scope. Equipment complying with the relevant requirements in this Standard is considered suitable for use with process control equipment; automatic test equipment and similar systems requiring information processing facilities. However, this standard does not include requirement for performance or functional characteristics of equipment. — P

1.1.2 **Additiional Requirements** — N/A

Requirements additional to those specified in this Standard may be necessary for:

- equipment intended for operation in special environments (for example, extremes of temperature; very high concentration of dust, moisture or vibration; flammable gases; and corrosive or explosive atmospheres);
- electromedical applications with physical connections to the patient;
- equipment intended to be used in vehicles, on board ships or aircraft, in tropical countries or at altitudes greater than 2,000 m.
- equipment intended for use where ingress of water may be possible. For guidance on such requirements and on relevant testing, see Annex T.

Note: Attention is drawn to the fact that government authorities of some countries impose additional requirements.

1.1.3 **Exclusions** — N/A

This Standard does not apply to the following:

- power supply systems which are not an integral part of the equipment, such as motor-generator sets, battery backup systems and transformers;
- building installation wiring;

devices requiring no electrical power.

National Deviations to the clauses of the International Standard

IS – Israel			
1.6	**Power interface** This clause is applicable with the following addition:		P
1.6.1	**AC Power distribution systems**		
	A note shall be added to the clause as follows: **Note:** In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.		P
1.7	**Marking and instructions**		
	This clause is applicable with the following additions: - Subclause 1.7.201 shall be added at the beginning of the clause as follows:		N/A
1.7.201	**Marking in the Hebrew language**		
	The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or swing, in a manner that the label cannot be easily removed. 1. Name of the apparatus and it commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture.		N/A
1.7.2	**Safety instructions and marking**		
1.7.2.1	**General** The following shall be added to the clause: All the instructions and warning related to safety shall also be written in the Hebrew language.	English only was reviewed.	N/A
2.	**Protection from hazards** The clause is applicable with the following additions:		P

IS – Israel			
2.9.4	**Separation from hazardous voltages** The following shall be added at the beginning of the clause:		
	In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000 V) 1991, seven means of protection against electrocution are permitted, as follows: 1) TN-S – Network systems earthing; TN-C-S – Network system earthing; 2) TT – Network system earthing; 3) IT – Network Insulation Terre; 4) Isolation transformer; 5) Safety extra low voltage (SELV or ELV); 6) Residual current circuit breaker (30 ma = IΔ); 7) Reinforced insulation; Double insulation (class II) ⧈;	Class III equipment.	N/A
2.201	Clause 2.201 shall be added at the end of the clause as follows		P
	Prevention of electromagnetic interference - Prior to carrying out the test in accordance with the clause of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard Series, SI 961, shall be checked The apparatus shall meet the requirements in the appropriate part of the Standard series, SI 961. - If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard	Manufacturer to provide EMC reports for review upon request.	P
3	**Wiring, connections and supply** The clause is applicable with the following additions:		P
3.2	**Connection to a mains supply**		P
3.2.1	**Means of connection**		P
3.2.1.1	**Connection to an a.c. mains supply** After the note, the following not shall be added: **Note:** In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1.	Class III equipment.	N/A
3.2.1.2	**Connection to a d.c. mains supply** At the end of the first paragraph, the following note shall be added: **Note:** At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.	Not for connection to DC Mains.	N/A

IS – Israel

ANNEX P

Normative references

The annex is applicable with the following national deviations:

A. The following Israel Standards have been inserted in place of some of the International Standards specified in this annex of the Standards, as follows

P

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The referenced International Standard	The substituted Israel Standard	Comments
IEC 60065: 2001	SI 250[A] – Safety requirements for mains operated electronic and related apparatus for household and similar general use	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 65:1985, including its amendments
IEC 60227 (all parts)	SI 473, all parts – Cables, cords and insulated conductors for nominal voltage up to 1000 volt	–
IEC 60309 (all parts)	SI 1109, all parts – Plugs, socket-outlets and couplers for industrial purposes	SI 1109, part 1 and part 2, excluding national deviations in them, are identical to the Standards of the International Electrotechnical Commission IEC 60309-1-1999 and IEC 60309-2-1999, respectively.

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The referenced International Standard	The substituted Israel Standard	Comments
IEC 60317 (all parts)	SI 1067 Part 1 – Self-fluxing enamelled[B] round copper wires with high mechanical properties	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-1 (1980)
	SI 1067 Part 2 – Self-fluxing enamelled[B] round copper wires	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-4 (1980)
	SI 1067 Part 3 – Self-fluxing enamelled[B] round copper wires with a temperature index of 180°	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-8 (1980)
IEC 60320 (all parts)	SI 60320 Part 1 – Appliance couplers for household and similar general purposes: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-1 (2001)
	SI 60320 Part 2.1 – Appliance couplers for household and similar general purposes: Sewing machine couplers	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.1 (2000)

IS – Israel

The referenced International Standard	The substituted Israel Standard	Comments
IEC 60320 (all parts)	SI 60320 Part 2.2 – Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.2 (1998)
	SI 60320 Part 2.3 –Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment Appliance coupler for household and similar general purposes: Appliance coupler with a degree of protection higher than IPX0	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60320-2.3 (1998)
IEC 60730-1: 1999	SI 60730 Part 1 – Automatic electrical controls for household and similar use: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60730-1 (1999)
IEC 60825-1	SI 60825 Part 1 – Safety of laser products: Equipment classification, requirements and user's guide	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 60825-1 (2001).
IEC 60947-1: 2004	SI 60947 Part 1 –Low-voltage switchgear and controlgear: General rules	The Israel Standard, excluding national deviations in it, is identical to Standard of the International Electrotechnical Commission, IEC 60947-1 (1999)

The referenced International Standard	The substituted Israel Standard	Comments
IEC 61058-1: 2000	SI 61058 Part 1 – Switches for appliances: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 61058-1 (2001)
ISO 3864 (all parts)	SI 3864 Part 1 –Graphical symbols – Safety colours and safety signs: Design principles for safety signs in workplaces and public areas	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission IEC 3864-1 (2002)

Notes

(A) This Standard will be replaced by SI 60065 - Audio, video and similar electronic apparatus – safety requirements - that excluding the national deviations indicated is identical to the Standard of the International Electrotechnical Commission IEC 60065 (2005).

(B) Not relevant to the translation.

IS – Israel		
	B. Add the following to the clause: **Israel Standards** SI 32 Part 1.1 – Plugs and socket-outlets for household and similar purposes: Pluts and socket-outlets for single phase up to 16 A – General Requirements SI 961, all parts – Electromagnetic compatibility **Israel documents** Electricity Law, 1954, its regulations and revisions Kovetz Takanot 4465 dated 1983-02-24, Consumer Protection Order (Marking of goods), 1983	P

KR – Korea			
	National Differences + A1:2010-09-15, 2010-12-16, & 2012-05-31 Bulletin Information		P
1.5.101	Addition Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	Class III equipment.	N/A
8 – EMC (A1:2009)	Addition The apparatus shall comply with the relevant CISPR standards	Manufacturer to provide test reports upon request by national authorities.	N/A

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.		—
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 equipment.	N/A
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.		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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	N/A

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 equipment.	N/A

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.	No TNV.	N/A

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.	No TNV.	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.	No connection to a cable distribution system.	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.	REPLACED, see A11.	—
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.	A reference to IEC 60728-11:2005 is made in the user manual.	N/A

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 equipment.	N/A

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.	N/A
1.5.1	**Sweden** (Ordinance 1990:944) Add the following: NOTE In **Sweden**, switches containing mercury are not permitted.	No switches containing mercury.	—
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.	Class III equipment.	—
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.	(Annex ZB SNC)	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 equipment.	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 equipment.	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 equipment.	N/A

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 equipment.	N/A

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.	No TNV.	N/A

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.	No TNV.	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.	Not for connection to a cable distribution system.	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.		—

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 switches containing mercury.	N/A
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 batteries containing mercury or cadmium.	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 equipment.	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:	Power supply cord has not been evaluated, refer to Summary of Testing.	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	Class III equipment.	N/A

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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	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 equipment.	N/A

US – United States of America			
	National Differences + A1:2014-01-24 Bulletin Information		P
N-C = National Condition			P
1.1.1 N-C	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CED), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Class III equipment.	N/A
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitor.	N/A
1.4.14 N-C	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
1.5.5 N-C	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type specified in the NEC For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1 N-C	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3- wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	Single phase.	N/A
1.7.7 N-C	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 shall be marked with the voltage rating and “Class 2” or equivalent. The marking shall be located adjacent to the terminals and shall be visible during wiring.	No Class 2 outputs.	N/A
2.5 N-C	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No Class 2 outputs.	N/A

US – United States of America			
2.6	Equipment with isolated ground (earthing) receptacles are required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).	Class III.	N/A
2.7.1 N-C	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No standard supply outlets, receptacles, lampholders or such transformers.	N/A
3.2 N-C	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Class III equipment.	N/A
3.2.1 N-C	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Class III equipment.	N/A
3.2.1.2 N-C	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	Not for DC Mains connection.	N/A
3.2.3 N-C	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not such equipment.	N/A
3.2.5 N-C	Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	Class III equipment.	N/A
3.2.9 N-C	Permanently connected equipment must have a suitable wiring compartment and wire bending space.	Not permanently connected.	N/A
3.3 N-C	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	No field wiring terminals.	N/A
3.3.3 N-C	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
3.3.4 N-C	Terminals for permanent wiring, including protective earthing terminals, must be suitable for U.S/Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A

US – United States of America			
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		N/A
3.4.2 N-C	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No such motors in the equipment.	N/A
3.4.8 N-C	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No such switches.	N/A
3.4.11 N-C	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Not for computer room applications.	N/A
4.3.12 N-C	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids in the equipment.	N/A
4.3.13.5.1 N-C	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No laser sources.	N/A
4.7 N-C	For computer room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	The equipment has no combustible area greater than 27 cubic feet.	N/A
4.7.3.1 N-C	For computer room applications, enclosures with combustible material measuring greater than 0.9 m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	The equipment has no combustible material greater than 0.93m^2 or single dimension greater than 1.8m.	N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.		N/A
Annex H N-C	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	The equipment does not produce ionizing radiation.	N/A
N-D = National Differences			P

US – United States of America			
1.5.1 N-D	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	All critical components are IEC, CSA, or UL recognized or listed. See appended table 1.5.1 in this report.	P
1.6.1.2 N-D	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.	Not for connection to DC Mains.	N/A
	This maximum operating voltage is to include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1 N-D	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the max. acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV.	N/A
2.3.2.1 N-D	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	No TNV.	N/A
2.6.2 N-D	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092).	Not provided.	N/A
2.6.3.3	The current rating of the circuit shall be taken as 20 A not 16 A.	Class III equipment.	N/A

US – United States of America			
2.6.3.4 N-D	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	Class III equipment.	N/A
4.2.8.1 N-D	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	Not a CRT.	N/A
4.2.11 N-D	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.	Not for rack mount.	N/A
4.3.2 N-D	Equipment with handles is required to comply with special loading tests.	The equipment has no handles.	N/A
4.3.8 N-D	Battery packs for both portable and stationary applications are required to comply with special component requirements.	None provided.	N/A
5.1.8.3 N-D	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	No TNV.	N/A
5.3.7 N-D	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.	No internal SELV circuit connectors and printed wiring board connectors are accessible to the operator.	N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A
6.4 N-D	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV.	N/A
Annex EE	UL articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.	Not a document / media shredder.	N/A
Annex M.2 N-D	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV.	N/A
Annex NAD N-D	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV.	N/A
~~Annex NAF~~	~~Document (paper) shredders likely to be…~~	No earpiece provided with the equipment.	—

Note: Before placing the products in the different countries, the manufacturer must ensure that:

1. Operating Instructions, Ratings Labels and Warnings Labels shall be written in an Accepted or Official Language of the county in question.

   Instructions and other text required by this standard shall be written in the official language of the country in which the equipment is to be sold. This includes warnings/caution markings.

According to the German Equipment Safety Law the user manual has to contain the following points, if applicable, since all are safety relevant points:

- kind of mounting/installation
- instruction about handling at use of the devices (possibly forbiddance of certain work processes)
- maintenance
- accessories
- spare parts

2. The end product shall comply with the National Standards and/or Electrical Codes of the country in question.

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

Attachment No. 2

PHOTOGRAPHS

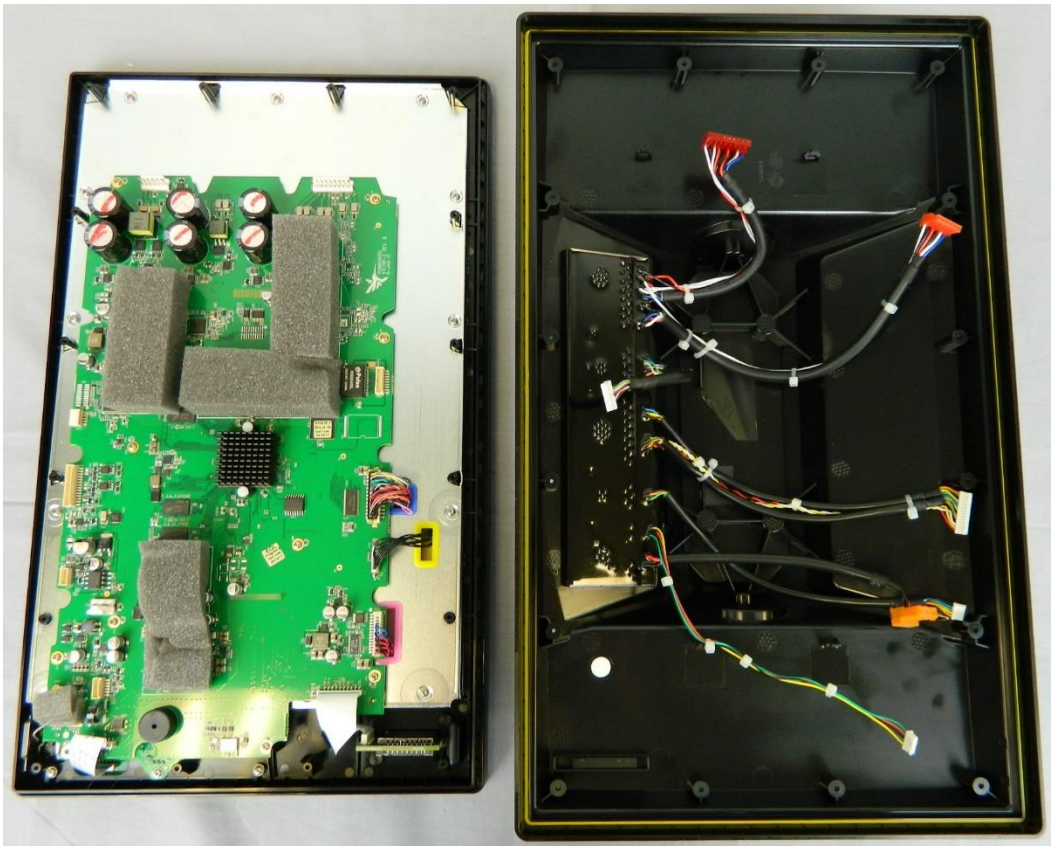
Attachment contains

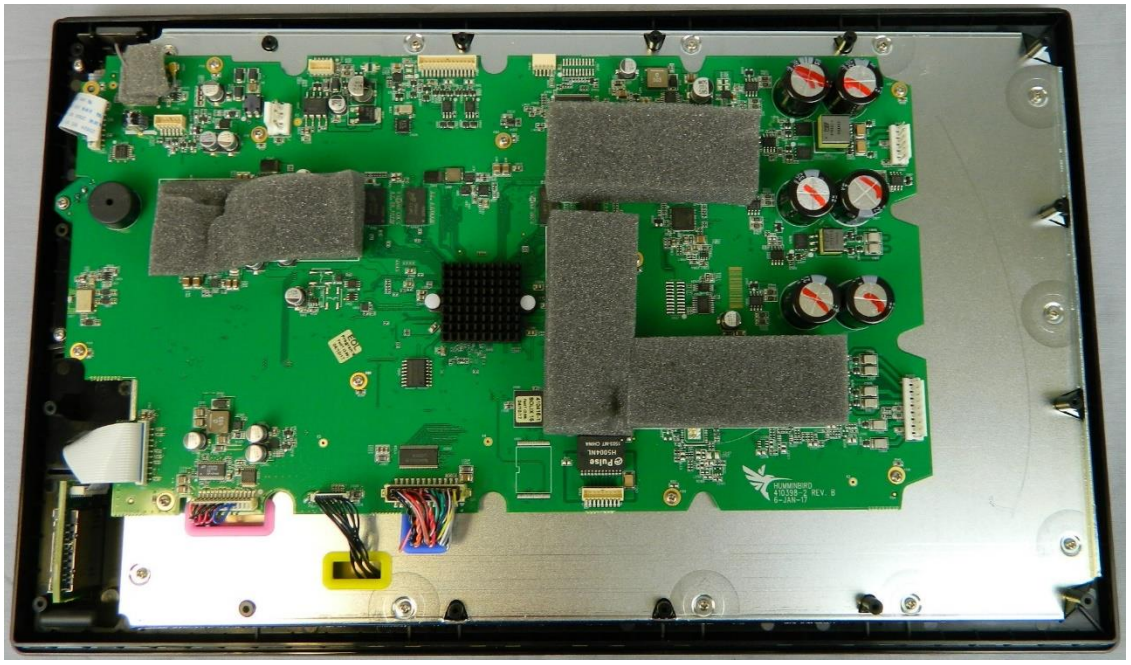
Total:	**13 pages**
Cover page:	**1 page**
PHOTOS:	**12 pages**

Photographs: (SOLIX 15 External with accessories)

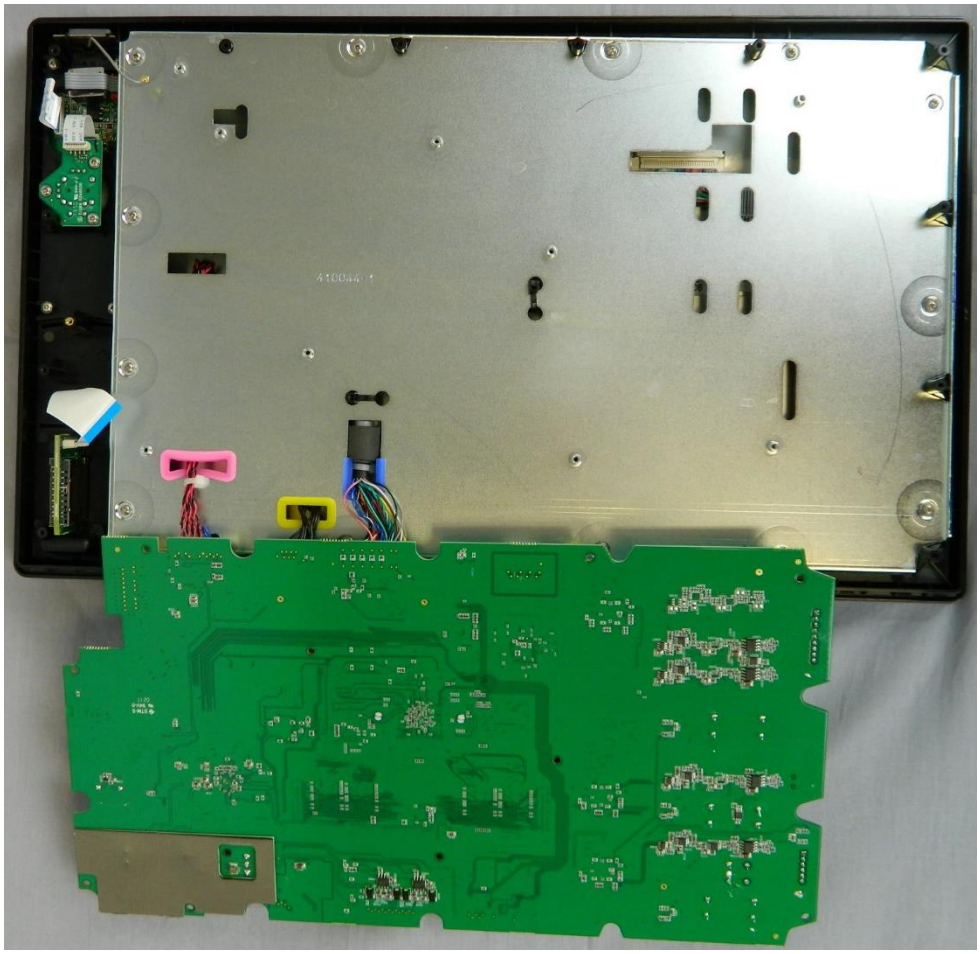
Photographs: (Solix 15 External)

Photographs: (Solix 15 Internal View)

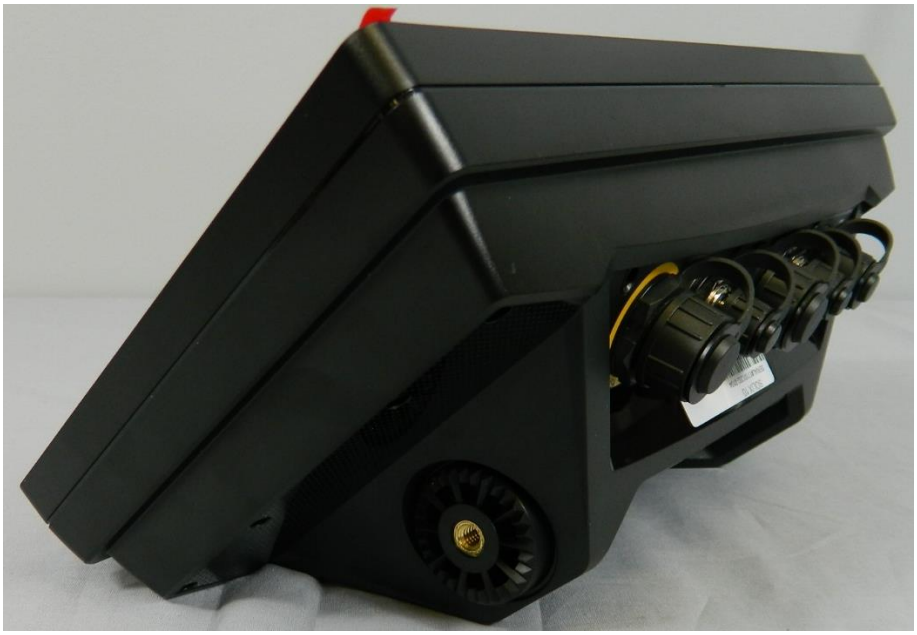




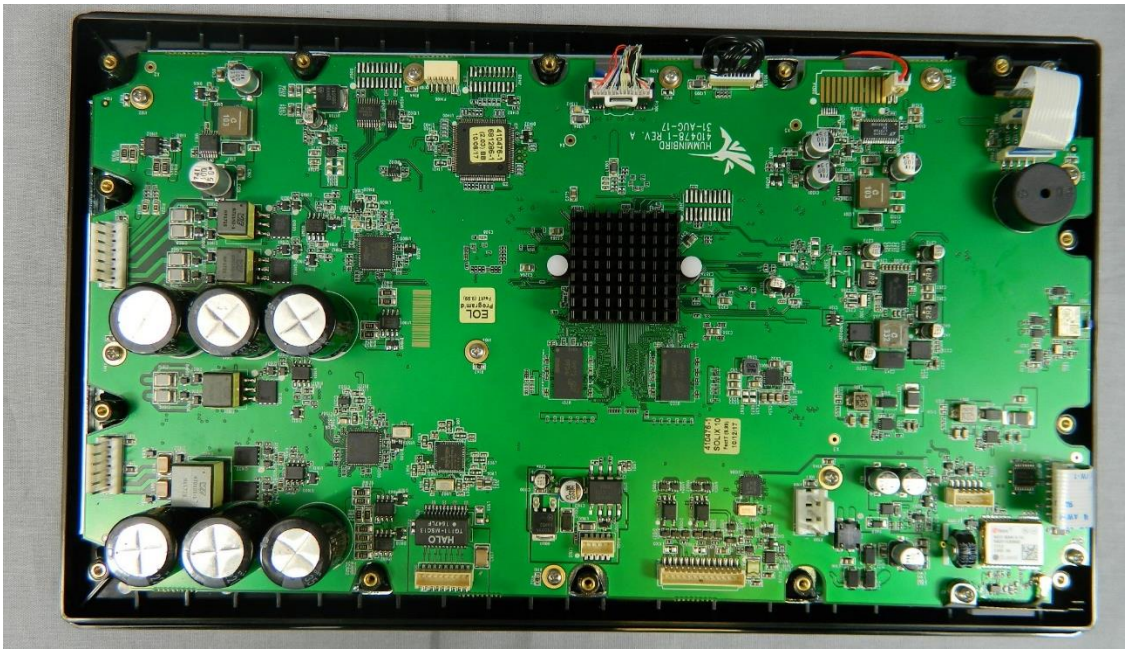
Photographs: (Solix 15 Internal)

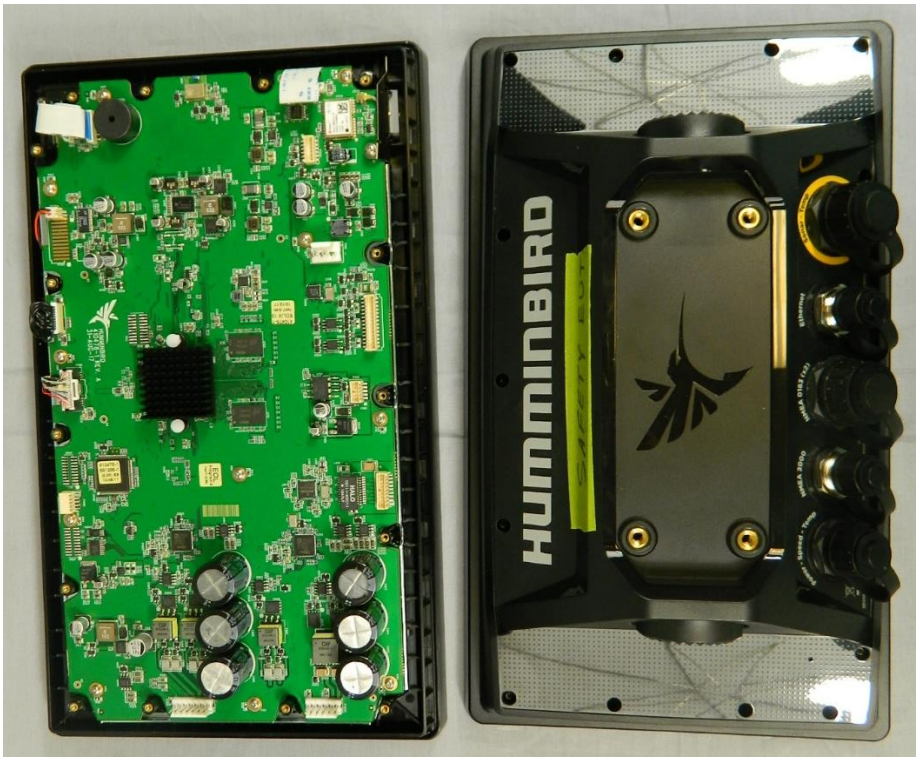


Photographs: (Solix 10 External)

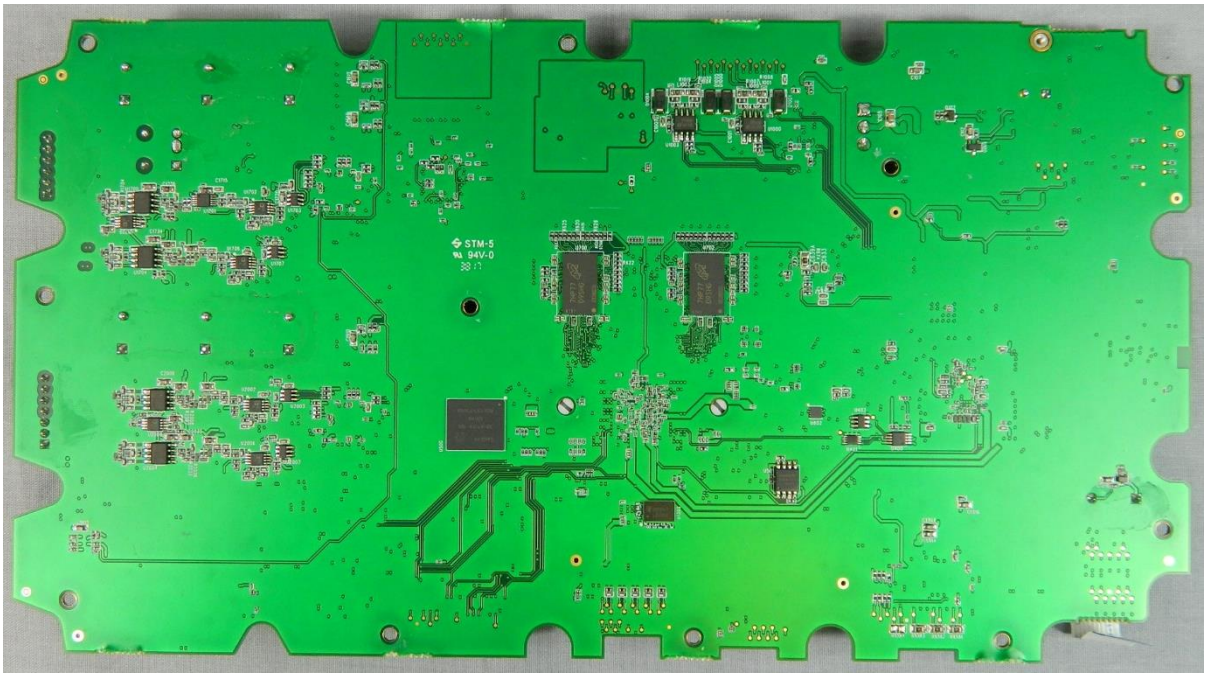


Photographs: (Solix 10 Internal View)



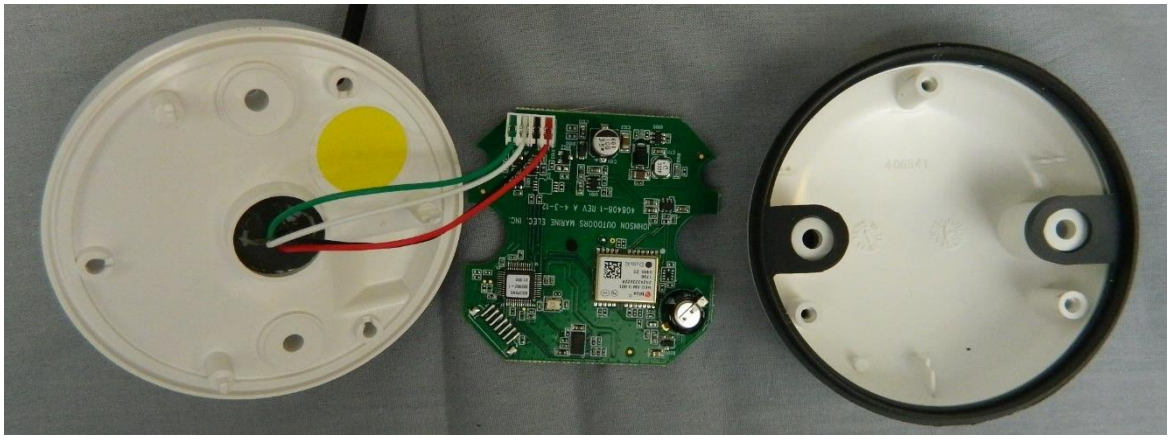


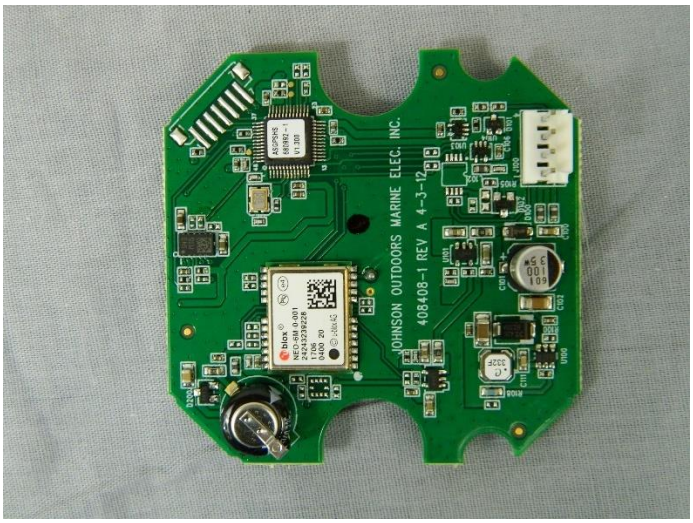
Photographs: (Solix 10 Internal)



Photographs: (GPS External)

Photographs: (GPS Internal)





Photographs: (Bluetooth Remote External)

Photographs: (Bluetooth Remote Internal)

Photographs: (Bluetooth Remote Internal)