



HERMON LABORATORIES



ELECTRICAL TESTING
839.01

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SAFETY TEST REPORT

**ACCORDING TO: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011,
IEC 60950-1:2005 (Second Edition) + Am1:2009.**

FOR:

CompuLab Ltd.

EUT: Ultra-small low power desktop PC with Wi-Fi

**Models: 1) Intense-PC
2) Intense-PC2**

This report is in conformity with ISO/ IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested. This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.



SUMMARY AND SIGNATURES

The Ultra-small low power desktop PC with Wi-Fi, models: Intense-PC and Intense-PC2 were evaluated according to EN 60950-1:2006 + A11:2009 + A1:2010 +A 12:2011 and IEC 60950-1:2005 (Second Edition) + Am1:2009 standards, and found to be in compliance with the standard requirements.

NOTES:

- 1) This test report is an amendment of and supersedes the previous Hermon Laboratories test report COMSAF_EN-IEC. 23559cor1.
- 2) The following tests were performed due to this update:
 - Clause 1.6 Power input
 - Clause 1.7.1 Durability
 - Clause 4.5 Temperature test
 - Clause 5.3 Abnormal tests

The test results related to this update have a note to differentiate them from test results of original Report. The changes are detailed in the Revision History Table.

Revision History Table					
Date	File No.	Prepared	Reviewed	Approved	Amendment Description
28-Apr-14	COMSAF_EN.25444	Mr. Michael Freiliher, Product Safety Team Leader 	Mr. Yosef Gross, Product Safety Senior Certification Engineer 	Mr. Michael Brun, Product Safety Group Manager 	1. New model (Intense-PC2) was added 2. All changes were done accordingly (e.g. label, hardware and software versions and etc...) 3. Minor editorial changes for better clarity
26-May-13	COMSAF_EN-IEC. 23559cor1	Michael Ostrovsky	Michael Brun		Update to additional standard IEC 60950-1:2005 (2nd Edition) + Am1:2009
12-May-13	COMSAF_EN.23559	Michael Ostrovsky	Michael Brun		Original report



Contents

Summary and signatures	2
1. General information	4
2. Test Protocol	9
Appendix A - Equipment used for testing	60
Appendix B - Photographs	62



1. GENERAL INFORMATION

Abbreviations and Acronyms

A	Ampere	LED	light emitting diode
AC	alternating current	mm	millimeter
ARC	auto release control	N/A	not applicable
AWG	American wire gauge	NC	normal condition
cm	Centimeter	P	pass
CE	European conformity mark	RMS	root mean square
DC	direct current	s	second
EN	European norm (standard)	SFC	single fault condition
EUT	equipment under test	V	Volt
F	Fail	W	Watt
Hz	Hertz	UL	Underwriters Laboratories
IEC	International Electrotechnical Commission	Ω	Ohm
Kg	Kilogram	SIP/SOP	Signal input/Signal Output

Testing laboratory and location	<p>Tests were performed at Hermon Laboratories, which is a fully independent, private safety, EMC, telecommunication and environmental testing facility. Hermon Laboratories is accredited by American Association for Laboratory Accreditation (A2LA, USA) according to ISO GUIDE 17025 (certificate No. 839.01) and accredited as CBTL under responsibility of SII.</p> <p>The safety laboratory has gained numerous certifications and accreditations from National Certification Bodies including UL, ETL, TUV, MET, SII, Telefication and others, and provides solution for global safety certification in various product categories.</p> <p>Address: P.O. Box 23, Binyamina 30500, Israel. Telephone: +972 4628 8001 Fax: +972 4628 8277 e-mail: mail@hermonlabs.com website: www.hermonlabs.com</p> <p>Person for contact: Michael Brun, Product Safety Group Manager.</p>
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Applicant	
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Telephone:	+972 4829 0100
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Manufacturer	As applicant
Factory	As applicant
Test specification	
Standard:	EN 60950-1:2006 + A11:2009 + A1:2010 +A 12:2011; IEC 60950-1:2005 (Second Edition) + Am1:2009
Procedure deviation:	N
Non-standard test method:	N
Test item	Ultra-small low power desktop PC with Wi-Fi
Description:	<p>The EUT is a tiny form-factor low power desktop PC. The EUT is class III, powered by dedicated external certified AC/DC adapter. There is only SELV circuits in an enclosure.</p> <p>EUT (model 1) features the following interfaces:</p> <ul style="list-style-type: none"> * HDMI * Display Port * Digital 7.1 S/PDIF and analog 2.0 audio input and output * Two 1000 BaseT Ethernet ports * WiFi 802.11 b/g/n + BT combo with dual antenna * 6x USB 2.0 host ports * 2x USB 3.0 host ports * 2 eSATA ports * Internal 2.5" SATA HDD * mSATA socket * IR Receiver <p>EUT (model 2) features the following interfaces:</p> <ul style="list-style-type: none"> * 2x HDMI * Display Port * Digital 7.1 S/PDIF and analog 2.0 audio input and output * Two 1000 BT Ethernet ports * WiFi 802.11 AC + BT combo with dual antenna * 2x USB 2.0 ports * 4 USB 3.0 ports * Internal 2.5" SATA HDD * mSATA socket * 3x Micro serial ports
Test configuration	<p>Model 1:</p> <ul style="list-style-type: none"> * HDMI - Display connected to the port displaying video content at




high resolution

- * Display Port - Display connected and displaying system content at high resolution
- * Digital 7.1 S/PDIF and analog 2.0 audio input and output - Headphones connected, maximum volume set. Microphone connected.
- * Gigabit Ethernet - persistent loopback data transfer at 1Gbps bit rate
- * WiFi 802.11 b/g/n + BT combo with dual antennas - constant transmit mode at 100% power
- * 2 USB3 ports - persistent data transfer to/from external disks
- * 6 USB2 ports - persistent data transfer to/from external disks, 2 ports of 6 loaded with mechanical HDDs power cord
- * 2 eSATA ports - persistent data transfer to/from external disks
- * 2.5" SATA HDD - system disk
- * mSATA - persistent data transfer to/from mSATA disk
- * Serial RS232 port - not used (maintenance only)
- * IR Receiver - constant receive mode
- * CPU and GPU - fully loaded by CPULoad utility

Model 2:

- * DisplayPort: Connected to the LCD monitor via DP-to-VGA adapter, used as Primary Display showing test software status
- * HDMI1, HDMI2: Connected to HDMI display substitutes, enabling video output at a high resolution.
- * LAN1, LAN2: Running bi-directional data transfer between the two ports at 1000 Mbps data rate
- * Serial RS-232 ports: running continuous loopback data transfer
- * USB 2.0 ports: USB 2.0 loopback devices connected, running loopback data transfer at 12Mbps rate
- * USB 3.0 ports: USB 3.0 loopback devices connected, running loopback data transfer at 480mbps rate
- * CPU and GPU loaded 100%
- * HDD and mSATA disk running continuous read/write tests
- * WiFi 802.11 + BT combo in constant transmit state at 100% power
- * Audio I/O: Headphones connected, reproducing audio track at 100% volume.



Trademark:	
Serial number:	1) 130320-0002 2) 1140303-00008
Model No.:	1) Intense-PC 2) Intense-PC2
Hardware version	1) 1 2) 1
Software version	1) Windows 7 Pro SP1 2) 1.2
Rating(s):	12Vdc, 5A (output of dedicated external certified AC/DC adapter)
Mass of equipment (kg)	1) 1.2 2) 1.2
Dimensions (cm)	1) 16 x 18 x 2 2) 19 x 20 x 3
Protection against ingress of water	IPX0 (ordinary equipment)

Particulars: test item vs. test requirements	
Equipment mobility:	Movable
Test case verdicts	
Test case does not apply to the test object	N(ot applicable)
Test item does meet the requirement	P(ass)
Test item does not meet the requirement	F(ail)
Testing	
Date of receipt of test item	1 April, 2014 (for file № COMSAF_EN.25444) Not required (for file № COMSAF_EN.23559cor1)
Date(s) of performance of test	3 February, 2013 (for file № COMSAF_EN.23559) 8 - 10 April, 2014 (for file № COMSAF_EN.25444) Not required (for file № COMSAF_EN.23559cor1) 6 March, 2013 (for file № COMSAF_EN.23559)



Summary of testing:

Tests performed (name of test and test clause):

Name of test:	Test clause:
Power interface	1.6
Markings and instructions	1.7
Thermal requirements	4.5
Abnormal conditions	5.3

Testing location/Comments:

Hermon Laboratories, Ltd., Rakevet Industrial Zone,
Hatachana Street, Binyamina 30500, Israel

Copy of marking plate:

Labels of model 1):

Intense-PC

SN: 130320-0002

PN: IPC-D8X2-C3517C-H500-HB64S-X764-FM0



Intel Core i7 3517UE (1.7 GHz dual core + Intel HD Graphics 4000 17W) | 16GB (8GB DDR3 SODIMM x2) | HDD 500GB with Windows 7 Pro | mSATA 64GB | No FACE module

Made in Israel



Labels of model 2):



Intense-PC2

SN: 1140303-00008

PN: C4600-D16-H1T-M120S-WACB-X764-FMUSB3

Intel Core i7 4600U (2.1 GHz dual core/4MB Cache/3.3GHz Turbo + Intel HD Graphics 4400 15W) | 16GB (8GB DDR3

Power: 12V 5A



Intense-PC2

SN: 1140303-00008

PN: C4600-D16-H1T-M120S-WACB-X764-FMUSB3

Intel Core i7 4600U (2.1 GHz dual core/4MB Cache/3.3GHz Turbo + Intel HD Graphics 4400 15W) |

Package Content

Power supply (12v 5A) | AC Cord (North American) | HDMI to DVI cable | RCA cable for S/PDIF | serial male DB9 adapter | M3 screw for HDD x4 | WiFi antenna x2 | Rubber feet x4 | Recovery DVD Win7

Power: 12V 5A



The label of dedicated AC/DC adapter:





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

2. TEST PROTOCOL


1	GENERAL		P
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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		P
1.5.3	Thermal controls	No thermal controls	N/A
1.5.4	Transformers	No such transformers used	N/A
1.5.5	Interconnecting cables	Not shipped with the product	N/A
1.5.6	Capacitors bridging insulation	No bridging capacitors; no primary circuits. Class III device powered by external dc supply.	N/A
1.5.7	Resistors bridging insulation	No bridging resistors. No connection to mains supply. Class III device powered by external dc supply.	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No bridging resistors	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	No connection to IT power distribution systems; Class III device powered by external dc supply.	N/A
1.5.9	Surge suppressors	No surge suppressors	N/A
1.5.9.1	General	No surge suppressors	N/A
1.5.9.2	Protection of VDRs	No voltage dependent resistors	N/A
1.5.9.3	Bridging of functional insulation by a VDR	No voltage dependent resistors	N/A
1.5.9.4	Bridging of basic insulation by a VDR	No voltage dependent resistors	N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A



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

1.6	Power interface		P
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	Model 1) - see appended table 1.6.2 Model 2) - Tested with AC/DC adapter, see appended table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	Not a hand-held equipment	N/A
1.6.4	Neutral conductor	Class III device with no connection to supply mains	N/A

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	DC SELV powered. Rating marking not required	P
1.7.1.1	Power rating marking		N/A
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)		N/A
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz)		N/A
	Rated current (mA or A)		N/A
1.7.1.2	Identification markings	Provided	P
	Manufacturer's name or trade-mark or identification mark		P
	Model identification or type reference	Provided on the label	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	No safety related	N/A
1.7.2	Safety instructions and marking		N/A
1.7.2.1	General		N/A
1.7.2.2	Disconnect devices	AC/DC adapter	P
1.7.2.3	Overcurrent protective device	The EUT supplied by external power supply, which conform to limited power source requirements (clause 2.5) of this standard.	N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	No connection to IT power distribution systems; Class III device	N/A
1.2.7.6	Ozone	Operator is not allowed access with a tool.	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.3	Short duty cycles	Not intended for short duty cycles; device is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage adjustments.	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No power outlets	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	Fuses are part of external certified AC/DC adapter and not operator accessible	N/A
1.7.7	Wiring terminals	No wiring terminals	N/A
1.7.7.1	Protective earthing and bonding terminals	Ditto	N/A
1.7.7.2	Terminals for a.c. mains supply conductors	Ditto	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	Ditto	N/A
1.7.8	Controls and indicators	No controls and indicators are affecting safety	N/A
1.7.8.1	Identification, location and marking	No such indications	N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417	No such markings required; no such controls	N/A
1.7.8.4	Markings using figures	Only one connection supplying non-hazardous voltage	N/A
1.7.9	Isolation of multiple power sources	No such devices provided	N/A
1.7.10	Thermostats and other regulating devices		N/A
1.7.11	Durability	Tested	P
1.7.12	Removable parts	Markings not on removable parts.	P
1.7.13	Replaceable batteries	No replaceable batteries	N/A
	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	Operator has access only to SELV. No electric shock and energy hazards.	P
2.1.1.1	Access to energized parts	See below.	P
	Test by inspection	Class III device intended to be supplied by an external AC/DC power supply.	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test with test finger (Figure 2A)	No hazardous parts	N/A
	Test with test pin (Figure 2B)	No hazardous parts	N/A
	Test with test probe (Figure 2C)	No TNV circuits	N/A
2.1.1.2	Battery compartments	No battery compartment	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No voltage hazards	N/A
2.1.1.5	Energy hazards	No energy hazards in operator accessible areas	P
2.1.1.6	Manual controls	No such controls	N/A
2.1.1.7	Discharge of capacitors in equipment	The EUT no connected directly to mains supply; Class III device powered by dedicated certified external AC/DC power supply.	N/A
	Measured voltage (V); time-constant (s).....		—
2.1.1.8	Energy hazards – d.c. mains supply	No connection to d.c. mains supply	N/A
	a) Capacitor connected to the d.c. mains supply ..		N/A
	b) Internal battery connected to the d.c. mains supply		N/A
2.1.1.9	Audio amplifiers	Loaded by headphones	P
2.1.2	Protection in service access areas	Class III equipment	N/A
2.1.3	Protection in restricted access locations		N/A

2.2	SELV circuits		P
2.2.1	General requirements	Class III electrical equipment. Input DC 12V. SELV input provided by external power supply.	P
2.2.2	Voltages under normal conditions (V)	Not exceeding SELV limits	P
2.2.3	Voltages under fault conditions (V)	Not exceeding SELV limits	P
2.2.4	Connection of SELV circuits to other circuits	SELV to SELV only	P

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuits	N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A



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

2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions :		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed :		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed :		—
2.3.5	Test for operating voltages generated externally		N/A

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

2.5	Limited power sources		P
	a) Inherently limited output	The EUT supplied by certified external power supply limited power source	P
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :		—
	Current rating of overcurrent protective device (A) .. :		—
	Use of integrated circuit (IC) current limiters		—

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	No earthing and bonding conductors. Equipment is Class III with no provision for earthing.	N/A
2.6.2	Functional earthing		N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....		N/A
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	No outside of certified external AC/DC power supply	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A



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

2.7.4	Number and location of protective devices		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		N/A
2.9.1	Properties of insulating materials	Part of certified external AC/DC power supply	N/A
2.9.2	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation		N/A
2.9.4	Separation from hazardous voltages		N/A
	Method(s) used		—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	No connection to mains supply; Class III device powered by certified external AC/DC power supply	P
2.10.1.1	Frequency	No connected to mains; SELV	N/A
2.10.1.2	Pollution degrees	Pollution degree 2 considered	P
2.10.1.3	Reduced values for functional insulation	None required; complies with sub-clause 5.3.4 c)	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.1.4	Intervening unconnected conductive parts	No such parts	N/A
2.10.1.5	Insulation with varying dimensions	No such transformers used	N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses	No lamps or limited circuit circuits	N/A
2.10.2	Determination of working voltage	SELV; DC 12V considered	P
2.10.2.1	General	See below	N/A
2.10.2.2	RMS working voltage	SELV; DC 12V considered	P
2.10.2.3	Peak working voltage	SELV; DC 12V considered	P
2.10.3	Clearances	SELV device. No connection to mains supply, telecommunication networks or cable distribution networks. Device is not subject to transients or over voltages.	P
2.10.3.1	General	Equipment complies with subclause 5.3.4 c) in this test report.	N/A
2.10.3.2	Mains transient voltages	See above	N/A
	a) AC mains supply		N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	Part of certified external AC/DC power supply	N/A
2.10.3.4	Clearances in secondary circuits	Functional insulation applies between the secondary circuits (SELV) in the device. Since the distances between these circuits are determined to be less than required in clause 2.10, the requirements of subclause 5.3.4 for functional insulation were applied accordingly.	N/A
2.10.3.5	Clearances in circuits having starting pulses	No such circuits	N/A
2.10.3.6	Transients from a.c. mains supply	No connection to the mains supply	N/A
2.10.3.7	Transients from d.c. mains supply	No connection to the mains supply	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems	No connection to the telecommunication networks and cable distribution systems	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.9	Measurement of transient voltage levels	Equipment is not directly connected to either a.c. or d.c. mains supply, and not connected to TNV circuits.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	SELV device. No connection to mains supply, telecommunication networks or cable distribution networks. Device is not subject to transients or over voltages.	N/A
2.10.4.1	General	Device complies with sub-clause 5.3.4 c) in this test report.	N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests.....		—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation	SELV device. No connection to mains supply, telecommunication networks or cable distribution networks. Device is not subject to transients or over voltages.	N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components	No such components	N/A
2.10.5.12	Wire in wound components	No such components	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	Printed board used for SELV only; functional insulation. Not relied upon for supplementary/reinforced insulation.	N/A
2.10.6.1	Uncoated printed boards		N/A
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components	No coated	N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound	Pollution Degree 2 environment and no insulating compounds used	N/A
2.10.11	Tests for semiconductor devices and cemented joints	No such devices or cemented joints	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.12	Enclosed and sealed parts	No such parts; Pollution Degree 2 applied.	N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	No internal wiring for primary wiring distribution; secondary only; Class III device.	P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors	SELV only	P
3.1.5	Beads and ceramic insulators	No such insulators used	N/A
3.1.6	Screws for electrical contact pressure	Not used.	N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws	Such screws not used for current carrying electrical connections	N/A
3.1.9	Termination of conductors	No such terminations	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	No sleeving is using as a supplementary insulation	N/A

3.2	Connection to a mains supply		N/A
3.2.1	Means of connection	Class III equipment. Connection to the mains by dedicated certified external AC/DC adapter	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	No such terminals. Class III equipment	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	No connection to either a.c. or d.c mains supply. Class III equipment.	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A



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

3.4.11	Multiple power sources		N/A
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3.5	Interconnection of equipment		P
3.5.1	General requirements	Connection to other equipment is SELV to SELV	P
3.5.2	Types of interconnection circuits		P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment	EUT is supplied by an external AC/DC power supply which conforms to limited power source requirements of sub-clause 2.5.	P

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	EUT is considered to not be used individually. Device is less than 7kg. EUT is Class III with no hazardous voltage or energy. No hazards to occur to operator or service person.	N/A
	Test force (N)		N/A

4.2	Mechanical strength		N/A
4.2.1	General	EUT is Class III with no hazardous voltage or energy. No hazards to occur to operator or service person.	N/A
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm)		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified		N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A
4.2.11	Rotating solid media		N/A
	Test to cover on the door.....		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	No sharp edges or corners. Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N)	No such handles or controls	N/A
4.3.3	Adjustable controls	No such controls	N/A
4.3.4	Securing of parts	Parts are reliably secured	P
4.3.5	Connection by plugs and sockets	Class III equipment	N/A
4.3.6	Direct plug-in equipment	Not this type of equipment	N/A
	Torque		—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements. EUT is Class III with no earthing provisions.	N/A
4.3.8	Batteries		P
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery	Model 1): Protected by R327 and R601 Model 2): Protected by R281 and R89	P
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No exposure to oil and grease to be expected	N/A
4.3.10	Dust, powders, liquids and gases	No dust produced; no powders, liquids or gases used	N/A
4.3.11	Containers for liquids or gases	No 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	No ionizing radiation or ultraviolet light. LEDs used for indicating lights; inherently safe.	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.1	General	See above	N/A
4.3.13.2	Ionizing radiation	No ionizing radiation	N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No intended to be exposed UV radiation; indoor use only	N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation	No UV radiation	N/A
4.3.13.5	Lasers (including laser diodes) and LEDs	LEDs used as indicating lights; inherently safe.	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)		
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No moving parts	N/A
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....		N/A
	Is considered to cause pain, not injury. b)		N/A
	Considered to cause injury. c)		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning		N/A
4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Normal load condition per Annex L	All SIP/SOPs were loaded	—
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	No hazardous voltages.	N/A
4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	No openings in enclosure	N/A
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom, dimensions (mm) ..		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks)		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	Metal enclosure provided	P
	Method 2, application of all of simulated fault condition tests	Method 1 applied	N/A
4.7.2	Conditions for a fire enclosure	Fire enclosure not considered. EUT is powered by certified external AC/DC power supply complying with the requirements for limited power source (clause 2.5).	P
4.7.2.1	Parts requiring a fire enclosure	As above	N/A
4.7.2.2	Parts not requiring a fire enclosure	EUT is secondary circuits (SELV) that is supplied by a limited power source, internal components mounted on V-1 flammability class PCB; EUT has functional insulation and complies with the requirements of sub clause 5.3.7 c) in this test report.	P



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

4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	Fire enclosure not considered	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	EUT is secondary circuits (SELV) that is supplied by a limited power source, internal components mounted on V-1 flammability class PCB and has metal enclosure	P
4.7.3.4	Materials for components and other parts inside fire enclosures	Fire enclosure not considered.	N/A
4.7.3.5	Materials for air filter assemblies	No air filter assemblies	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components	

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N/A
5.1	Touch current and protective conductor current		N/A
5.1.1	General	Part of dedicated certified external AC/DC adapter. No telecommunication networks or protective earthing	N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA)....		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A



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

5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength		N/A
5.2.1	General	Class III device that powered by dedicated certified AC/DC adapter.	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	No motors	N/A
5.3.3	Transformers	No such transformers	N/A
5.3.4	Functional insulation.....	Mounted on V-1 or better material; functional insulation satisfies the requirements of c) – risk of fire ignition was evaluated and tested accordingly. (see appended table 5.3)	P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE	The short circuit tests were performed to verify compliance with the requirements 4.3.4 and 4.3.5 of IEC 60065	P
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire, emission of molten metal or deformation was noted during the tests.	P
5.3.9.1	During the tests		P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.9.2	After the tests		P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	No connections to telecommunication networks	N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General	No connection to cable distribution networks	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A



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

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)	All components has adequate flame rating	N/A
A.1.1	Samples		—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material		—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A



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

A.3.3	Compliance criterion		N/A
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B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motors	N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position	No transformers outside certified AC/DC adapter	—
	Manufacturer		—
	Type		—



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated values		—
	Method of protection		—
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings		N/A
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		N/A
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances	Not required. Functional insulation provided. No clearances distances; complies with the requirements of sub-clause 5.3.4 c) in this test report.	N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity	No thermal controls	N/A
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		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	All SIP/SOPs were loaded as below: All USBs loaded by special load device Audio loaded by headphones Additional provided bitrate loop between Ethernet ports and provided video movie for full loading.	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction	No ringing signals no TNV circuits	N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 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
N.1	ITU-T impulse test generators	Class III device. No transient voltages, TNV or cable networks connections used	N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories		N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	No coated printed boards	N/A
R.2	Reduced clearances (see 2.10.3)	Not considered for type of equipment	N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment	No TNV circuits	N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
		See separate test report	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction	No connection to AC distribution power systems	N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits	No telecommunication networks	N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus	No UV radiation generated.	N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General	No integrated current limiter	N/A
CC.2	Test program 1.....:		N/A
CC.3	Test program 2.....:		N/A
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N/A
DD.1	General	No rack-mounted	N/A
DD.2	Mechanical strength test, variable N.....:		N/A
DD.3	Mechanical strength test, 250N, including end stops.....:		N/A
DD.4	Compliance.....:		N/A
EE	ANNEX EE, Household and home/office document/media shredders		N/A
EE.1	General	No shredders	N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A)		N/A
	Test with wedge probe (Figure EE1 and EE2)		N/A



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

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety			
Differences according to.....: EN 60950-1:2006/A11:2009/A1:2010			
Attachment Form No.....: EU_GD_IEC60950_1B			
Attachment Originator.....: SGS Fimko Ltd			
Master Attachment.....: Date (2010-04)			
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EN 60950-1:2006/A11:2009/A1:2010 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions		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/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: 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.</p>	The headphones or earphones are not shipped with the product	N/A
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>		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 portable sound system	N/A
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>	No primary circuits	N/A



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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)									
Clause	Requirement + Test	Result - Remark	Verdict						
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Class III equipment	N/A						
2.7.2	This subclause has been declared 'void'.		P						
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		P						
3.2.5.1	<p>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-F".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="0"> <tr> <td>Up to and including 6 </td> <td>0,75^{a)} </td> </tr> <tr> <td>Over 6 up to and including 10 </td> <td>(0,75)^{b)} 1,0 </td> </tr> <tr> <td>Over 10 up to and including 16 </td> <td>(1,0)^{c)} 1,5 </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 ^{a)}	Over 6 up to and including 10	(0,75) ^{b)} 1,0	Over 10 up to and including 16	(1,0) ^{c)} 1,5	Class III equipment	N/A
Up to and including 6	0,75 ^{a)}								
Over 6 up to and including 10	(0,75) ^{b)} 1,0								
Over 10 up to and including 16	(1,0) ^{c)} 1,5								
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <p>Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 </p> <p>Delete the fifth line: conductor sizes for 13 to 16 A</p>	Class III equipment	N/A						
4.3.13.6 (A1:2010)	<p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:</p> <p>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</p> <p>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).</p>	Class III equipment	N/A						



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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.	Class III equipment	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.	No radiation	N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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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	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	Class III equipment. No cable distribution circuits.	N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	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. No cable distribution circuits.	N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	Class III equipment. No cable distribution circuits.	N/A



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

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



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway): “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.”</p> <p>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.”</p>	Class III equipment. No cable distribution circuits	N/A
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	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. No TNV circuits	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. No TNV circuits	N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	Class III equipment. No TNV circuits	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.	Class III equipment	N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
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
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. No TNV circuits	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: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE .250 V, 16 A	Class III equipment	N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>	Class III equipment.	N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	Class III equipment.	N/A
3.2.1.1	<p>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.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	Class III equipment.	N/A



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

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 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: • 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.	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



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none">• STATIONARY PLUGGABLE EQUIPMENT TYPE A that 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



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none">- two layers of thin sheet material, each of which shall pass the electric strength test below, or- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>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</p> <ul style="list-style-type: none">- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.	Class III equipment. No TNV circuits	N/A



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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		
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. No TNV circuits	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 equipment. No TNV circuits	N/A
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	No connection to the cable distribution system	N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.	No connection to the cable distribution system	N/A



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

<p>ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety</p>
<p>Differences according to.....: EN 60950-1:2006/A12:2011/A1:2010</p>

EN 60950-1:2006/A12:2011/A1:2010 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Delete the following in the existing standard and amendments 1.3.Z1 in EN 60950-1:2006 1.2.3 in EN 60950-1:06/A1:2010 1.7.2.1 in EN 60950-1:2006 and EN 60950-1:2006/A1:2010 NOTE Z1		N/A
Zx.1	A personal music player	Not personal music player	N/A
Zx.2	Acoustic output $L_{Aeq,T}$ is ≤ 85 dBA. A personal music player provided with an analogue electrical output socket for listening device, where electrical output is ≤ 27 mV. A personal music player shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of increased sound pressure when the equipment is operated with acoustic output exceeding mentioned above. Any means used shall be acknowledged by the user before activating a mode operation which allows for an acoustic outputs exceeding those mentioned above. The acknowledgement dose not need to be repeated more than once every 20 H of cumulative listening time; and d) have warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package, the acoustic output shall be ≤ 100 dBA; and 2) a personal music player provided with an analogue electrical output socket for listening device, the electrical output shall be ≤ 150 mV.		N/A



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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Zx.3	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 IEC 60417-6044 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. Warning may be given through the display, when the user is acknowledging the higher level.		N/A
Zx.4	Listening devices (headphones and earphones)	Not shipped with the product	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 mA.		N/A
Zx.4.2	Wired listening devices with digital input: the acoustic output $L_{Aeq,T}$ shall be ≤ 100 dBA		N/A
Zx.4.3	Wireless listening devices: the acoustic output $L_{Aeq,T}$ shall be ≤ 100 dBA		N/A
Zx.5	Measurement methods		N/A



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

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
General (for both models):						
External AC/DC adapter	ENG	3A-603DB12	Input: 100-240Vac, 50-60Hz, 1.0A Output: 12Vdc, 5A . 60VA, LPS	UL 60950-1: 2005 (2nd Edition) IEC 60950-1:2005	UL (E163743) CB by Intertek (SE-70416)	
Mini-USB-type serial connector	CVILUX or equivalent	CU04S	1A, HB or better	UL 1863	cRU _{US} (E159616)	
HDMI connector Two provided	Lotes or equivalent	ABA-HDM-014K02	0.5A min, HB or better	UL 1977	cRU _{US} (E187055)	
Ethernet Port (RJ-45) Two provided	XFMRS Incorporated / XFMRS or equivalent	Type RJ45 / XF0656P-CLGY1-2MS or equivalent	8-Circuit, 125V, 1A/Pin, V-0	UL 94, UL 1863, CAN/CSA C22.2 No.182.4, CAN/CSA C22.2 No.233	cRU _{US} (E200238)	
USB 2.0 connector 6 provided	TYCO or equivalent	Type A	4-Pin, DC 5V, 1.5A, V-0, 85°C	UL 94	cRU _{US} (E81956)	
USB 3.0 connector Two provided	Astron or equivalent	2360009-603-R	500V, -25 to +85 °C	--	--	
Audio jack	KYCon or equivalent	STX	Isolation 500V	UL 1682	cCSAus (LR 78160)	
DC jack	Contact Technology	DC-081HS(-2.5)	Material: MG-350 by Solvay Advanced Polymers V-0	IEC 60695-11-10	UL (E57552)	
Battery BT1	PANASONIC	BR 1220	Nominal 3V, 35mAh; max abnormal charge current 3mA, 80 °C	UL 1642	UL (MH12210)	
Hard Disk Drive	Hitachi or equivalent	HTS545025B9 A300 series	Sata II 5 and 3.3Vdc	UL 60950-1	UL (E319334)	
PCB	Any	Any	Minimum V-1, 105°C	UL 796	RU or CSA or equivalent	



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

For model 1:					
CPU	Intel	Celeron 827E / 847E / i3 2340UE / i7 3517UE	17W max	EN 60950-1 2 nd edition	Tested in appliance
R327 and R601 (protection of battery BT1)	Any	Any	1.5K	--	--
For model 2:					
CPU	Intel	SR1EA (Intel Core i7-4600U)	15W max	EN 60950-1 2 nd edition	Tested in appliance
R281 and R89 (protection of battery BT1)	Any	Any	1.5KΩ and 10Ω	--	--
Supplementary information:					

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		

1.6.2	TABLE: Electrical data (in normal conditions) (file № COMSAF_EN.23559)					P
U (V)	I (A)	I rated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
12	2.9	5	34.8	--	--	
Supplementary information: All USB outputs loaded by flash memory and two hard disks. Audio loaded by headphones. OS and video run. Additional provided bitrate loop between Ethernet ports and provided video movie for full loading.						



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

1.6.2	TABLE: Electrical data (in normal conditions) (file № COMSAF_EN.25444)					P
U (V)	I (mA)	I rated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90 (50/60Hz)	40/40	5	3.6	--	--	
100 (50/60Hz)	40/40		4	--	--	
240 (50/60Hz)	37/37		8.9	--	--	
254 (50/60Hz)	35/36		9.2	--	--	
Supplementary information: Tested with dedicated AC/DC adapter .All SIP/SOPs were loaded						

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:					

2.1.1.5 c) 2)	TABLE: stored energy		N/A
Capacitance C (µF)	Voltage U (V)	Energy E (J)	
supplementary information:			



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

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:				

2.5	TABLE: limited power sources			N/A
Circuit output tested:				
Measured Uoc (V) with all load circuits disconnected:				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition				
Single fault:				
Single fault:				
Single fault:				
supplementary information:				
Sc=Short circuit, Oc=Open circuit				



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

2.10.2	Table: working voltage measurement			N/A
Location	RMS voltage (V)	Peak voltage (V)	Comments	
supplementary information:				

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
Basic/supplementary:							
Reinforced:							
Supplementary information: No basic, supplementary or reinforced insulation. Functional insulation evaluated according option 5.3.4C							

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:						



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

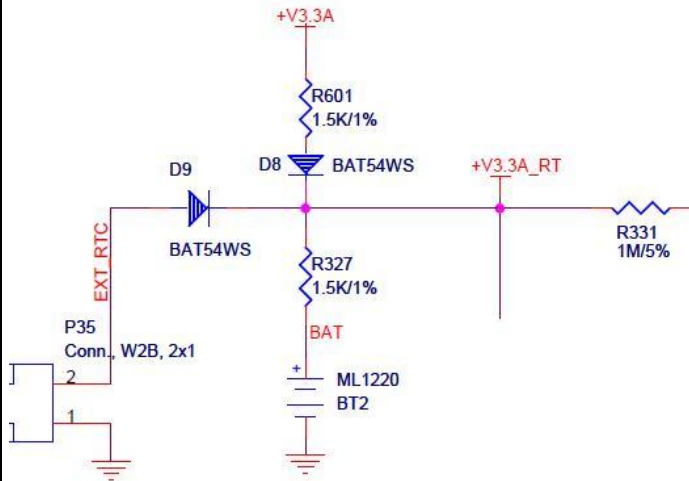
4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available								N/A	
Is it possible to install the battery in a reverse polarity position?								N/A	
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional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

4.3.8	TABLE: Batteries								P
Battery category.....		Lithium							
Manufacturer		Panasonic							
Type / model.....		BR 1220							
Voltage		3V							
Capacity.....		35mAh							
Tested and Certified by (incl. Ref. No.)		UL (MH12210)							
Circuit protection diagram:		Provided							

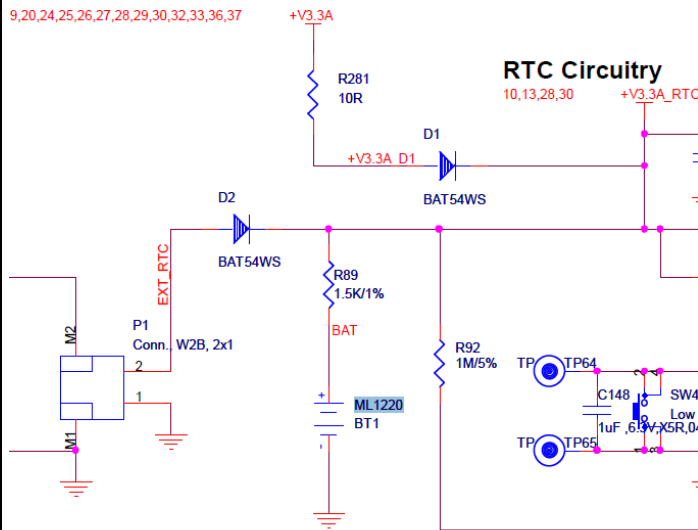


IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

protection diagram of model1):



protection diagram of model 2):



MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	The battery is not replaceable.
Language(s)	
Close to the battery	
In the servicing instructions	
In the operating instructions	



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

4.5	TABLE: Thermal requirements (file № COMSAF_EN.23559)						P
	Supply voltage (V)	12Vdc					—
	Ambient T _{min} (°C)	23.3					—
	Ambient T _{max} (°C)		*40				—
Maximum measured temperature T of part/at::		T (°C)				Allowed T _{max} (°C)	
DC jack	58.3	75				85	
PCB at CPU	65.0	81.7				105	
Battery	53.6	70.3				80	
PCB at chipset	62.4	79.1				105	
Top Enclosure	48.9	65.6				70	
Hard Disk Drive	57.3	74.0				105	
Supplementary information: *) Calculated to ambient of 40°C. All USB outputs loaded by flash memory and 2 hard disks. OS and video program run. Additional provided bitrate loop between Ethernet ports and provided video movie for full loading. Horizontal position.							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							

4.5	TABLE: Thermal requirements (file № COMSAF_EN.25444)						P
	Supply voltage (V)	12Vdc					—
	Ambient T _{min} (°C)	25					—
	Ambient T _{max} (°C)		*40				—
Maximum measured temperature T of part/at::		T (°C)				Allowed T _{max} (°C)	
Bottom side of EUT	53	68				70	
Ambient in EUT	68	83				-	
L1 on main board	71	86				105	
Battery surface	56	71				80	
Top enclosure of EUT	55	70				70	



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

Supplementary information:
*) Calculated to ambient of 40°C.
All SIP/SOPs were loaded.

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

Supplementary information:

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

Supplementary information:

4.7	TABLE: Resistance to fire	P			
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Min USB	Generic	Various	--	Minimum HB	Datasheets were evaluated
HDMI	Generic	Various	--	Minimum HB	
Ethetnet RJ-45	Generic	Various	--	Minimum HB	
USB connector	Generic	Various	--	Minimum HB	
DC Jack	Generic	Various	--	Minimum HB	

Supplementary information:

5.1	TABLE: touch current measurement	N/A	
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions

supplementary information:



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

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			N/A
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No	
Functional:				
Basic/supplementary:				
Reinforced:				
Supplementary information:				

5.3	TABLE: Fault condition tests (file № COMSAF_EN.23559)					P
	Ambient temperature (°C)				23.3	—
	Power source for EUT: Manufacturer, model/type, output rating				AC/DC adapter (See components list)	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Audio output	Short	12Vdc	30min			No temperature rise. No hazards
USB output	Short	12Vdc	30min			No temperature rise. No hazards
Supplementary information:						

5.3	TABLE: Fault condition tests (file № COMSAF_EN.25444)					P
	Ambient temperature (°C)				24	—
	Power source for EUT: Manufacturer, model/type, output rating				AC/DC adapter (See components list)	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Audio output	Short	12Vdc	30min			No temperature rise. No hazards
USB output	Short	12Vdc	30min			No temperature rise. No hazards
Battery overcharge	The resistor R89 (1,5 KΩ) was shorted	3.3V	7h			Start current was 0.12mA, during test the current decrease to 0.04mA, max recorded temperature was 60°C



IEC/EN 60950-1							
Clause	Requirement + Test					Result - Remark	Verdict
Battery discharge	Shorted between + and -	3.3V	30min			Start current was 40mA, during test the current decrease to 6mA, max recorded temperature was 56°C	
Supplementary information:							

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:							

C.2	TABLE: transformers						N/A
Transformer							



APPENDIX A - EQUIPMENT USED FOR TESTING

Equipment calibration

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

HL No	Equipment description	Manufacturer	Model	Ser. No.	Last Cal./Chk.	Next Cal./Chk.
1415	Multimeter	Fluke	73 III	76080133	14-Jul-13	14-Jul-14
2774	HygroThermometer, Min/Max Memory	Delta TRAK	13301	NA	13-May-13	13-May-14
3155	Power Converter, 5 kVA, 1 phase	Adaptive Power Systems, Inc.	APS1005M X230	2260059	18-Apr-13	18-Apr-14
3132	Data Logger Hydra	Fluke	2625A	5834602	12-Feb-14	12-Feb-15
1594	Data Logger Hydra Series II	Fluke	2635A	7710004	09-Oct-13	09-Oct-14
840	Thermometer Digital, 10 channels	Fluke	2166A	4349009	06-Feb-14	06-Feb-16



Measurement uncertainty

Expanded uncertainty at 95% confidence in Hermon Labs safety measurements

Test description	Expanded uncertainty
1. Heating test (TC method)	Option 1 $\pm 1.04\%$ Option 2 $\pm 1.87\%$
2. Leakage current	For Options 1, 2 $\pm 6.2\%$
3. Input test	AC Input test uncertainty: $\pm 3.02\%$ DC Input test uncertainty: $\pm 1.99\%$
4. Bonding impedance (Ground continuity) test	Option 1 test uncertainty: $\pm 2.81\%$ Option 1 test uncertainty: $\pm 1.99\%$
5. Dielectric strength	HYPOTPLUS II, AC/DC Withstand Voltage Tester expanded uncertainty: $\pm 3.55\%$ Electrical Safety Compliance Analyzer expanded uncertainty: $\pm 2.49\%$
6. Cord Test	$\pm 0.98\%$
7. Voltage limitation	$\pm 1.68\%$
8. Transformer abnormal test	Voltage/Current method $\pm 3.9\%$ Temperature (TC method) $\pm 2.6\%$ Temperature (Resistance method) $\pm 1.93\%$
9. Material used in high voltages	Option I uncertainty $\pm 0.98\%$ Option II uncertainty $\pm 0.03\%$
10. Limited Current Circuit	Option 1 $\pm 2.44\%$ Option 2 $\pm 3.31\%$
11. Energy hazard test	Option I uncertainty $\pm 1.82\%$ Option II uncertainty $\pm 0.97\%$
12. Limited power source (2.5)	$\pm 3.9\%$
13. Telecom Steady state test (6.2.2.2)	$\pm 2.8\%$
14. Telecom Impulse test (6.2.2.1)	$\pm 3.75\%$
15. TNV separation from earth (6.1.2)	$\pm 2.8\%$
16. TNV & SELV reliability	$\pm 3.30\%$
17. Ringing signal criteria	Normal test $\pm 1.68\%$ Leakage test $\pm 6.2\%$
18. Component failure	Voltage/ current method $\pm 3.9\%$ Temperature method $\pm 2.6\%$
19. Cable distribution impulses	High voltage impulses expanded uncertainty using 4Kv generator $\pm 3.75\%$. High voltage impulses expanded uncertainty using 10Kv generator $\pm 5\%$

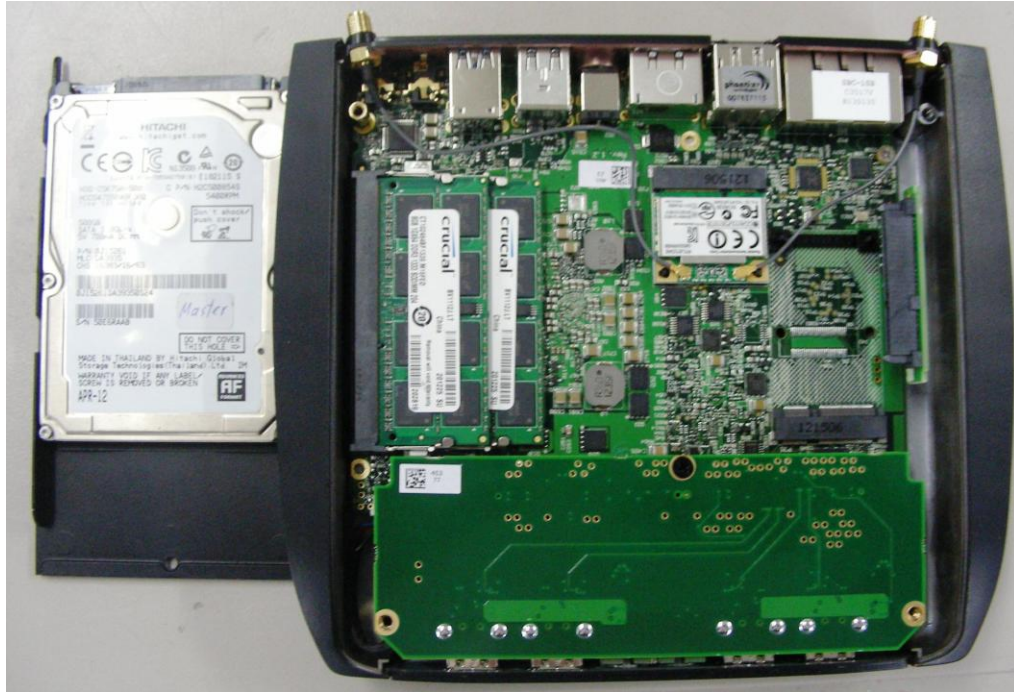
APPENDIX B - PHOTO DOCUMENTATION

Photograph № 1
The EUT (model 1) general views





Photograph № 2
The EUT (model 1) internal views

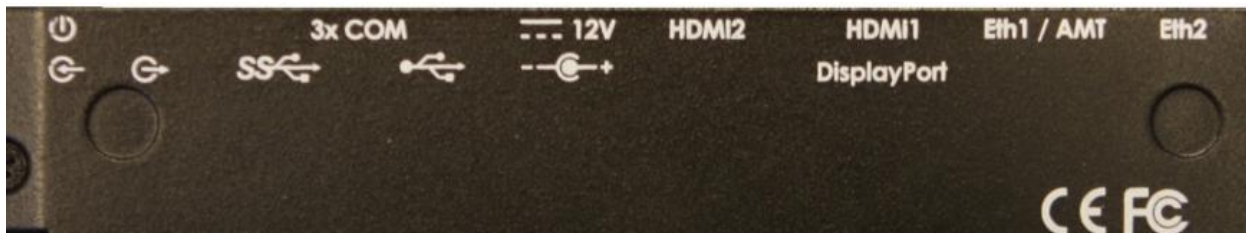




Photograph № 3
Test setup: The EUT (model 2) + all accssesories views



Photograph № 5
The EUT (model 2) SIP/SOPs views





Photograph № 6
The EUT (model 2) internal views



End of the Test Report