

TEST REPORT IEC 60950-1 Information technology equipment - Safety - Part 1: General requirements	
Report Reference No	E234884-A230-IT-1
Date of issue	2017-11-17
Total number of pages	44
Applicant's name	ZHEJIANG DAHUA VISION TECHNOLOGY CO LTD NO.1199 BIN'AN RD. BINJIANG DISTRICT
Address	HANGZHOU ZHEJIANG 310053 CHINA
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
Test procedure	Informative
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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Test item description	IP CAMERA
Trade Mark	None
Manufacturer	ZHEJIANG DAHUA VISION TECHNOLOGY CO LTD NO.1199 BIN'AN RD. BINJIANG DISTRICT HANGZHOU ZHEJIANG 310053 CHINA
Model/Type reference	DH-IPC-HUM8231P-E2; DH-IPC-HUM8231N-E2; DH-IPC-HUM8231P-E1; DH-IPC-HUM8231N-E1; DH-IPC-HUM8431P-E1; DH-IPC-HUM8431N-E1.
Ratings	(Optional) DC12V,0.5A/POE 52V,120mA for DH-IPC-HUM8231P-E1; DH-IPC-HUM8231N-E1; DH-IPC-HUM8431P-E1; DH-IPC-HUM8431N-E1.; DC12V,0.6A/POE 52V,140mA for DH-IPC-HUM8231P-E2; DH-IPC-HUM8231N-E2;

Testing procedure and testing location:		
	Testing location / address	UL-CCIC Company Limited No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China
	Tested by (name + signature)	Xing Liu/ handler 
	Approved by (+ signature)	Jie Qian./ Reviewer 

List of Attachments

National Differences (33 pages)

Enclosures (17 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at UL-CCIC Company Limited No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China.

Tests performed (name of test and test clause)	Testing location / Comments
End Product Reference Page Input: Single-Phase (1.6.2) Limited Power Source Measurements (2.5) Heating (4.5.1, 1.4.12, 1.4.13) Electric Strength Test Procedure; Impulse (6.2.2, 6.2.2.1)	
Summary of Compliance with National Differences: Countries outside the CB Scheme membership may also accept this report. List of countries addressed: AT, BE, BG, BY, CA, CH, CS, CZ, DE, DK, EU, FI, FR, GB, GR, HU, IT, NL, NO, PL, RO, SE, SI, SK, UA, US The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013	

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :

Equipment mobility	stationary
Connection to the mains	No direct connection
Operating condition	continuous
Access location	restricted access location
Over voltage category (OVC)	OVC I
Mains supply tolerance (%) or absolute mains supply values	N/A
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class III (supplied by SELV)
Considered current rating of protective device as part of the building installation (A)	20A
Pollution degree (PD)	PD 2
IP protection class	IP X0
Altitude of operation (m)	no more than 2000
Altitude of test laboratory (m)	less than 2000 meters
Mass of equipment (kg)	Max. 0.22Kg

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(s) of receipt of test item	2017-07-19
Date(s) of Performance of tests	2017-09-04 to 2017-09-08

General remarks:

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

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

Name and address of Factory(ies): ZHEJIANG DAHUA VISION TECHNOLOGY CO LTD
 NO.1199 BIN'AN RD. BINJIANG DISTRICT
 HANGZHOU
 ZHEJIANG 310053 CHINA

GENERAL PRODUCT INFORMATION:**Report Summary****Product Description**

The equipment is an IP Camera. All electrical components are mounted on V-1 PCB and housed in plastic and metal enclosure fixed by screws.
The equipment is supplied by external 12Vdc or POE (52Vdc).

Model Differences

All models are identical to each other except some components difference on main board

Additional Information

Underwriters Laboratories Inc. has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested for fire, shock and casualty hazards as outlined in UL's Standard for Safety UL 60950-1. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

Technical Considerations

- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): all data output ports
- The product only consider about indoor use only. If it will intend for use outdoors, additional requirement or evaluation may be necessary. --
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual --
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 60 °C --

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI
- double insulation	DI	- reinforced insulation	RI

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	Pass
1.5.2	Evaluation and testing of components	<p>-Components certified to IEC harmonized standard and checked for correct application.</p> <p>-Components, for which no relevant IEC-Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.</p> <p>-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.</p>	Pass
1.5.3	Thermal controls		N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors bridging insulation		N/A
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		Pass
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT under NORMAL LOAD.	Pass
1.6.3	Voltage limit of hand-held equipment	The unit is not a hand-held equipment.	N/A
1.6.4	Neutral conductor		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	Marking and instructions		Pass
1.7.1	Power rating and identification markings		Pass
1.7.1.1	Power rating mark		Pass
	Multiple mains supply connections		N/A
	Rated voltage(s) or voltage range(s) (V)	DC12V,0.5A/POE 52V,120mA for DH-IPC-HUM8231P-E1; DH-IPC-HUM8231N-E1; DH-IPC-HUM8431P-E1; DH-IPC-HUM8431N-E1.; DC12V,0.6A/POE 52V,140mA for DH-IPC-HUM8231P-E2; DH-IPC-HUM8231N-E2;	Pass
	Symbol for nature of supply, for d.c. only	IEC 60417 No. 5031 provided on marking label.	Pass
	Rated frequency or rated frequency range (Hz)		N/A
	Rated current (mA or A)	DC12V,0.5A/POE 52V,120mA for DH-IPC-HUM8231P-E1; DH-IPC-HUM8231N-E1; DH-IPC-HUM8431P-E1; DH-IPC-HUM8431N-E1.; DC12V,0.6A/POE 52V,140mA for DH-IPC-HUM8231P-E2; DH-IPC-HUM8231N-E2;	Pass
1.7.1.2	Identification markings		Pass
	Manufacturer's name or trademark or identification mark.....	Zhejiang Dahua Vision Technology Co. Ltd or E234884.	Pass
	Model identification or type reference	DH-IPC-HUM8231P-E2; DH-IPC-HUM8231N-E2; DH-IPC-HUM8231P-E1; DH-IPC-HUM8231N-E1; DH-IPC-HUM8431P-E1; DH-IPC-HUM8431N-E1.	Pass
	Symbol for Class II equipment only		N/A
	Other markings and symbols.....		N/A
1.7.1.3	Use of graphical symbols		N/A
1.7.2	Safety instructions and marking	Operating/safety instructions made available to the user.	Pass
1.7.2.1	General		Pass
1.7.2.2	Disconnect devices		N/A
1.7.2.3	Overcurrent protective device		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.4	IT Power distribution systems		N/A
1.7.2.5	Operator access with a tool		N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment		N/A
	Method and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment.....	No standard power outlets are provided.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		N/A
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		Pass
1.7.8.1	Identification, location and marking	No controls will affect safety .	N/A
1.7.8.2	Colours	Only functional indicators use color.	Pass
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		N/A
1.7.10	Thermostats and other regulating devices		N/A
1.7.11	Durability	All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test.	Pass
1.7.12	Removable parts	No removable part provided.	N/A
1.7.13	Replaceable batteries	Marking or statement is provided.	Pass
	Language(s)	English provided.	-
1.7.14	Equipment for restricted access locations		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2	PROTECTION FROM HAZARDS		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas	Class III unit.	Pass
2.1.1.1	Access to energized parts	The operator has access to bare parts of SELV CIRCUITS.	Pass
	Test by inspection..... :		N/A
	Test with test finger (Figure 2A) :		N/A
	Test with test pin (Figure 2B)..... :		N/A
	Test with test probe (Figure 2C) :	No TNV present.	N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to 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		N/A
2.1.1.5	Energy hazards :	Units supplied by LPS.	N/A
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles, levers, or the like.	N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s) :		-
2.1.1.8	Energy hazards - d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply .. :		N/A
	b) Internal battery connected to the mains supply :		N/A
2.1.1.9	Audio amplifiers :		N/A
2.1.2	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in a service access area.	Pass
2.1.3	Protection in restricted access locations		N/A
2.2	SELV circuits		Pass
2.2.1	General requirements	SELV levels are maintained after single fault condition.	Pass
2.2.2	Voltages under normal conditions (V) :	Class III equipment.	Pass
2.2.3	Voltages under fault conditions (V) :	Class III equipment.	Pass
2.2.4	Connection of SELV circuits to other circuits :	SELV circuits are only connected to other secondary circuits.	Pass

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

2.3	TNV circuits		N/A
2.3.1	Limits		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	No TNV-2, TNV-3 circuit	N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....		-
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....		-
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		N/A
2.4.1	General requirements	No limited current circuits.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		-
	Measured current (mA).....		-
	Measured voltage (V)		-
	Measured circuit capacitance (nF or μ F)		-
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		Pass
	a) Inherently limited output		Pass
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	Use of integrated circuit (IC) current limiters		-
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....	see table 2.5 for details.	-
	Current rating of overcurrent protective device (A) :		-

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Clause	Requirement + Test	Result - Remark	Verdict
2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
	Use of symbol for functional earthing :		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	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 (ohm), 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

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Clause	Requirement + Test	Result - Remark	Verdict

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements		N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices :		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel :		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No Safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	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		Pass
2.9.1	Properties of insulating materials	Class III unit.	N/A
2.9.2	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C) :		-
2.9.3	Grade of insulation	Functional insulation.	Pass
2.9.4	Separation from hazardous voltages		N/A
	Method(s) used :		-

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Clause	Requirement + Test	Result - Remark	Verdict
2.10	Clearances, creepage distances and distances through insulation		Pass
2.10.1	General	Class III unit.	Pass
2.10.1.1	Frequency..... :		N/A
2.10.1.2	Pollution degrees..... :		N/A
2.10.1.3	Reduced values for functional insulation		Pass
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances	Functional insulation.	N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply :		N/A
	b) Earthed d.c. mains supplies :		N/A
	c) Unearthed d.c. mains supplies :		N/A
	d) Battery operation :		N/A
2.10.3.3	Clearances in primary circuits		N/A
2.10.3.4	Clearances in secondary circuits	See 5.3.4 method c.	N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply..... :		N/A
2.10.3.7	Transients from d.c. mains supply..... :		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems :		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply :		N/A
	For a d.c. mains supply :		N/A
	b) Transients from a telecommunication network		N/A
2.10.4	Creepage distances	Functional insulation., See 5.3.4 for secondary circuits.	N/A
2.10.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		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		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation.....		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		-
	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		Pass
2.10.6.1	Uncoated printed boards		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
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		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		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A
3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors	Class III unit, supplied by the LPS and SELV adapter.	N/A
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.2	Connection to mains supply		N/A
3.2.1	Means of connection		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		-
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type		-
	Rated current (A), cross-sectional area (mm ²), AWG		-
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		-
	Longitudinal displacement (mm)		-
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter of minor dimension D (mm); test mass (g)		-
	Radius of curvature of cord (mm)		-
3.2.9	Supply wiring space		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²) :		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm) :		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits :	Interconnection circuits are SELV CIRCUITS.	Pass
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		Pass

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Clause	Requirement + Test	Result - Remark	Verdict

4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		Pass
	Angle of 10°	Based on construction, the test was deemed not necessary.	N/A
	Test force (N)..... :		N/A

4.2	Mechanical strength		Pass
4.2.1	General	The equipment is supplied by SELV and LPS adapter.	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
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :	5.1 Kg is loaded.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
4.3	Design and construction		Pass
4.3.1	Edges and corners	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Torque		N/A
	Compliance with the relevant mains plug standard:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		Pass
	- Overcharging of a rechargeable battery		Pass
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		Pass
	- Excessive discharging rate for any battery		Pass
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids.....		N/A
	Quantity of liquid (l).....		N/A
	Flash point (°C).....		N/A
4.3.13	Radiation		Pass
4.3.13.1	General		N/A
4.3.13.2	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		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.13.5	Lasers (including laser diodes) and LEDs	This product contains visible indicator LEDs (Class 1) operating in the range of 400 - 700 nm wavelength. No IEC60825-1 evaluation was deemed necessary. Additional review may be required at the discretion of the accepting NCB.	Pass
4.3.13.5.1	Lasers (including laser diodes)	This product contains visible indicator LEDs (Class 1) operating in the range of 400 - 700 nm wavelength. No IEC60825-1 evaluation was deemed necessary. Additional review may be required at the discretion of the accepting NCB.	Pass
	Laser class	Class I	-
4.3.13.5.2	Light emitting diodes (LEDs)		Pass
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General		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

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	Thermal requirements		Pass
4.5.1	General		Pass
4.5.2	Temperature tests	(see appended table 4.5)	Pass
	Normal load condition per Annex L :	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	-
4.5.3	Temperature limits for materials	(see appended table 4.5)	Pass
4.5.4	Touch temperature limits	(see appended table 4.5)	Pass
4.5.5	Resistance to abnormal heat..... :		N/A

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	Unit supplied by SELV and LPS.	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) :		-

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Clause	Requirement + Test	Result - Remark	Verdict

4.7	Resistance to fire		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Unit is supplied by LPS	Pass
	Method 1, selection and application of components wiring and materials		Pass
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	No fire enclosure is needed.	Pass
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure	Circuit supplied by a limited power source complying with 2.5 and with components mounted on materials of Class V-1 or better and motors.	Pass
4.7.3	Materials		Pass
4.7.3.1	General	Unit is supplied by LPS.	Pass
4.7.3.2	Materials for fire enclosures		N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	Decorative parts and parts outside of the fire enclosure are made of minimum HB material.	Pass
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	Electric strength		Pass
5.2.1	General	POE port	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		Pass
5.3.1	Protection against overload and abnormal operation		Pass
5.3.2	Motors		N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation..... :	Method c	Pass
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE..... :		N/A
5.3.7	Simulation of faults		N/A
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		N/A
5.3.9.1	During the tests		N/A
5.3.9.2	After the tests		N/A

6	CONNECTION TO TELECOMMUNICATION NETWORKS		Pass
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 TNV circuits.	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		Pass
6.2.1	Separation requirements		Pass
6.2.2	Electric strength test procedure		Pass
6.2.2.1	Impulse test		Pass
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		Pass

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Clause	Requirement + Test	Result - Remark	Verdict

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		-
	Current limiting method		-

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system	No cable distribution systems.	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 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)		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 :		N/A
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

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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		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)		-

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Clause	Requirement + Test	Result - Remark	Verdict
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position		-
	Manufacturer		-
	Type		-
	Rated values		-
	Method of protection		-
C.1	Overload test		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supply		N/A
G.2.3	Unearthed d.c. mains supply		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
	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		-

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Clause	Requirement + Test	Result - Remark	Verdict

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)..... :		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V) :		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		Pass
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		Pass

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing 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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		Pass
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	- Preferred climatic categories..... :		N/A
	- Maximum continuous voltage..... :		N/A
	- Combination Pulse current..... :		N/A
	Body of the VDR Test according to IEC60695-11-5 :		N/A
	Body of the VDR. Flammability class of material (min V-1) :		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
 :		-
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
 :		-
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
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..... :		N/A
Y.2	Mounting of test samples..... :		N/A
Y.3	Carbon-arc light-exposure apparatus..... :		N/A
Y.4	Xenon-arc light-exposure apparatus :		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		Pass
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		Pass
CC	ANNEX CC, EVALUATION OF INTEGRATED CIRCUIT (IC) CURRENT LIMITERS		N/A
CC.1	General		N/A
CC.2	Test program 1 :		N/A
CC.3	Test program 2 :		N/A
CC.4	Test program 3 :		N/A
CC.5	Compliance..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

DD	ANNEX DD, REQUIREMENTS FOR THE MOUNTING MEANS OF RACK-MOUNTED EQUIPMENT		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N		N/A
DD.3	Mechanical strength test, 250 N, including end stops		N/A
DD.4	Compliance.....		N/A

EE	ANNEX EE, HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIA SHREDDERS		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols		N/A
	Information of user instructions, maintenance and/or servicing instructions		N/A
EE.3	Inadvertent reactivation test		N/A
EE.4	Disconnection of power to hazardous 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 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					Pass
object/part or Description	manufacturer/ trademark	type/model	technical data	standard (Edition or year)	mark(s) of conformity ¹⁾	
01. Plastic Enclosure)	Interchangeable	Interchangeable	HB or better,. See enclosure 4-01 for dimension details.	UL 94, UL 746C	UL, --	
02. Metal Enclosure	--	--	Metallic, see enclosure 4-01 for dimension details	--	--, --	
3. RTC Battery	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Maximum charging current 300mA, Maximum charging voltage 3.4Vdc	UL 1642	UL, --	
04. SELV connector	Interchangeable	Interchangeable	Metal/Plastic	UL 498, UL 1977,	UL, --	
04a. SELV connector (Alternate)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated V-2 minimum.	UL 94, UL 746C	UL, --	
05. Internal Wiring (optional)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1, 80 degree C, 60V	UL 758	UL, --	
06. Internal metal (optional)	Interchangeable	Interchangeable	Metal	--	--, --	
07. Internal plastic parts (optional)	Interchangeable	Interchangeable	Min. HB	UL 94, UL 746C	UL, --	
08. Label	Interchangeable	Interchangeable	Minimum 70 degree C, suitable for affixed material.	UL 969	UL, --	
09. PWB	Interchangeable	Interchangeable	V-1 or better, minimum 105 degree C	UL 796	UL, --	
10. Power adaptor of model DH-IPC-HUM8231P-E1; DH-IPC-	interchangeable	interchangeable	Output: DC12V,min.0.5A or POE 52V,min. 120mA; LPS output, min. 60	UL/IEC 60950-1 2nd	UL, --	

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
HUM8231N-E1; DH-IPC- HUM8431P-E1; DH-IPC- HUM8431N-E1 (optional)			degree C		
11. Power adaptor of model DH-IPC- HUM8231P-E2; DH-IPC- HUM8231N-E2 (optional)	interchangeable	interchangeable	Output: DC12V,min.0.6A or POE 52V,min. 140mA; LPS output, min. 60 degree C	UL/IEC 60950-1 2nd	UL, --
12. Interconnecting Cable (Optional)	Interchangeable	Interchangeable	Minimum 80 degree C, 60V, maximum 3.05m long, jacketed, marked "VW-1" or "FT-1"	UL 758	UL, --
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

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

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:				
Additional types may be described in Enclosure - Miscellaneous				

1.6.2	TABLE: Electrical data (in normal conditions)						Pass
U (V)	I (A)	I rated (A)	P (W)	Fuse #	I fuse (A)	condition/status	
DH-IPC-HUM8231P-E1	-	-	-	-	-	-	
12V DC	0.250	0.50	3.000	-	-	Max. normal load	
POE	0.071	0.12	3.692	-	-	-	
DH-IPC-HUM8231P-E2	-	-	-	-	-	-	
12V DC	0.330	0.60	3.960	-	-	Max. normal load	
POE	0.086	0.14	4.472	-	-	-	
DH-IPC-HUM8431P-E1	-	-	-	-	-	-	
12V DC	0.250	0.50	3.000	-	-	Max. normal load	
POE	0.072	0.12	3.744	-	-	-	
supplementary information:							

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:						

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

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

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		Pass
	Circuit output tested:		
	Note: Measured Uoc (V) with all load circuits disconnected:		
	Components	Sample No.	Uoc (V)
			Isc (A)
			Meas. Limit
			VA
			Meas. Limit

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
DH-IPC-HUM8231P-E1	-	-	-	-	-	-
AUDIO IN	1059384-001	0	0	8	0	100
AUDIO OUT	1059384-001	0	0	8	0	100
SENSOR(input 12V)	1059384-001	11.62	2.59	8	23.02	100
SENSOR(input 52V)	1059384-001	11.62	1.12	8	11.23	100
Fault: R813(input 52V,2A)	1059384-001	0	0	8	0	100
Fault: R806(input 52V,2A)	1059384-001	11.55	2.32	8	20.23	100
LAN	1059384-001	0	0	8	0	100
TX	1059384-001	0	0	8	0	100
RX	1059384-001	5.03	0	8	0	100
IN1	1059384-001	1.57	0	8	0	100
IN2	1059384-001	1.57	0	8	0	100
N1	1059384-001	0	0	8	0	100
C1	1059384-001	0	0	8	0	100
N2	1059384-001	0	0	8	0	100
C2	1059384-001	0	0	8	0	100
DH-IPC-HUM8231P-E2	-	-	-	-	-	-
AUDIO IN	1059384-003	0	0	8	0	100
AUDIO OUT	1059384-003	0	0	8	0	100
SENSOR1(input 12V)	1059384-003	11.59	2.60	8	22.73	100
SENSOR1(input 52V)	1059384-003	11.59	1.15	8	11.26	100
SENSOR2(input 12V)	1059384-003	11.62	2.55	8	22.21	100
SENSOR2(input 52V)	1059384-003	11.62	1.11	8	11.22	100
Fault: R813(input 52V,2A)	1059384-003	0	0	8	0	100
Fault: R806(input 52V,2A)	1059384-003	11.55	2.32	8	20.23	100
LAN	1059384-003	0	0	8	0	100
TX	1059384-003	0	0	8	0	100
RX	1059384-003	5.00	0	8	0	100
IN1	1059384-003	1.60	0	8	0	100
IN2	1059384-003	1.60	0	8	0	100
N1	1059384-003	0	0	8	0	100
C1	1059384-003	0	0	8	0	100

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
N2	1059384-003	0	0	8	0	100
C2	1059384-003	0	0	8	0	100
DH-IPC-HUM8431P-E1	-	-	-	-	-	-
AUDIO IN	1059384-002	0	0	8	0	100
AUDIO OUT	1059384-002	0	0	8	0	100
SENSOR(input1 2V)	1059384-002	11.62	2.63	8	23.13	100
SENSOR(input5 2V)	1059384-002	11.62	1.14	8	11.21	100
Fault: R813(input 52V,2A)	1059384-002	0	0	8	0	100
Fault: R806(input 52V,2A)	1059384-002	11.55	2.32	8	20.23	100
LAN	1059384-002	0	0	8	0	100
TX	1059384-002	0	0	8	0	100
RX	1059384-002	5.03	0	8	0	100
IN1	1059384-002	1.59	0	8	0	100
IN2	1059384-002	1.59	0	8	0	100
N1	1059384-002	0	0	8	0	100
C1	1059384-002	0	0	8	0	100
N2	1059384-002	0	0	8	0	100
C2	1059384-002	0	0	8	0	100
supplementary information:						
Sc=Short circuit, Oc=Open circuit						

2.10.2	TABLE: Working voltage measurements				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:							
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)
Basic/supplementary:							
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)

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

Reinforced:						
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)
supplementary information:						

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:	Upeak (V)	Urms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
supplementary information:						

4.3.8	TABLE: Batteries							Pass	
The tests of 4.3.8 are applicable only when appropriate battery data is not available.									
Is it possible to install the battery in a reverse polarity position?									
	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								Pass	
- Explosion of the battery								Pass	
- Emission of flame or expulsion of molten metal								Pass	
- Electric strength tests of equipment after completion of tests								N/A	
supplementary information:									

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

4.3.8	TABLE: Batteries			N/A
Battery category (lithium, NiMh, NiCad, lithium ion, etc.)				
Manufacturer				
Type / model				
Voltage				
Capacity (mAh)				
Tested and Certified by (incl. Ref. No.)				
Circuit protection diagram (refer to indicated supplement of Enclosure - Miscellaneous)				
MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)				
Location of replaceable battery				
Language(s)				
Close to the battery				
In the servicing instructions				
In the operating instructions				
supplementary information:				
Additional devices may be described in Enclosure - Miscellaneous				

4.5	TABLE: Thermal requirements						Pass
Supply voltage (V) :							---
Ambient Tmin (°C) :							---
Ambient Tmax (°C) :							---
Maximum measured temperature T of part/at:		T (°C) #1	T (°C) #2	T (°C) #3	T (°C) #4	T (°C) #5	Allowed Tmax (°C)
Voltage		12Vdc	12Vdc	poe	poe	-	-
DH-IPC-HUM8231P-E2		-	-	-	-	-	-
1 PWB near T4 and U8 ch11		69.9	69.9	40.2	75.8	-	105
2 PWB near T1 and D ch12		73.4	73.4	41.3	76.9	-	105
3 PWB near U27 and U1 ch13		70.4	70.4	37.1	72.7	-	105
4 Battery body ch14		73.8	73.8	40.6	76.2	-	100
5 PWB near battery ch15		74.0	74.0	40.8	76.4	-	105
6 Metal enclosure outside near main board ch16		68.2	68.2	34.2	69.8	-	70
7 Plastic enclosure outside ch17		66.5	66.5	32.0	67.6	-	95
8 Ambient ch18		69.9	60.0	24.4	60.0	-	-
Temperature T of winding:	t1 (°C)	R1 (ohm)	t2 (°C)	R2 (ohm)	T (°C)	Allowed Tmax (°C)	Insulation class
supplementary information:							

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	allowed impression diameter (mm) :	less than or equal to 2.0	---

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

part	test temperature (°C)	impression diameter (mm)
supplementary information:		

4.7	TABLE: Resistance to fire				Pass
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
supplementary information:					
see table 1.5.1 for details					

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

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			Pass
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:				
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
B		Impulse	1500	No/>2 MΩ
C		Impulse	1500	No/>2 MΩ
Reinforced:				
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
supplementary information:				

5.3	TABLE: Fault condition tests			Pass
	Ambient temperature (°C) :			---
	Power source for EUT: Manufacturer, model/type, output rating :			---

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

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
supplementary information:						
Results Key: IP = Internal protection operated (component indicated) CT = Constant temperatures were obtained TW = Transformer winding opened CD = Components damaged (damaged components indicated) NB = No indication of dielectric breakdown YB = Dielectric breakdown (time and location indicated) NC = Cheesecloth remained intact YC = Cheesecloth charred or flamed NT = Tissue paper remained intact YT = Tissue paper charred or flamed						

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
Transformer type number			Enclosure - Miscellaneous ID					
supplementary information:								

Enclosure

National Differences

Austria**
Belarus*
Belgium**
Bulgaria**
Czech Republic**
Denmark
Finland
France**
Germany
Greece**
Group
Hungary**
Italy**
Netherlands**
Norway
Poland**
Romania**
Serbia**
Slovakia**
Slovenia**
Sweden
Switzerland
USA / Canada
Ukraine*
United Kingdom

* No National Differences Declared

** Only Group Differences

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

Denmark - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
1.2.4.1	In Denmark, certain types of Class I appliances (see sub-clause 3.2.1.1) may be provided with plug not establishing earthing continuity when inserted into Danish socket-outlets.		N/A
1.7.2.1	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: : "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."		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.		N/A
1.7.5	For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a. (Heavy Current Regulations, Section 107-2-D1)		N/A
3.2.1.1	Supply cord 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. CLASS I EQUIPMENT provided with socket-outlets with earth contact 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		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	Regulations, Section 107-2-D1 or EN 60309-2.		

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

Finland - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
1.5.7.1	Resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.9.4	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	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 shall be: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"		N/A
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.10.5.3	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	Touch current measurement results exceeding 3,5 mA r.m.s are permitted only for the following equipment: - STATIONARY PLUGGABLE EQUIPMENT TYPE A that: (1) is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and (2) has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and (3) is provided with instructions for the installation of that conductor by a SERVICE PERSON; - STATIONARY PLUGGABLE EQUIPMENT TYPE B - STATIONARY PERMANENTLY CONNECTED EQUIPMENT		N/A
6.1.2.1	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		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	<p>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 requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric 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. <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 132400:1994 (EN 60384-14:2005), subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400 [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 132400 [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 132400 [EN 60384-14]; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 [EN 60384-14], in the sequence of tests as described in EN 132400 [EN 60384-14]. 		
6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

	be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication center, 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.		
7.2	Requirements according to this annex 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A

Germany - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
1.7.2.1	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.		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

Group - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
General	Group Differences also includes the requirements in A11:2009 and A12:2011		N/A
1.3	A12:2011 - In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1	Add the following NOTE Z1: The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		Pass
1.7.2.1	Delete NOTE Z1 and the addition for Portable Sound System Add the following Zx clauses and annex to the existing standard and amendments		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.		N/A
2.7.2	Void		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
Zx.1	<p>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.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> - is designed to allow the user to listen to recorded or broadcast sound or video; and - primarily uses headphones or earphones that can be worn in or on or around the ears; and - allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> - hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> - analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before 		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	<p>the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		
Zx.2	<p>Equipment Requirements - No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> - equipment provided as a package (personal music player with its listening device), where the acoustic output LAeq,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. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level LAeq,T is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> 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 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 		N/A

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	<p>more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1. For music where the average sound pressure (long term LAeq,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.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term LAeq,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.</p>		
Zx.3	Warning - The warning shall be placed on the		N/A

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	<p>equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> - the symbol of Figure 1 (IEC 60417-6044) with a minimum height of 5 mm; and - the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods." 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 		
Zx.4	Requirements for Listening devices (headphones and earphones)		N/A
Zx.4.1	<p>Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A
Zx.4.2	<p>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 LAeq,T of the listening device shall be ≤ 100 dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N/A
Zx.4.3	<p>Wireless listening devices In wireless mode:</p> <ul style="list-style-type: none"> - with any playing and transmitting device playing the fixed programme simulation noise described in 		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	<p>EN 50332-1; and</p> <ul style="list-style-type: none">- 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 LAeq,T of the listening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		
Zx.5	<p>Measurement Methods</p> <p>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.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A

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Norway - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
General	Norway has national differences declared for 60950-1:2005, Am 1:2009 (below).		N/A
1.2.13.14	For requirements see 1.7.2.1 and 7.3.		N/A
1.5.7.1	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.		N/A
1.5.8	Due to the IT power system used (see annex V, figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	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	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 shall be: "Apparatet må tilkoples jordet stikkontakt"		N/A
1.7.2.1	In Norway, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing - and to a cable distribution system using coaxial cable, may in		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	<p>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> <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>		
2.2.4	Requirements according to this annex, 1.7.2.1, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.3.4	Requirements according to this annex, 1.7.2.1, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.10.5.13	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	<p>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: <ul style="list-style-type: none"> (1) is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and (2) has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and (3) is provided with instructions for the installation of that conductor by a SERVICE PERSON; - STATIONARY PLUGGABLE EQUIPMENT TYPE B - STATIONARY PERMANENTLY CONNECTED EQUIPMENT 		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.1	<p>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 requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric 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. <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 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 123400 [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 132400 [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 132400 [EN 60384-14]; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 [EN 60384-14], in the sequence of tests as described in EN 132400 [EN 60384-14.] 		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	Refer to EN 60728-11:2005 for installation conditions		N/A
7.3	Requirements according to this annex 1.2.13.14 and 1.7.2.1 apply.		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

Sweden - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
1.2.13.14	For requirements see 1.7.2.1 and 7.3.		N/A
1.5.1	(Ordinance (1990:944)) Add NOTE: Switches containing mercury are not permitted.		N/A
1.5.7.1	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.		N/A
1.5.9.4	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	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 shall be: "Apparaten skall anslutas till jordat uttag"		N/A
1.7.2.1	<p>In 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.</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.</p> <p>Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range</p>		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	<p>(galvanic isolator, see EN 60728-11)."</p> <p>NOTE: In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to 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>		
2.3.2	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
2.10.5.13	Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply.		N/A
5.1.7.1	<p>TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s are permitted only for the following equipment:</p> <p>STATIONARY PLUGGABLE EQUIPMENT TYPE A that:</p> <p>(1) is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and</p> <p>(2) has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</p> <p>(3) is provided with instructions for the installation of that conductor by a SERVICE PERSON;</p> <p>- STATIONARY PLUGGABLE TYPE B</p> <p>- STATIONARY PERMANENTLY CONNECTED EQUIPMENT</p>		N/A
6.1.2.1	<p>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</p>		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	<p>through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric 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. <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 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400 [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 132400 [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 132400 [EN 60384-14]; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 [EN 60384-14], in the sequence of tests as described in EN 132400 [EN 60384-14]. 		
6.1.2.2	<p>The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and 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.</p>		N/A
7.2	Requirements according to this annex, 6.1.2.1 and		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

	6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		
7.3	Requirements according to this annex 1.2.13.14 and 1.7.2.1 apply.		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

Switzerland - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
General	Includes update from 60950-1:2005, AC:2011		N/A
1.5.1	Ordinance on environmentally hazardous substances SR 814.81, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury. Switches containing mercury such as thermostats, relays and level controllers are not allowed.		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 no longer in force and superseded by SR 814.81 of 2009-02-01 (ChemRRV).		N/A
3.2.1.1	<p>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 (3rd Ed.) + Amd. 1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 6533-2:2009, Plug type 11, L+N, 250 V, 10 A - SEV 6534-2:2009, Plug type 12, L+N+PE, 250 V, 10 A - SEV 6532-2:2009, Plug type 15, 3P+N+PE, 250/400 V, 10 A <p>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 (3rd Ed.) + Amd. 1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 5933-2:2009, Plug type 21, L+N, 250 V, 16 A - SEV 5934-2:2009, Plug type 23, L+N+PE, 250 V, 16 A - SEV 5932-2:2009, Plug type 25, 3P+N+PE, 230/400 V, 16 A <p>NOTE: 16 A plugs are not often used in Swiss domestic installation systems.</p>		N/A
3.2.4	Requirements according to this annex 3.2.1.1		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
	apply.		

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
1.1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		Pass
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		Pass
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.		N/A
1.4.14	For PLUGGABLE EQUIPMENT TYPE A, the protection in the installation is assumed to be 20 A.		N/A
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		Pass
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		Pass
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special circuit classification requirements (e.g., TNV-2)		N/A
1.6.1.2	Earthing of d.c. powered equipment provided.		N/A
1.7	Lamp replacement information indicated on lampholder in operator access area.		N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor.		N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions.		N/A
1.7.6	Special fuse replacement marking for operator accessible fuses.		N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor.		N/A
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.		N/A
1.7.7	Marking located adjacent to terminals and visible during wiring.		N/A
2.1.1.1	Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover.		N/A
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4.		N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions.		N/A
2.3.1.b	Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.		N/A
2.3.2.1	In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.		N/A

IEC 60950-1:2005			
SubClause	Difference + Test	Result - Remark	Verdict
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable.		N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.	Class III unit.	N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092).		N/A
2.6.3.3	For PLUGGABLE EQUIPMENT TYPE A, if a) b) or c) are not applicable, the current rating of the circuit is taken as 20 A		N/A
2.6.3.3	The first column on Table 2D requirement: "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		N/A
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.		N/A
2.6.3.4	Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4.		N/A
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada.		N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment.		N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1.		N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring.		N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards.		N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
2.10.5.12	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.12 and Annex U.		N/A
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit protection.		Pass
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		Pass
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.	Class III unit, supplied by the LPS and SELV adapter.	N/A
3.2.1	Permitted use for flexible cords and plugs.		N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing.		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		N/A
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	result in a hazard.		
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, Part 1.		N/A
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 150 mm in length for connection of field installed wiring.		N/A
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		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.		N/A
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	comply with 3.3.		
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.		N/A
3.3.4	Terminals accept wire sizes (gauge) used in the U.S. and Canada.		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		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."		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.		N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A
4.3.13.5.1	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370).		N/A
4.7	Automated information storage equipment intended to contain more than 0.76 m ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.9 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		Pass
5.1.8.2	Special earthing provisions and instructions for		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	equipment with high touch current due to telecommunication network connections.		
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.7	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		N/A
5.3.7	Tests interrupted by opening of a component repeated two additional times.		N/A
5.3.9.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A
6	Specialized instructions provided for telephones that may be connected to a telecommunications network.		N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.		N/A
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.		N/A
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C).		N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.		N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.		N/A
H	Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370.		N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.		N/A
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A
NAD	Acoustic pressure from an ear piece less than 140 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets and insert earphones, for long duration disturbances.		N/A
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.		N/A
EE.5	UL articulated accessibility probe (Fig. EE.3) required for assessing accessibility to document/media shredders, instead of Figure 2A test finger.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

United Kingdom - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013			
2.6.3.3	The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
3.2.1.1	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 1786: 1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE: "Standard plug" is defined in SI 1786: 1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.5.1	A power supply cord with conductor of 1.25 mm ² is allowed for equipment with a rated current over 10A and up to and including 13A.		N/A
3.3.4	The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A up to and including 13 A is 1.25 mm ² to 1.5 mm ² nominal cross-sectional area.		N/A
4.3.6	The torque test is performed using a socket outlet complying with BS 1363 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, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125°C.		N/A
4.3.6	Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

Enclosures

Enclosures

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Marking Plate	13-01	Marking plate
Photographs	3-01	Overall view 1 of model DH-IPC-HUM8231P-E1
Photographs	3-02	Overall view 2 of model DH-IPC-HUM8231P-E1
Photographs	3-03	Overall view 3 of model DH-IPC-HUM8231P-E1
Photographs	3-04	Overall view 4 of model DH-IPC-HUM8231P-E1
Photographs	3-05	Internal view 1 of model DH-IPC-HUM8231P-E1
Photographs	3-06	Internal view 2 of model DH-IPC-HUM8231P-E1
Photographs	3-07	Front view of mainboard of model DH-IPC-HUM8231P-E1
Photographs	3-08	Back view of mainboard of model DH-IPC-HUM8231P-E1
Photographs	3-09	Overall view of output port of model DH-IPC-HUM8231P-E2
Photographs	3-10	Front view of mainboard of model DH-IPC-HUM8231P-E2
Photographs	3-11	Back view of mainboard of model DH-IPC-HUM8231P-E2
Photographs	3-12	Front view of mainboard of model DH-IPC-HUM8431P-E1
Photographs	3-13	Back view of mainboard of model DH-IPC-HUM8431P-E1
Diagrams	4-01	Enclosure spec
Miscellaneous	7-01	Installation manual

MarkingPlate ID 13-01

IP CAMERA

DH-IPC-HUM6231N-E1
12V \pm 0.5A, POE, 62V \pm 0.12A
PIN: 1.0.01.04.22390
MAC: AA:BB:CC:DD:EE:FF
S/N: 3E03294PA800010



MADE IN CHINA



ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

Photographs ID 3-01



Enclosures

Photographs ID 3-02



Photographs ID 3-03



Photographs ID 3-04

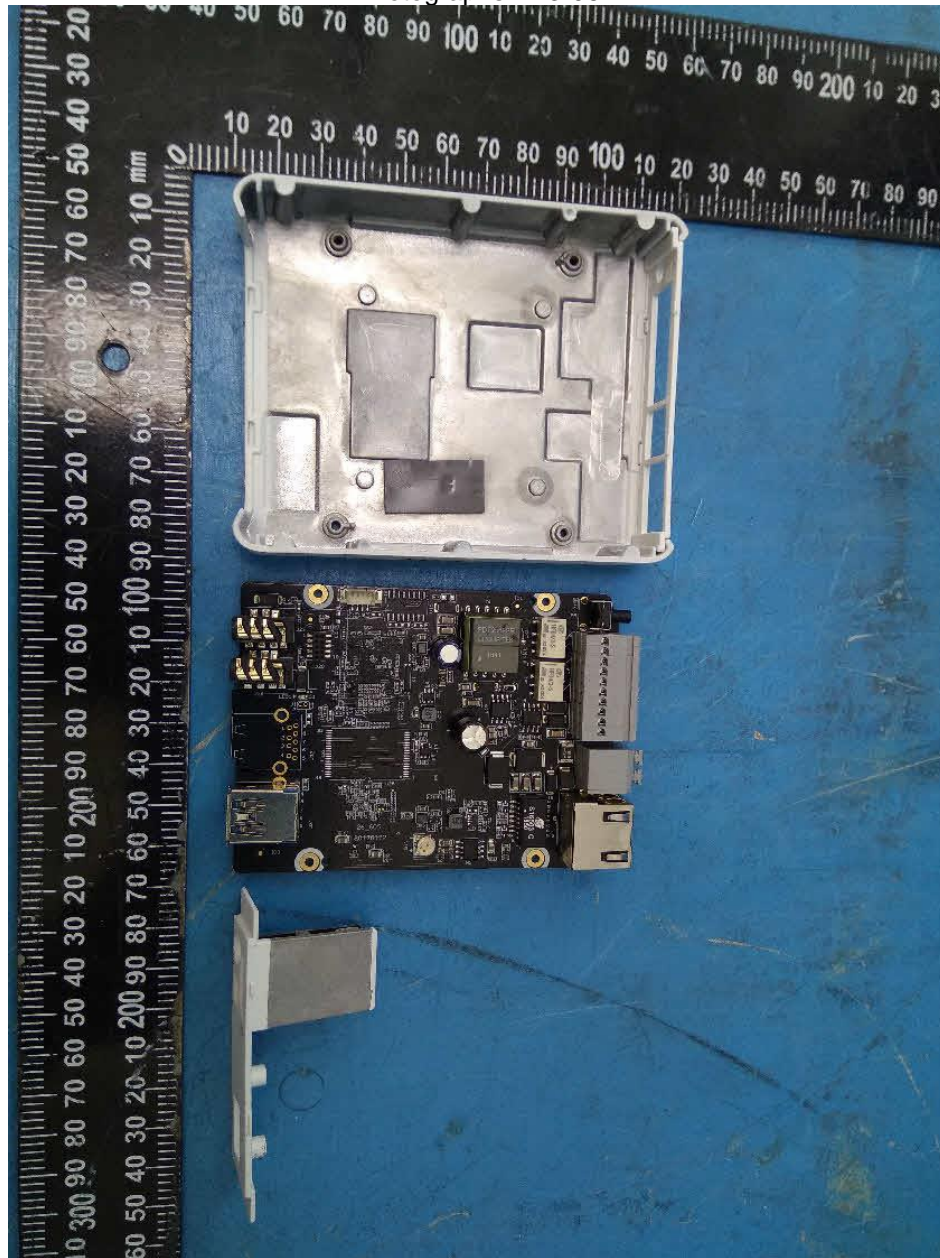


Photographs ID 3-05



Enclosures

Photographs ID 3-06



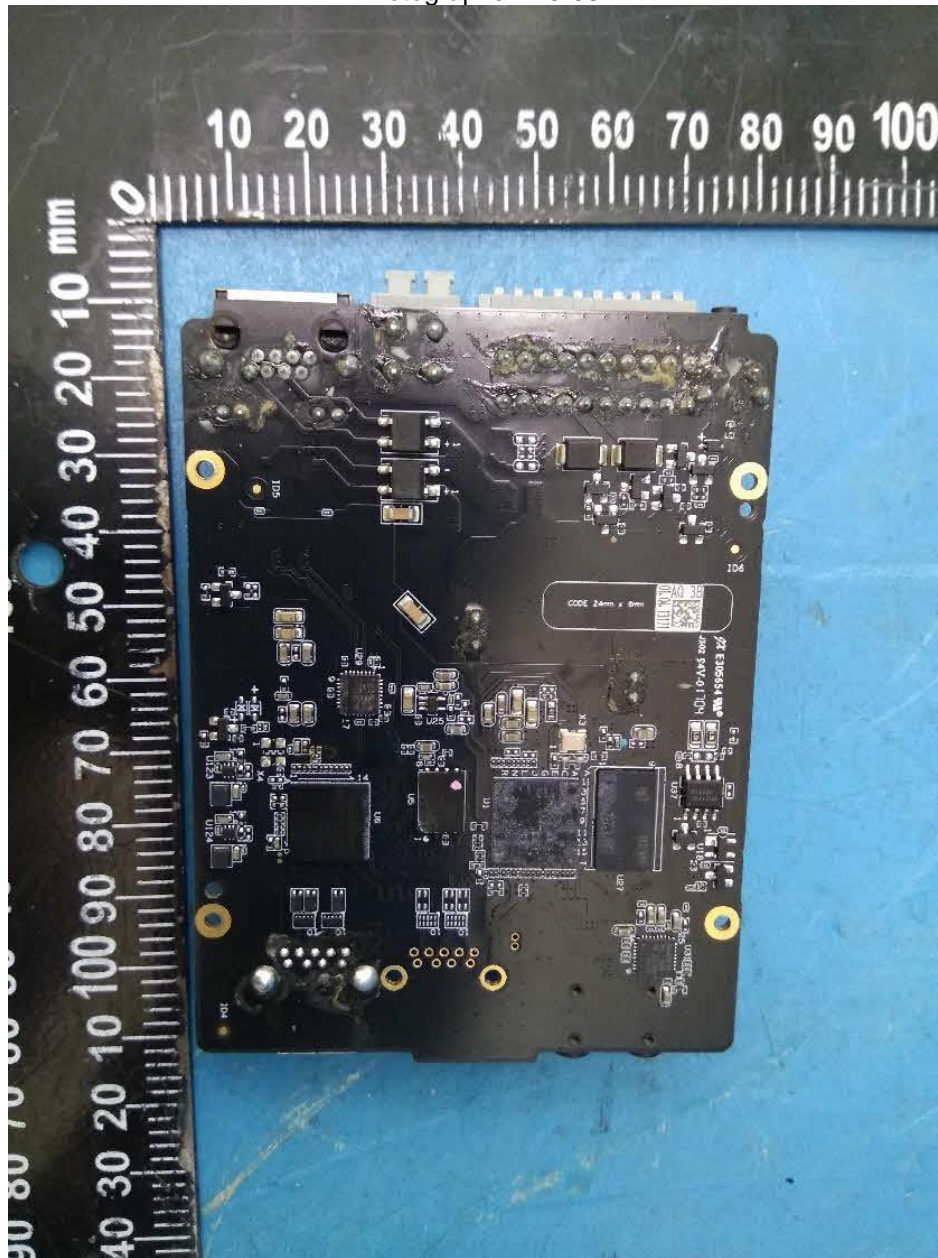
Enclosures

Photographs ID 3-07



Enclosures

Photographs ID 3-08



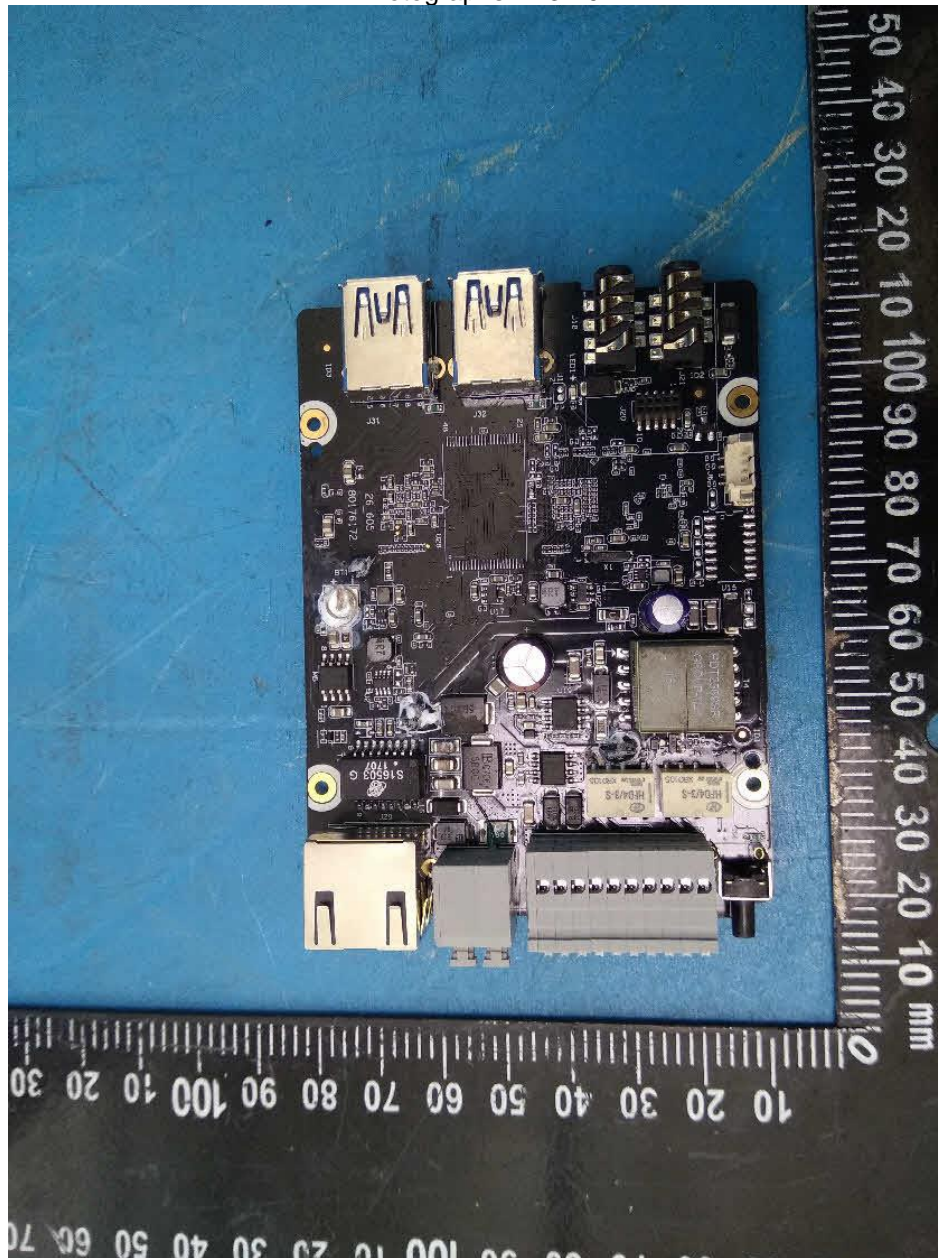
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Photographs ID 3-09



Enclosures

Photographs ID 3-10



Enclosures

Photographs ID 3-11



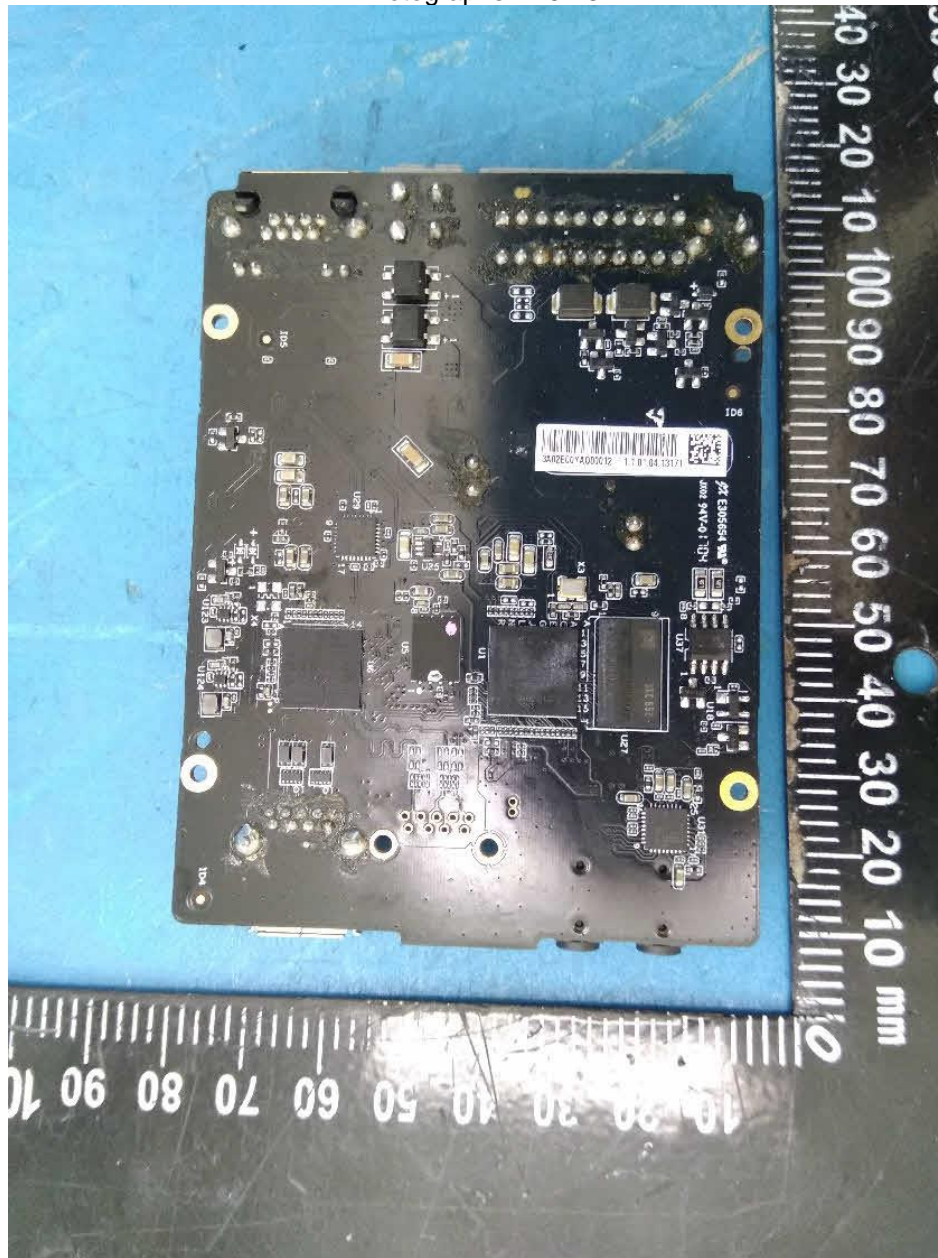
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Photographs ID 3-12

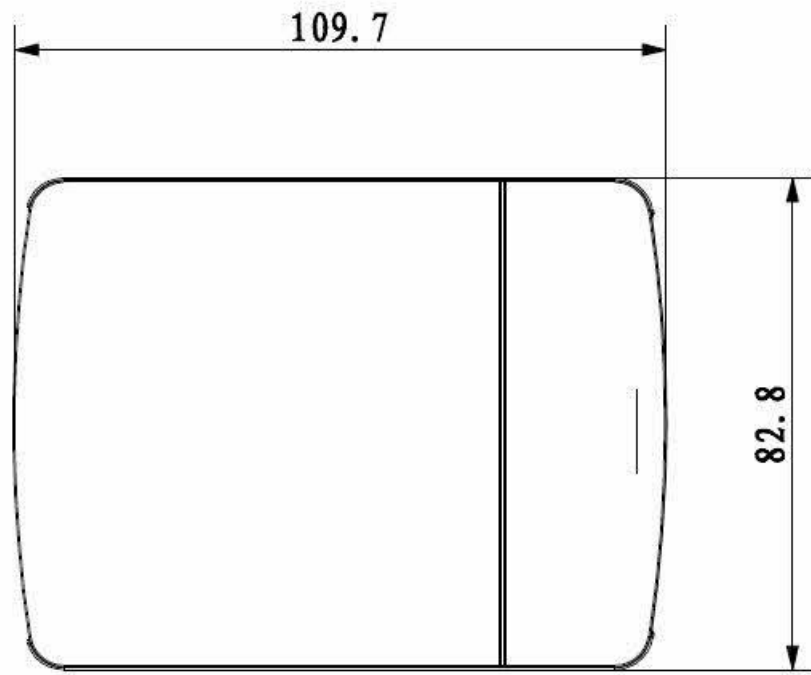


Enclosures

Photographs ID 3-13



Diagrams ID 4-01



Misc ID 7-01

the camera and the bracket.

The following figure shows the installation of round and square rear end:

Figure 2-1 Installation of round and square rear end