

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES  
FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEMESYSTEM CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS  
DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

## CB TEST CERTIFICATE

## CERTIFICAT D'ESSAI OC

Product  
Produit

OnDemand Switch

Name and address of the Applicant  
Nom et adresse du demandeurRadware Ltd.  
22 Raoul Wallenberg Street, Tel-Aviv 69710  
IsraelName and address of the manufacturer  
Nom et adresse du fabricantRadware Ltd.  
22 Raoul Wallenberg Street, Tel-Aviv 69710  
IsraelName and address of the factory  
Nom et adresse de l'usineU.S.R. Electronic Systems (1987) LTD.  
12 Hartom St. Har Hahotzvim, Jerusalem 97774  
IsraelRating and principal characteristics  
Valeurs nominales et caractéristiques principales100-240Vac, 10-5A, 50-60Hz  
40-72Vdc, 25ATrademark (if any)  
Marque de fabrique (si elle existe)

Radware TM

Type of manufacturer's Testing Laboratories used  
Type de programme de laboratoire d'essais constructeurModel / Type Ref.  
Réf. de type

See appendix 2

Additional information (if necessary may also be reported on page 2)  
Les informations complémentaires (si nécessaire, peuvent être indiquées sur  
la 2ème page)A sample of product was tested and found to be in conformity with IEC  
Un échantillon de ce produit a été essayé et été considéré conforme à la CEI

60950-1(ed.2)

National differences / Comments  
Les différences nationales / CommentairesEU Group Differences, EU Special National Conditions, EU A-Deviations, AT,  
AU, BE, BR, CA, CH, CN, CZ, DE, DK, ES, FI, FR, GB, HU, IE, IL, IT, JP, KR,  
NL, NO, PL, SE, SG, SI, SK, UA, USAs shown in the test report Ref. No. which forms part of this certificate  
Comme indiqué dans le rapport d'essais numéro de référence qui constitue  
partie de ce certificat

CB103380.01

This CB Test Certificate is issued by the National Certification Body:

Intertek Testing Services, N.A.  
165 Main Street, Cortland, NY 13045, USA

Ce Certificat d'essai OC est établi par l'Organisme National de Certification





Test Report issued under the responsibility of:

NCB **Intertek** Testing Services NA, Inc.

<b>TEST REPORT</b> <b>IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1: 2006</b> <b>Information technology equipment – Safety –</b> <b>Part 1: General requirements</b>	
<b>Report Reference No.</b> .....	CB103380.01
<b>Date of issue</b> .....	3 December, 2012
<b>Total number of pages</b> .....	135
<b>CB/CCA Testing Laboratory</b> .....	I.T.L (PRODUCT TESTING) Ltd.
<b>Address</b> .....	1 Bat-Sheva St. POB 87 Lod 71100 ISRAEL
<b>Applicant's name</b> .....	Radware Ltd.
<b>Address</b> .....	22 Raoul Wallenberg Street, Tel-Aviv 69710, Israel
<b>Manufacturer's name</b> .....	Radware Ltd.
<b>Address</b> .....	22 Raoul Wallenberg Street, Tel-Aviv 69710, Israel
<b>Factory's name</b> .....	U.S.R. Electronic Systems (1987) LTD.
<b>Address</b> .....	12 Hartom St. Har Hahotzvim, Jerusalem 97774, Israel
<b>Test specification:</b>	
<b>Standard</b> .....	<input checked="" type="checkbox"/> IEC 60950-1: 2005 (2nd Edition) and/or <input type="checkbox"/> EN 60950-1: 2006
<b>Test procedure</b> .....	CB
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No.</b> .....	IECEN60950_1C
<b>Test Report Form(s) Originator</b> .....	SGS Fimko Ltd
<b>Master TRF</b> .....	Dated 2007-06
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<b>This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.</b>	
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<b>Test item description .....</b>	<b>OnDemand Switch</b>
<b>Trade Mark.....</b>	<b>Radware<sup>TM</sup> alteon<sup>TM</sup></b>
<b>Manufacturer .....</b>	<b>Radware Ltd.</b>
<b>Model/Type reference .....</b>	<b>See appendix 2</b>
<b>Ratings .....</b>	<b>100-240Vac,10-5A,50-60Hz</b> <b>40-72Vdc ,25A</b>

**Testing procedure and testing location:**

☒ **CB/CCA Testing Laboratory:** I.T.L (PRODUCT TESTING) Ltd.

Testing location / address ..... : 1 Bat-Sheva St. POB 87 Lod 71100 ISRAEL

☐ **Associated CB Laboratory:**

Testing location/ address .....

Tested by (name + signature) ..... : Yigal Cohen

Approved by (+ signature) ..... : Ilan Cohen




☐ Testing procedure: TMP

Tested by (name + signature) ..... :

Approved by (+ signature) ..... :

Testing location / address .....

☐ Testing procedure: WMT

Tested by (name + signature) ..... :

Witnessed by (+ signature) ..... :

Approved by (+ signature) ..... :

Testing location / address .....

☐ Testing procedure: SMT

Tested by (name + signature) ..... :

Approved by (+ signature) ..... :

Supervised by (+ signature) ..... :

Testing location / address .....

☐ Testing procedure: RMT

Tested by (name + signature) ..... :

Approved by (+ signature) ..... :

Supervised by (+ signature) ..... :

Testing location / address .....

<b>Summary of testing:</b>	
<p><b>Tests performed (name of test and test clause):</b></p> <p>1.6.2 – Input Test  1.7.13- Durability test  2.1.1.1- Access to energized parts  2.1.1.7- Capacitance Discharge Test  2.6.3.3- Earthing Test  4.5.1- Heating Test  5.1- Touch Current Test  5.2.2- Electrical strength Test  5.3.1- Abnormal Operation Test</p> <p>Units under tests:  AC Version-  Alteon 10000/ODS-4-FB/6U/8*GE X  15*SFP+/DUAL/ROHS</p> <p>DC version-  Alteon 10000/ODS4-FB/512MB/6U/8*GE X  15*SFP+/DUALDC/RHOS</p> <p>Tests were performed with maximum load on each version</p> <p>Units tested for Ambient up to 40°C.</p>	<p><b>Testing location:</b></p> <p>I.T.L (PRODUCT TESTING) Ltd.  1 Bat Sheva St. POB 87, Lod 71100, Israel</p>
<p><b>Summary of compliance with National Differences:</b></p> <p><u>Summary of compliance with National Differences (for explanation of codes see below):</u></p> <p>EU Group Differences, EU Special National Conditions, EU A-Deviations, AT, AU, BE, BR, CZ, CA, CN, CH, DE, DK, ES, FI, FR, GB, HU, IE, IL, IT, JP, KR, NL, NO, PL, SE, SG, SI, SK, UK, US</p> <p><i>Explanation of Codes:</i></p> <p>AT=Austria, AU=Australia, BE=Belgium, BR=Brazil, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, FR=France, GB=United Kingdom, HU=Hungary, IE=Ireland, IL=Israel, IT=Italy, JP=Japan, KR=Korea, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, UK-Ukraine, US=United States</p>	

Copy of marking plate:

Examples of label:



CAUTION	ACHTUNG	ATTENTION
<p>Risk of electric shock and energy hazard. Disconnecting one power supply disconnects only one power supply module. To isolate the unit completely disconnect all power supplies.</p>	<p>Gefahr des elektrischen Schocks. Entfernen des Netzsteckers eines Netzteils spannungsfrei. Um alle Einheiten spannungsfrei zu machen, sind die Netzstecker aller Netzteile zu entfernen.</p>	<p>Risque de choc et de danger électriques. Le débranchement d'une seule alimentation stabilisée ne débranche uniquement qu'un module 'Alimentation Stabilisée'. Pour isoler complètement le module en cause, il faut débrancher toutes les alimentations stabilisées.</p>

<b>Test item particulars</b> .....	
Equipment mobility .....	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input checked="" type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains .....	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input checked="" type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition .....	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location .....	<input type="checkbox"/> operator accessible <input checked="" type="checkbox"/> restricted access location
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values .....	+10%/-10%; for AC powered chassis; 40V-72V for DC powered chassis
Tested for IT power systems .....	<input checked="" type="checkbox"/> Yes (for Norway) <input type="checkbox"/> No
IT testing, phase-phase voltage (V) .....	230V (Norway only)
Class of equipment .....	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating (A) .....	10-5A for AC chassis , 25A for DC chassis
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class .....	IPX0
Altitude during operation (m) .....	2000m
Altitude of test laboratory (m) .....	55m
Mass of equipment (kg) .....	AC chassis – 44Kg DC chassis-44Kg
<b>Possible test case verdicts:</b>	
- 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)	
<b>Testing</b> .....	
Date of receipt of test item .....	11 June , 2012
Date(s) of performance of tests .....	July 25 - August 5 , 2012



**General remarks:**

The test results presented in this report relate only to the object tested.  
 This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  
 "(See Enclosure #)" refers to additional information appended to the report.  
 "(See appended table)" refers to a table appended to the report.

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

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

**General product information:**

The E.U.T is Alteon Application switch 10000 ,Carries and Internet services provides Internet ,video and mobile data traffic

The product is rack-mountable, Class I, powered AC or DC ,certified chassis for ATCA system.

The AC certified chassis provides:

- AC/DC power supply (four provided)
- AC Power distribution board
- Backplane printed wiring board (SELV)
- 2 system manager boards with isolated Alarm Contacts (SAMs) and Ethernet/LAN connectors (SELV).
- Three Fan modules (SELV).

The DC certified Chassis provides:

- Power Entry Modules (PEM's)
- Backplane printed wiring board
- DC power distribution board
- 2 system manager boards with isolated Alarm Contacts (SAMs) and Ethernet/LAN connectors.
- Three Fan modules

The DC input to the DC chassis is considered as earthed hazardous circuit, for North America the input voltage is treated as TNV-2

Chassis provides space for up to 6 boards in the front side

5 are separately certified ATCA Data/Processor Boards Computer-Plug-In-Boards (NetWork-Switch), Type -ATCA-7365 , ATCA-7367.

One Switch “**extension board**” developed by RADWARE. This is an additional board with it's RTM board. “**extension board**” is the front panel and RTM is the back panel card.

Units contain certified optical transceivers, Class 1 complying with IEC/EN60825-1 and 21CFR (J).

Certified cards model naming-

Certified Cards P/N	Radware Cards P/N	Manufacturer*
ATCA-7367-12GB	ATCA-7367-C01	Emerson*
SAM640	SAM640-C01	Emerson*
ATCA-7365	ATCA-7365-C11	Emerson*
FM40 SWF	0-13348	CCPU*
FM40-RTM	0-12271	CCPU*
AXP640-220AC	AXP640-220AC-CO1	Emerson*
AXP640-DC2	AXP640-DC2-C01	Emerson *

\*Note – refer to critical components list for details

The products were submitted and tested for use at the maximum ambient temperature 50°C.

Model differences

Testing was performed on maximum configuration on model ODS4-FB which is identical to all model listed on Appendix 2 in hardware. Models are different only in software variations and product applications.

Test Report – CB103380.01, original report.

Appendix 1: Photographs

Appendix 2 :Models names

.Appendix 3 :Licenses

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	See appended table 1.5.1	P
	Comply with IEC 60950-1 or relevant component standard	All components either comply with the relevant standard or were subjected to the necessary test.	P
1.5.2	Evaluation and testing of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.</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> <p>Components, for which no relevant IEC-Standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.</p>	P
1.5.3	Thermal controls	No such components	N/A
1.5.4	Transformers	Evaluated as part of approved power supply.	N/A
1.5.5	Interconnecting cables	Interconnecting cables are not part of this evaluation.	N/A
1.5.6	Capacitors bridging insulation	Capacitors are evaluated as part of approved power supply.	N/A
1.5.7	Resistors bridging insulation	Part of power supply certification.	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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.8	Components in equipment for IT power systems	Components are suitably rated to withstand 230Vac line-to-line voltages of Norway IT power system	P
1.5.9	Surge suppressors	Evaluated as part of approved power supply.	N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface		P
1.6.1	AC power distribution systems	AC Unit was evaluated for use with TN power system. However it may be connected to IT power system of Norway only	P
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD. See table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	No hand-held equipment	N/A
1.6.4	Neutral conductor	Part of approved power supply	N/A
1.7	Marking and instructions		P
1.7.1	Power rating	Power rating label provided	P
	Rated voltage(s) or voltage range(s) (V) .....	100-240Vac; 40-72Vdc	P
	Symbol for nature of supply, for d.c. only .....	DC (for DC powered units)	P
	Rated frequency or rated frequency range (Hz) ...	60-50Hz	P
	Rated current (mA or A) .....	10-5 for AC 25A for DC	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturer's name or trade-mark or identification mark .....	Radware Ltd	P
	Model identification or type reference .....	See Appendix 1 for model names	P
	Symbol for Class II equipment only .....	Class I equipment	N/A
	Other markings and symbols .....	No other symbols	N/A
1.7.2	Safety instructions and marking	Operating instructions made available to the user.	P
1.7.2.1	General	Operating instructions made available to the user.	P
1.7.2.2	Disconnect devices	For AC version- Appliance inlet For DC version –Mains switch in the power entry module ,in addition clear statement is provided in the installation instruction	P
1.7.2.3	Overcurrent protective device	No such equipment	N/A
1.7.2.4	IT power distribution systems	Safety instructions include a note that specifies connection for IT for Norway only	P
1.7.2.5	Operator access with a tool	Related to AC version- Only SELV circuits and safety earth are accessible to an operator DC Version is intended to Restricted Area Location	P
1.7.2.6	Ozone	No such equipment	N/A
1.7.3	Short duty cycles	Continuous operation equipment	N/A
1.7.4	Supply voltage adjustment .....	Equipment is automatically selectable	N/A
	Methods and means of adjustment; reference to installation instructions .....	Equipment is automatically selectable	N/A
1.7.5	Power outlets on the equipment .....	No such outlets	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....	No fuses are located in operator access area Unambiguous cross-reference is provided in the servicing instructions	N/A
1.7.7	Wiring terminals		P
1.7.7.1	Protective earthing and bonding terminals .....	Earthing screw is marked with symbol 5019 IEC 60417	P
1.7.7.2	Terminals for a.c. mains supply conductors	Unit is not permanently connected to AC mains	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	DC terminal block is marked "+" "- " for DC	P
1.7.8	Controls and indicators	Only functional indicators use colour.	P
1.7.8.1	Identification, location and marking .....	Mains switch ,power entry module DC version	P
1.7.8.2	Colours .....	Only functional indicators are used.	P
1.7.8.3	Symbols according to IEC 60417 .....		P
1.7.8.4	Markings using figures .....	Figures are not used	P
1.7.9	Isolation of multiple power sources .....	Marking near power connection to power supply are provided. Markings are visible.	P
1.7.10	Thermostats and other regulating devices .....	No such devices	N/A
1.7.11	Durability	The marking(s) withstood the required test	P
1.7.12	Removable parts	No removable parts	N/A
1.7.13	Replaceable batteries .....	No batteries are provided in operator access area. Statement is provided is provided in the servicing instructions	
	Language(s) .....	English, French	—
1.7.14	Equipment for restricted access locations.....	DC version is intended for RESTRICTED ACCESS LOCATION. Suitable text contains installation instruction.	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<hr/>			
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Only SELV circuits and safety earth are accessible to an operator. Protection is achieved by overall equipment basic insulation and earthing of accessible conductive parts. DC powered unit is for installation in RAL (Restricted access location)	P
2.1.1.1	Access to energized parts	The operator has access to bare parts of SELV circuits only	P
	Test by inspection .....	No hazards	P
	Test with test finger (Figure 2A) .....	The test finger was unable to touch hazardous parts	P
	Test with test pin (Figure 2B) .....	The test pin was unable to contact bare parts at hazardous voltage	P
	Test with test probe (Figure 2C) .....	DC version ,input voltage terminal block is regarded as TNV-2 and not accessible with Test Probe.	P
2.1.1.2	Battery compartments	No such parts	N/A
2.1.1.3	Access to ELV wiring	There are no ELV circuits.	N/A
	Working voltage ( $V_{peak}$ or $V_{rms}$ ); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No operator access to internal wire	P
2.1.1.5	Energy hazards .....	There are no energy hazards in operator access area	P
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles or levers.	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.7	Discharge of capacitors in equipment	The voltage across-line capacitors decayed to less than 37% of its original value in 1sec. for AC unit	P
	Measured voltage (V); time-constant (s) .....:	0V after 1 sec.	—
2.1.1.8	Energy hazards – d.c. mains supply	DC version is located only in restricted area location.	P
	a) Capacitor connected to the d.c. mains supply:	Part of certified modules	N/A
	b) Internal battery connected to the d.c. mains supply .....:	No such case	N/A
2.1.1.9	Audio amplifiers .....:	No such parts	N/A
2.1.2	Protection in service access areas	Bare parts operating at hazardous voltages are located such that unintentional contact with such parts is unlikely during servicing operations involving other parts of the equipment.	P
2.1.3	Protection in restricted access locations	DC version is classified as PERMANENTLY CONNECTED EQUIPMENT  The DC terminal block is guarded by plastic cover	P
2.2	SELV circuits		P
2.2.1	General requirements	Compliance checked by inspection and by relevant tests.	P
2.2.2	Voltages under normal conditions (V) .....:	All accessible voltages are less than 42.4 Vpk or 60 Vdc and are classified as SELV.	P
2.2.3	Voltages under fault conditions (V) .....:	In the event of single fault, the voltages do not exceed SELV limitation	P
2.2.4	Connection of SELV circuits to other circuits .....:	The SELV circuits are connected only to SELV circuits	P



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

2.3	TNV circuits		P
2.3.1	Limits	<p>The DC version is connected to a DC mains by a suitable terminal block and rated up to -72Vdc.</p> <p>For north America the DC input is classified as TNV-2</p> <p>The DC mains is connected to protective earth in the building installation</p>	P
	Type of TNV circuits .....	TNV-2	—
2.3.2	Separation from other circuits and from accessible parts	No Internal TNV circuits	N/A
2.3.2.1	General requirements	No Internal TNV circuits	N/A
2.3.2.2	Protection by basic insulation	No Internal TNV circuits	N/A
2.3.2.3	Protection by earthing	No Internal TNV circuits	N/A
2.3.2.4	Protection by other constructions .....	No Internal TNV circuits	N/A
2.3.3	Separation from hazardous voltages	No Internal TNV circuits	N/A
	Insulation employed.....	No Internal TNV circuits	—
2.3.4	Connection of TNV circuits to other circuits	No Internal TNV 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	Unit was not evaluated for limited current circuits.	N/A
2.4.2	Limit values	Unit was not evaluated for limited current circuits.	N/A
	Frequency (Hz) .....	Unit was not evaluated for limited current circuits.	—
	Measured current (mA) .....	Unit was not evaluated for limited current circuits.	—
	Measured voltage (V) .....	Unit was not evaluated for limited current circuits.	—
	Measured circuit capacitance (nF or $\mu$ F).....	Unit was not evaluated for limited current circuits.	—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.4.3	Connection of limited current circuits to other circuits	Unit was not evaluated for limited current circuits.	N/A
2.5	Limited power sources		P
	a) Inherently limited output	All ports (Ethernet and signal/data ports) are inherently limited signal/data outputs not associated with power transfer	P
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition	No such outputs	N/A
	d) Overcurrent protective device limited output	No such outputs	N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....:		—
	Current rating of overcurrent protective device (A):		—
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Accessible conductive parts are connected to protective earth in accordance with 2.6.1a	P
2.6.2	Functional earthing	SELV circuits have a reference to ground and are separated from primary circuits by double/reinforced insulation and by double protections - basic insulation and protective earthing	P
2.6.3	Protective earthing and protective bonding conductors	Comply with 2.6.1a)	P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors	Power cord is not part of investigation	N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
2.6.3.3	Size of protective bonding conductors	Protective bonding conductors passed the test of 2.6.3.4	P
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....	Rated current max.17A, cross-sectional area 1.5mm <sup>2</sup> , 14AWG	—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective current rating (A), cross-sectional area (mm <sup>2</sup> ), AWG .....	Protective bonding conductors passed the test of 2.6.3.4 based on protective current 20A	
2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min) .....	AC unit- -From appliance inlet earth pin to metal enclosure 15m $\Omega$ , -From earthing Stud to metal enclosure 13 m $\Omega$ Drop voltage less than 2.5V at 40A for 2 minutes  DC unit- Threaded stud/screw provided in metal chassis. Conductor not provided	P
2.6.3.5	Colour of insulation .....	Protective earthing conductor is part of power supply cord. Power supply cord not part of this evaluation.	N/A
2.6.4	Terminals	Requirements of 2.6.4.1, 2.6.4.2 apply	P
2.6.4.1	General		P
2.6.4.2	Protective earthing and bonding terminals	Construction of protective earthing terminal is suitable for application.  AC unit incorporates IEC 60320 type appliance inlet for protective earthing. Bonding is provided with mounting screws.  DC unit – External screw terminal is provided as main protective earthing terminal.  Protective bonding is provided with mounting screws.  External PE terminal provided.	P
	Rated current (A), type, nominal thread diameter (mm) .....	PE terminal located on the rear panel: Rated current 60 A. Earthing screw terminals have 6mm thread diameter	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict

2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment	Equipment does not provide earthing to other equipment	N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No protective devices in the earthing conductors	P
2.6.5.3	Disconnection of protective earth	Disconnection of protective earthing at one point in the unit does not break the protective earthing to the other parts of the unit.	P
2.6.5.4	Parts that can be removed by an operator	No such parts	N/A
2.6.5.5	Parts removed during servicing	Earth does not have to be removed during service	P
2.6.5.6	Corrosion resistance	No risk of corrosion. Complies with Annex J.	P
2.6.5.7	Screws for protective bonding	Self-trapping or space thread screws are not used.	P
2.6.5.8	Reliance on telecommunication network or cable distribution system	Protective earthing does not rely on a telecommunication network or a cable distributor system.	N/A

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Pluggable equipment Type A. Protection against overcurrent, short-circuit and earth faults in Primary provided as part of EUT. Additional protection provided as part of building installation.	P
	Instructions when protection relies on building installation	AC units and 2U DC units are Pluggable Type A. 1U DC powered units protection relies on building installation	P
2.7.2	Faults not simulated in 5.3.7	Earth fault protection to be provided by buildings installation	P
2.7.3	Short-circuit backup protection	Building installation provides short-circuit back-up protection for both the ac and dc rated units.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.7.4	Number and location of protective devices .....	Protective device provided as part of approved power supply. For Norway additional protection assumed on fuses in two conductors of circuit-breaker.	P
2.7.5	Protection by several devices	No such equipment	N/A
2.7.6	Warning to service personnel .....	No protective device provided in the neutral conductor.	N/A
2.8	Safety interlocks		N/A
2.8.1	General principles	No interlocks provided	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (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

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Clause	Requirement + Test	Result - Remark	Verdict

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	No natural rubber, asbestos or hygroscopic materials used as insulation	P
2.9.2	Humidity conditioning	For AC version - Humidity test was conducted 48H hours for China deviation <a href="#">See National Differences China (CH).</a>	P
	Relative humidity (%), temperature (°C) .....	93% , 22 <sup>0</sup> C	—
2.9.3	Grade of insulation	Reinforced insulation between primary circuits to SELV circuits Basic insulation between Primary and earth.(Certified PS) Functional insulation employed in secondary SELV evaluated to 5.3.4 c) Basic insulation between TNV-2 and SELV. (Certified PS)	P
2.9.4	Separation from hazardous voltages	For the DC version - Basic insulation on the part at a hazardous voltage, together with connection of the other part to the protective earthing terminal in accordance with 2.6.1 a) used.	P
	Method(s) used .....	Method 1) for the AC version Method 3) for the DC version-	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	Compliance was checked by inspection and by measurements.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.1.1	Frequency .....	50-60Hz	P
2.10.1.2	Pollution degrees .....	2	P
2.10.1.3	Reduced values for functional insulation	Considerations were considered and schematic evaluated according with 5.3.4 c) requirements	P
2.10.1.4	Intervening unconnected conductive parts	No such part	N/A
2.10.1.5	Insulation with varying dimensions	Part of certified power supplies	N/A
2.10.1.6	Special separation requirements	No such case	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such part	N/A
2.10.2	Determination of working voltage	Evaluated as part of certified chassis.  For the DC version, the DC mains input voltage, its positive pole shall be connected electrically to ground from the building installation side, so the max transient peak working voltage is assumed to be 71Vpeak	P
2.10.2.1	General	Evaluated as part of certified chassis .  In addition, See considerations in appended table 2.10.3 ,2.10.4	P
2.10.2.2	RMS working voltage	appended table 2.10.3 ,2.10.4	P
2.10.2.3	Peak working voltage	appended table 2.10.3 ,2.10.4	P
2.10.3	Clearances	appended table 2.10.3 ,2.10.4	P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply .....	Evaluated as part of AC certified chassis	P
	b) Earthed d.c. mains supplies .....	Assumed 71Vpeak	P
	c) Unearthed d.c. mains supplies .....	No such case	N/A
	d) Battery operation .....	No such case	N/A
2.10.3.3	Clearances in primary circuits	Evaluated as part of AC certified chassis	N/A
2.10.3.4	Clearances in secondary circuits	appended table 2.10.3 ,2.10.4	P



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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....	Evaluated as part of AC certified chassis	N/A
2.10.3.7	Transients from d.c. mains supply .....	See clause 2.10.2	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	Evaluated as part of AC certified chassis	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....		N/A
	For a d.c. mains supply .....	Evaluated as part of DC certified chassis	N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	See appended table 2.10.4	P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests .....	Assumed Material group IIIb	—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation	Evaluated as part of certified chassis	P
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	Evaluated as part of certified chassis	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength test		—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components	Evaluated as part of certified chassis	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	Evaluated as part of certified chassis	N/A
	Electric strength test		—
	Routine test	Evaluated as part of certified chassis	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	Evaluated as part of certified chassis See appended table 2.10.3,2.10.4	P
2.10.6.1	Uncoated printed boards		N/A
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs) .....		N/A
2.10.7	Component external terminations	No such parts	N/A
2.10.8	Tests on coated printed boards and coated components	No such parts	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.8.1	Sample preparation and preliminary inspection	No such parts	N/A
2.10.8.2	Thermal conditioning	No such parts	N/A
2.10.8.3	Electric strength test	No such parts	N/A
2.10.8.4	Abrasion resistance test	No such parts	N/A
2.10.9	Thermal cycling	No such components	N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound	No such components	N/A
2.10.11	Tests for semiconductor devices and cemented joints	Part of certified power supplies	N/A
2.10.12	Enclosed and sealed parts	Not used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wiring are rated for the application and have adequate cross-sectional areas depending on the circuits.	P
3.1.2	Protection against mechanical damage	The wires are well routed away from sharp edges, etc. and are adequately fixed to prevent excessive strain on wire and terminals	P
3.1.3	Securing of internal wiring	All wiring is reliably routed or separated and are adequately fixed to prevent excessive strain on wire and terminals	P
3.1.4	Insulation of conductors	Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltages involved	P
3.1.5	Beads and ceramic insulators	No such components	N/A
3.1.6	Screws for electrical contact pressure	PCBs are connected to earth via screws to chassis. Screws are engaged with at least two turns into metal.	P
3.1.7	Insulating materials in electrical connections	The equipment not have such components	N/A
3.1.8	Self-tapping and spaced thread screws	Self-tapping and spaced thread screws not used in this equipment	N/A
3.1.9	Termination of conductors	All internal wiring is properly terminated and fixed	P
	10 N pull test	Not considered necessary	N/A
3.1.10	Sleeving on wiring	Sleeving is not used as supplementary insulation	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.2	Connection to a mains supply		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	An appliance inlet for connection of DETACHABLE POWER SUPPLY CORD	P
3.2.1.2	Connection to a d.c. mains supply	Terminals for permanent connection to the supply	P
3.2.2	Multiple supply connections	Same type certified supplying connections for same voltage range are provided AC- 4 certified appliance inlets DC- 2 certified FW terminal blocks	P
3.2.3	Permanently connected equipment	DC unit a terminal block is provided.	P
	Number of conductors, diameter of cable and conduits (mm) .....	No part of this investigation	—
3.2.4	Appliance inlets	Complying with IEC60320	P
3.2.5	Power supply cords	Units not provided with power supply cord. When detachable power supply cord is supplied with unit, it shall comply with the requirements of the destination country.	N/A
3.2.5.1	AC power supply cords	Detachable power supply cord set not supplied with the equipment and not evaluated as part of this investigation.	N/A
	Type .....		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
3.2.5.2	DC power supply cords	DC power supply cords are not provided with unit.	N/A
3.2.6	Cord anchorages and strain relief	Power cord is not provided with unit.	N/A
	Mass of equipment (kg), pull (N) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Longitudinal displacement (mm) .....		—
3.2.7	Protection against mechanical damage	No sharp edges on equipment which could damage the power supply cord	P
3.2.8	Cord guards	No cord guards required	N/A
	Diameter or minor dimension D (mm); test mass (g) .....		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space	The DC unit is intended to be installed in R.A.L.  -Mains connection made by certified terminal block  -the terminal block is covered (plastic) and fitted without a damage.	P

3.3	Wiring terminals for connection of external conductors		P
3.3.1	Wiring terminals	DC unit is provided with certified terminal block ,connection to mains made by means of screws	P
3.3.2	Connection of non-detachable power supply cords	Not used special non-detachable power supply cord	N/A
3.3.3	Screw terminals	Suitable for application	P
3.3.4	Conductor sizes to be connected	Terminal sizes comply with wires suitable with table 3D requirements. Power cord is not part of this investigation	N/A
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ).....		—
3.3.5	Wiring terminal sizes	Wiring terminals comply with table 3E.	P
	Rated current (A), type, nominal thread diameter (mm) .....	Rated current 60A, thread diameter min. 6mm for screw	—
3.3.6	Wiring terminal design	Earthing screw is designed to reliably fix earthing conductor and provided with washer	P
3.3.7	Grouping of wiring terminals	No such terminals	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.8	Stranded wire	No such components	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.4	Disconnection from the mains supply		P
3.4.1	General requirement	Disconnect device from mains supply provided for servicing	P
3.4.2	Disconnect devices	AC powered unit -employ an appliance coupler.  For DC powered unit disconnect device incorporated in building installation instruction.	P
3.4.3	Permanently connected equipment	Appropriate disconnect device provided as part of the building installation.	P
3.4.4	Parts which remain energized	No accessible parts on the supply side of the disconnect device. DC units are located in RAL location.	P
3.4.5	Switches in flexible cords	No such parts	P
3.4.6	Number of poles - single-phase and d.c. equipment	For AC unit- certified appliance inlet  For DC unit-DC mains is provided with earthed conductor with relevant safety instruction	P
3.4.7	Number of poles - three-phase equipment	The unit is a single-phase equipment	N/A
3.4.8	Switches as disconnect devices	DC unit is provided with switch marked "ON" and "OFF" located on each power entry module	N/A
3.4.9	Plugs as disconnect devices	Not considered as a disconnected device	N/A
3.4.10	Interconnected equipment	No such connection	N/A
3.4.11	Multiple power sources	Marking provided on the unit and in installation manual.	P

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits .....	SELV circuits to SELV circuits	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuits	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
3.5.4	Data ports for additional equipment	ports are compies with limited power sources requirements.	P
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°	The units are to be secured to the building structure before operation	N/A
	Test force (N) .....		N/A
4.2	Mechanical strength		P
4.2.1	General	Rigid metallic enclosure is provided	P
4.2.2	Steady force test, 10 N	Evaluated as part of certified chassis	P
4.2.3	Steady force test, 30 N	The equipment does not have covers or doors in operator access area	N/A
4.2.4	Steady force test, 250 N	Evaluated as part of certified chassis	P
4.2.5	Impact test	Evaluated as part of certified chassis	P
	Fall test	Not required	N/A
	Swing test	Not required	N/A
4.2.6	Drop test; height (mm) .....	Not required	N/A
4.2.7	Stress relief test	Metal enclosure	N/A
4.2.8	Cathode ray tubes	No such components	N/A
	Picture tube separately certified .....	No such components	N/A
4.2.9	High pressure lamps	No such components	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....	Not wall or ceiling mounted device	N/A
4.3	Design and construction		P

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.1	Edges and corners	All edges and corners are well rounded and smoothed so as not to constitute a hazard	P
4.3.2	Handles and manual controls; force (N) .....	No such parts	N/A
4.3.3	Adjustable controls	No operator adjustable controls	N/A
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur. Screwed connections are reliably secured	P
4.3.5	Connection by plugs and sockets	No possibility of misconnection that may cause a hazard	P
4.3.6	Direct plug-in equipment	Unit is not direct plug-in type	N/A
	Torque .....		—
	Compliance with the relevant mains plug standard .....		N/A
4.3.7	Heating elements in earthed equipment	No heating elements in this unit	N/A
4.3.8	Batteries	Lithium battery is protected against charging current by resistor and diode. See Critical Components List. Marking in installation guide include the suitable text	P
	- Overcharging of a rechargeable battery	No rechargeable batteries	N/A
	- Unintentional charging of a non-rechargeable battery	Lithium battery is protected against charging current by resistor and diode. See Critical Components List.	P
	- Reverse charging of a rechargeable battery	No rechargeable battery	N/A
	- Excessive discharging rate for any battery	Part of battery certification per UL1642	P
4.3.9	Oil and grease	No oil and grease	N/A
4.3.10	Dust, powders, liquids and gases	No such components	N/A
4.3.11	Containers for liquids or gases	No such components	N/A
4.3.12	Flammable liquids .....	No such components	N/A
	Quantity of liquid (l) .....	No such components	N/A
	Flash point (°C) .....	No such components	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.13	Radiation	Equipment using lasers Class I according to IEC 60825 and 21CFR(J). Indicator LEDs are used.	P
4.3.13.1	General	Lasers Class I according to IEC 60825 and 21CFR(J) and indicator LEDs are used.	P
4.3.13.2	Ionizing radiation	No such components	N/A
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No such components	N/A
	Part, property, retention after test, flammability classification .....	No such components	N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....	No such components	N/A
4.3.13.5	Laser (including LEDs)	Equipment using lasers Class I according to IEC 60825 and 21CFR(J) Low power indicator LEDs.	P
	Laser class .....	Equipment using lasers Class I	—
4.3.13.6	Other types .....	No such components	N/A

4.4	Protection against hazardous moving parts		P
4.4.1	General	DC fans provided	P
4.4.2	Protection in operator access areas .....	Fans are properly guarded	P
4.4.3	Protection in restricted access locations .....	Unintentional contact with hazards is unlikely.	P
4.4.4	Protection in service access areas	Unintentional contact with hazardous moving parts is unlikely.	P

4.5	Thermal requirements		P
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Clause	Requirement + Test	Result - Remark	Verdict
4.5.1	General	Temperatures do not exceed safe values under normal load operation. Refer to Table 4.5.	P
4.5.2	Temperature tests	Equipment was tested under the most adverse actual and simulated condition permitted in the installation instruction. Power supply evaluated in separate certification and tested in this evaluation.	P
	Normal load condition per Annex L .....	Unit operated per it's maximum normal load configuration. Data ports and laser transceivers were looped to simulate normal load, application was running	—
4.5.3	Temperature limits for materials	Temperature for materials does not exceed permissible limits (see appended table 4.5)	P
4.5.4	Touch temperature limits	Touch temperature does not exceed permissible limits (see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....	There are no thermoplastic parts on which parts at hazardous voltage are directly mounted	N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings	Evaluated as part of the chassis certification	P
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures	Evaluated as part of the chassis certification	P
	Construction of the bottom, dimensions (mm) ..		—
4.6.3	Doors or covers in fire enclosures	No doors or covers leading to operator access areas	N/A
4.6.4	Openings in transportable equipment	Not transportable equipment	N/A
4.6.4.1	Constructional design measures	No such components	N/A
	Dimensions (mm) .....		—
4.6.4.2	Evaluation measures for larger openings	No such equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.4.3	Use of metallized parts	No such equipment	N/A
4.6.5	Adhesives for constructional purposes	Not used	N/A
	Conditioning temperature (°C), time (weeks) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	<p>Evaluated as part of chassis certification</p> <p>The maximum working temperature of electrical components used in single fault conditions is less than that necessary to cause ignition of materials with which they are likely to come into contact.</p>	P
	Method 1, selection and application of components wiring and materials	Method 1: Selection and application of components and materials, which minimize the possibility of ignition and spread of flame.	P
	Method 2, application of all of simulated fault condition tests	Method 1 used	N/A
4.7.2	Conditions for a fire enclosure	Evaluated as part of the chassis certification	P
4.7.2.1	Parts requiring a fire enclosure	All components are covered by fire enclosure	P
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure covers all parts	N/A
4.7.3	Materials		P
4.7.3.1	General	Certified enclosure and other components so constructed and such materials used, that the propagation of fire is limited.	P
4.7.3.2	Materials for fire enclosures	The fire enclosure is metal.	P

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Clause	Requirement + Test	Result - Remark	Verdict

4.7.3.3	Materials for components and other parts outside fire enclosures	Evaluated as part of ATCA, RTM boards certifications Other connectors are 94V-2 min.	P
4.7.3.4	Materials for components and other parts inside fire enclosures	Evaluated as part of chassis evaluation All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. Integrated circuits, capacitors, etc. mounted on V-1 PWBs. Wiring is PVC, TFE, PTFE, FEP or neoprene. Connectors are flame rated min. V-2.	P
4.7.3.5	Materials for air filter assemblies	No such components	N/A
4.7.3.6	Materials used in high-voltage components	No such components	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS	P
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5.1	Touch current and protective conductor current		P
5.1.1	General	Touch current was measured from primary to ground.	P
5.1.2	Configuration of equipment under test (EUT)	Single phase Class 1 equipment.	P
5.1.2.1	Single connection to an a.c. mains supply	No system or interconnected equipment.	N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No multiple connections	N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	Checked simultaneously from 4 AC mains supplies	P
5.1.3	Test circuit	According to Figure 5A	P
5.1.4	Application of measuring instrument	Test instrument of Annex D.1 was used. Application of measuring device according to Fig. 5A, terminal A connected to unit PE terminal	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.5	Test procedure	Touch current from power supply was measured in normal and reverse polarity of the supply, switch "e" was open	P
5.1.6	Test measurements	rms value of U2 was measured and divided by 500 Ohm	P
	Supply voltage (V) .....	264V	—
	Measured touch current (mA) .....	2.36mA	—
	Max. allowed touch current (mA) .....	3.5mA	—
	Measured protective conductor current (mA) .....	No such equipment	—
	Max. allowed protective conductor current (mA) ...	No such equipment	—
5.1.7	Equipment with touch current exceeding 3,5 mA	No such equipment	N/A
5.1.7.1	General .....	No such equipment	N/A
5.1.7.2	Simultaneous multiple connections to the supply	No such equipment	N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No connected to telecommunication network or cable distribution system	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system	No connected to telecommunication network or 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	No connected to telecommunication network	N/A
	a) EUT with earthed telecommunication ports .....	No connected to telecommunication network	N/A
	b) EUT whose telecommunication ports have no reference to protective earth	No connected to telecommunication network	N/A
5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	No insulation breakdown detected during the test	P



IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	No motors except for certified fans	N/A
5.3.3	Transformers	Evaluated as part of approved power supply.	N/A
5.3.4	Functional insulation .....	Functional insulation within SELV evaluated per 5.3.4 c). All components in SELV are mounted on PCB having flammability rating min. V-1	P
5.3.5	Electromechanical components	No electromechanical components except for certified fans.	N/A
5.3.6	Audio amplifiers in ITE .....	No such parts	N/A
5.3.7	Simulation of faults	Refer to Table 5.3	P
5.3.8	Unattended equipment	No thermostats, temperature limiters and thermal cut-outs which operated during the test of 4.5.1	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See appended table 5.3 for results. No excessive temperatures, dielectric breakdown, fire, emission of molten parts or deformation was noted during the tests	P
5.3.9.1	During the tests	Temperatures are not exceed assumed value	P
5.3.9.2	After the tests	No dielectric breakdown	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages	No telecommunication network	N/A
6.1.2	Separation of the telecommunication network from earth	No telecommunication network	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	Requirements	No telecommunication network	N/A
	Supply voltage (V) .....		—
	Current in the test circuit (mA) .....		—
6.1.2.2	Exclusions .....	No telecommunication network	N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements	No telecommunication network	N/A
6.2.2	Electric strength test procedure	No telecommunication network	N/A
6.2.2.1	Impulse test	No telecommunication network	N/A
6.2.2.2	Steady-state test	No telecommunication network	N/A
6.2.2.3	Compliance criteria	No telecommunication network	N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....	TNV-2 DC mains circuitry is not considered connected to telecommunication network.	—
	Current limiting method .....	No such cause	—
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	No connected to cable distribution systems.	N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system	No connected to cable distribution systems.	N/A
7.4	Insulation between primary circuits and cable distribution systems	No connected to cable distribution systems.	N/A
7.4.1	General	No connected to cable distribution systems.	N/A
7.4.2	Voltage surge test	No connected to cable distribution systems.	N/A
7.4.3	Impulse test	No connected to cable distribution systems.	N/A

Group and National Differences			
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)	Metal enclosure	N/A
A.1.1	Samples.....:		—
	Wall thickness (mm).....:		—
A.1.2	Conditioning of samples; temperature (°C) .....	Metal enclosure	N/A
A.1.3	Mounting of samples .....	Metal enclosure	N/A
A.1.4	Test flame (see IEC 60695-11-3)	Metal enclosure	N/A
	Flame A, B, C or D .....		—
A.1.5	Test procedure	Metal enclosure	N/A
A.1.6	Compliance criteria	Metal enclosure	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.....:	Metal enclosure	—
	Wall thickness (mm).....:	Metal enclosure	—
A.2.2	Conditioning of samples; temperature (°C) .....	Metal enclosure	N/A
A.2.3	Mounting of samples .....	Metal enclosure	N/A
A.2.4	Test flame (see IEC 60695-11-4)	Metal enclosure	N/A
	Flame A, B or C .....		—
A.2.5	Test procedure		
A.2.6	Compliance criteria	Metal enclosure	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	Metal enclosure	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)	Metal enclosure	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
A.3.1	Mounting of samples	Metal enclosure	N/A
A.3.2	Test procedure	Metal enclosure	N/A
A.3.3	Compliance criterion	Metal enclosure	N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	Certified fans used	N/A
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
B.2	Test conditions	Certified fans used	N/A
B.3	Maximum temperatures	Certified fans used	N/A
B.4	Running overload test	Certified fans used	N/A
B.5	Locked-rotor overload test	Certified fans used	N/A
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
B.6	Running overload test for d.c. motors in secondary circuits	Certified fans used	N/A
B.6.1	General	Certified fans used	N/A
B.6.2	Test procedure	Certified fans used	N/A
B.6.3	Alternative test procedure	Certified fans used	N/A
B.6.4	Electric strength test; test voltage (V) .....	Certified fans used	N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits	Certified fans used	N/A
B.7.1	General	Certified fans used	N/A
B.7.2	Test procedure	Certified fans used	N/A
B.7.3	Alternative test procedure	Certified fans used	N/A
B.7.4	Electric strength test; test voltage (V) .....	Certified fans used	N/A
B.8	Test for motors with capacitors	Certified fans used	N/A
B.9	Test for three-phase motors	Certified fans used	N/A
B.10	Test for series motors	Certified fans used	N/A
	Operating voltage (V) .....		—

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position .....	Transformer(s) part of certified power supply	—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
	Method of protection.....		—
C.1	Overload test	Transformer(s) part of certified power supply	N/A
C.2	Insulation	Transformer(s) part of certified power supply	N/A
	Protection from displacement of windings.....	Transformer(s) part of certified power supply	N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	See equipment list	P
D.2	Alternative measuring instrument	See equipment list	P

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances	Standard methods used	N/A
G.1.1	General	Standard methods used	N/A
G.1.2	Summary of the procedure for determining minimum clearances	Standard methods used	N/A
G.2	Determination of mains transient voltage (V)	Standard methods used	N/A
G.2.1	AC mains supply .....	Standard methods used	N/A
G.2.2	Earthed d.c. mains supplies .....	Standard methods used	N/A
G.2.3	Unearthed d.c. mains supplies .....	Standard methods used	N/A
G.2.4	Battery operation .....	Standard methods used	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
G.3	Determination of telecommunication network transient voltage (V) .....	Standard methods used	N/A
G.4	Determination of required withstand voltage (V)	Standard methods used	N/A
G.4.1	Mains transients and internal repetitive peaks .....	Standard methods used	N/A
G.4.2	Transients from telecommunication networks .....	Standard methods used	N/A
G.4.3	Combination of transients	Standard methods used	N/A
G.4.4	Transients from cable distribution systems	Standard methods used	N/A
G.5	Measurement of transient voltages (V)	Standard methods used	N/A
	a) Transients from a mains supply	Standard methods used	N/A
	For an a.c. mains supply	Standard methods used	N/A
	For a d.c. mains supply	Standard methods used	N/A
	b) Transients from a telecommunication network	Standard methods used	N/A
G.6	Determination of minimum clearances .....	Standard methods used	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)		P
	Metal(s) used .....	Aluminum and stainless steel	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity	No such controls	N/A
K.2	Thermostat reliability; operating voltage (V) .....	No such controls	N/A
K.3	Thermostat endurance test; operating voltage (V) .....	No such controls	N/A
K.4	Temperature limiter endurance; operating voltage (V) .....	No such controls	N/A
K.5	Thermal cut-out reliability	No such controls	N/A
K.6	Stability of operation	No such controls	N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters	No such equipment	N/A
L.2	Adding machines and cash registers	No such equipment	N/A
L.3	Erasers	No such equipment	N/A
L.4	Pencil sharpeners	No such equipment	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
L.5	Duplicators and copy machines	No such equipment	N/A
L.6	Motor-operated files	No such equipment	N/A
L.7	Other business equipment	Maximum normal load used	P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction	No telephone ringing signals	N/A
M.2	Method A	No telephone ringing signals	N/A
M.3	Method B	No telephone ringing signals	N/A
M.3.1	Ringing signal	No telephone ringing signals	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 .....	No telephone ringing signals	N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage	No telephone ringing signals	N/A
M.3.2.2	Tripping device	No telephone ringing signals	N/A
M.3.2.3	Monitoring voltage (V) .....	No telephone ringing signals	N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators	No such signals	N/A
N.2	IEC 60065 impulse test generator	No such signals	N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories .....	No such parts	N/A
	b) Maximum continuous voltage .....	Part of certified power supply	N/A
	c) Pulse current .....	No such case	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	No such control	N/A
R.2	Reduced clearances (see 2.10.3)	No such control	N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment	No such signals	N/A
S.2	Test procedure	No such signals	N/A
S.3	Examples of waveforms during impulse testing	No such signals	N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
		No such equipment	—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
		Part of certified power supply	—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	Intended for TN power distribution system and IT for Norway only, single phase, 3 wire	P
V.2	TN power distribution systems	Separate neutral and protective conductors used	P

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		P
W.1	Touch current from electronic circuits	Only SELV accessibility circuits	P
W.1.1	Floating circuits	No such case	N/A
W.1.2	Earthed circuits	Only SELV accessibility circuits	P
W.2	Interconnection of several equipments	No such case.	N/A
W.2.1	Isolation	No such case.	N/A
W.2.2	Common return, isolated from earth	No such case.	N/A
W.2.3	Common return, connected to protective earth	No such case.	N/A



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current	Part of certified power supply	N/A
X.2	Overload test procedure	Part of certified power supply	N/A

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus .....	No UV	N/A
Y.2	Mounting of test samples .....	No UV	N/A
Y.3	Carbon-arc light-exposure apparatus .....	No UV	N/A
Y.4	Xenon-arc light exposure apparatus .....	No UV	N/A

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
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Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

EN 60950-1: 2006 – CENELEC COMMON MODIFICATIONS						
Contents	Add the following annexes:  Annex ZA (normative)                      Normative references to international publications with their corresponding European publications  Annex ZB (normative)                      Special national conditions  Annex ZC (informative)    A-deviations					P
General	Delete all the “country” notes in the reference document according to the following list:  1.4.8      Note 2                      1.5.1      Note 2 & 3                      1.5.7.1      Note 1.5.8      Note 2                      1.5.9.4      Note                      1.7.2.1      Note 4, 5 & 6 2.2.3      Note                      2.2.4      Note                      2.3.2      Note 2.3.2.1      Note 2                      2.3.4      Note 2                      2.6.3.3      Note 2 & 3 2.7.1      Note                      2.10.3.2      Note 2                      2.10.5.13      Note 3 3.2.1.1      Note                      3.2.4      Note 3.                      2.5.1      Note 2 4.3.6      Note 1 & 2                      4.7      Note 4                      4.7.2.2      Note 4.7.3.1      Note 2                      5.1.7.1      Note 3 & 4                      5.3.7      Note 1 6      Note 2 & 5                      6.1.2.1      Note 2                      6.1.2.2      Note 6.2.2      Note 6.                      2.2.1      Note 2                      6.2.2.2      Note 7.1      Note 3                      7.2      Note                      7.3      Note 1 & 2 G.2.1      Note 2                      Annex H      Note 2					P
1.3.Z1	Add the following subclause:  1.3.Z1 Exposure to excessive sound pressure  The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.  NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.					P
1.5.1	Add the following NOTE:  NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC					P
1.7.2.1	Add the following NOTE:  NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss					P

Group and National Differences															
Clause	Requirement – Test	Result – Remark	Verdict												
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P												
2.7.2	This subclause has been declared ‘void’.		P												
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		P												
3.2.5.1	<p>Replace “60245 IEC 53” by “H05 RR-F”;</p> <p>“60227 IEC 52” by “H03 VV-F or H03 VVH2-F”;</p> <p>“60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6</td><td></td><td>0,75<sup>a)</sup></td><td></td></tr><tr><td>Over 6 up to and including 10</td><td>(0,75)<sup>b)</sup></td><td>1,0</td><td></td></tr><tr><td>Over 10 up to and including 16</td><td>(1,0)<sup>c)</sup></td><td>1,5</td><td></td></tr></table> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition<sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 <sup>a)</sup>		Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0		Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5			P
Up to and including 6		0,75 <sup>a)</sup>													
Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0													
Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5													
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td>Over 10 up to and including 16</td><td>1,5 to 2,5</td><td>1,5 to 4</td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4		P									
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4													
4.3.13.6	<p>Add the following NOTE:</p> <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>		P												

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		P
Bibliography	Additional EN standards.		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES	
Differences according to .....	EN 60950-1:2006+A11:2009

	<b>CENELEC COMMON MODIFICATIONS (EN)</b>	P
ZA	<b>Normative references to international publications with their corresponding European publications</b>	—

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
1.2.13.14	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.	No connection to cable distribution system	N/A
1.5.7.1	<b>Replace</b> the existing SNC by the following: In <b>Finland</b> , <b>Norway</b> and <b>Sweden</b> , 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.	No such parts	N/A
1.7.2.1	<b>Add</b> as new SNC: In <b>Norway</b> and <b>Sweden</b> , the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.	No connection to cable distribution system	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).”</p> <p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		
1.7.5	<p><b>Add</b> the following paragraph to the existing SNC for <b>Denmark</b>:</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No such equipment	N/A
7.3	<p><b>Delete</b> the existing SNC for Norway and Sweden (based on NOTE 1 of IEC 60950-1:2005 + corr. 1).</p> <p><b>Add</b> as new SNC (based on future NOTE 3 of IEC 60950-1:200X):</p> <p>In <b>Norway</b> and <b>Sweden</b>, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>	No connection to cable distribution system	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		P
1.5.1	<b>Sweden</b> <b>Delete</b> the A-deviation.	Deleted	N/A
1.7.2.1	<b>Denmark</b> <b>Delete</b> the A-deviation.	Deleted	N/A
1.7.5	<b>Denmark</b> <b>Delete</b> the A-deviation.	Deleted	N/A
5.1.7.1	<b>Denmark</b> <b>Delete</b> the A-deviation.	Deleted	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1</sup> )	
AC Rack						
AC inlet -4 provided (AC Chassis	SCHURTER or equivalent	4793.8000	16A/250V 20A/250V Housing-94V-0 Temp. 70°C	IEC60320-1 UL498 CSA C22.2 UL94	VDE UL	
Shelf/Rack mount Evaluated as component Inc	Emerson Network Power, Embedded Computing	AXP640-AC (AXP640-220VAC- C01)	100-140Vac, 200-240Vac, 50/60 Hz, 16A max.	IEC 60950-1: 2005 (2nd Edition) and/or EN 60950- 1:2006 UL60950-1	CSA	
<p>The AC shelf/Chassis provided with:</p> <ul style="list-style-type: none"><li>- AC/DC power supply (four provided)</li><li>- AC Power distribution board</li><li>- Backplane printed wiring board (SELV)</li><li>- 2 system manager boards</li></ul> <p>cards with isolated Alarm Contacts (SAMs) and Ethernet/LAN connectors (SELV).</p> <ul style="list-style-type: none"><li>- Three Fan modules (SELV)</li></ul> <p>Chassis (AC and DC) provides space for up to 6 separately approved ATCA Data/Processor Boards in the front card cage area, with space for up to 6 mating transition SELV modules (RTMs) in the rear card cage area which in turn are powered from the ATCA Boards mounted in the front card cage area.</p>						
DC Rack						
Shelf/Rack mount Evaluated as component	Emerson Network Power, Embedded Computing	AXP640-DC (AXP640-DC2- C01)	-40Vdc to - 72Vdc, 60A	IEC 60950-1: 2005 (2nd Edition) and/or EN 60950- 1:2006 UL60950-1	CSA	

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

The DC shelf/Chassis provided with:

- Power Entry Modules (PEM's) including DC (2) input terminal block and plastic cover
- DC power distribution board
- Backplane printed wiring board
- 2 system manager boards with isolated Alarm Contacts (SAMs) and Ethernet/LAN connectors.
- Three Fan modules



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

Object/part No.	Manufacturer/ trademark	Type/model	Tec-nical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Computer Boards (CPU for ATCA- Systems) (Up to four may provided)	Emerson Network Power - Embedded Computing GmbH	ATCA-7365 (ATCA-7365-C11) ATCA-7367 (ATCA-7367-C01)	Rated- -48 to -60 Vdc or -48 Vdc (TNV-2); max. 260 W Temp. 55°C	IEC 60950-1: 2005 (2nd Edition) and/or EN 60950- 1:2006 UL60950-1	TUV
Flex Core ATCA- FM40 board	CONTINUOUS COMPUTING CORP	FM-40 SWF (0-13348) FM-40 RTM (012271) And RTM board	SELV -48Vdc , 10A Temp. 55°C	UL 60950-1, 1st Edition, 2007- 10-31 CSA C22.2 No. 60950-1-03	UL,CSA
SAM board –up to two provided (Part of chassis certification )	Emerson Network Power - Embedded Computing GmbH	SAM (SAM640-C01)	Rated :26-75Vdc Output -5Vdc, 7A Insulation – 1500Vdc	IEC 60950-1: 2005 (2nd Edition) and/or EN 60950- 1:2006 UL60950-1	CSA
Air filter (On front panel )	UNIVERSAL AIR FILTER, QUADRAFOAM	FF-2X	94HF, Thick. 6.35mm Color,- black	UL94	UL
Switch Extension board (Radware)					
Input power connector	NEXTRON	R- 806M01170034 0	72 V; 30 A for power pins, 2 A for signal pins; +125°C distance between pins: min. 1,4 mm Located at rear area of pcb and connected by press fit	UL94, UL1977 IEC60695	UL

Group and National Differences					
Clause	Requirement – Test		Result – Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Tec-nical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Input power connector housing	MITSUBISHI ENGINEERING- PLASTICS CORP	5010GN6	94V-0	UL94 UL 1977 IEC60695	UL
Data/power connector J20-J24	Tyco	6469001-1	Female type Min. 30 V, min. 1 A per Pin, plastic rated min. V-2  Located at rear area of pcb and connected by press fit.	UL1977	UL(E20264)
PCB	Any	Any	V-0	UL796	UL
F1 ,F2 Input fuses	FUSE BEL	SSQ750MA	750mA ,SMD type	UL 248-14; CSA 248.14	UL
F3,F4,F5,F6 Input fuses	FUSE BEL	SSQ15A	3AG, 15A, 250V	UL 248-14; CSA 248.14	UL
Capacitor CE1 – CE7	Any	Any	100UF,100V 105 <sup>0</sup> C		Evaluated
M14 DC/DC Converter	Synqor Inc	IQ65033QMA10 SNF-G	Input – 35- 75Vdc / 7.5A  Outputs:  3.3 Vdc 3.6 A, 5.0 Vdc, 150 mA Max Temp. 25 <sup>0</sup> C	CAN/CSA C22.2 No. 60950- 1:2007  UL 60950- 1:2007  EN 60950- 1/A1:2010	TUV
M7 DC/DC Converter	Synqor Inc	PQ60120EGL07 NNS-G	Input – 35- 75Vdc / 7.5A  Output- 28Vdc/28Amax  Max Temp. 25 <sup>0</sup> C	CAN/CSA C22.2 No. 60950- 1:2007  UL 60950- 1:2007  EN 60950- 1/A1:2010	TUV

Group and National Differences					
Clause	Requirement – Test		Result – Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Tec-nical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
OC4-1 OC4-2, OC1-1,OC2-1 OC2-2 ,OC3-1 OPTO insulator	AVAGO	ACPL series	Insulation –Min 3750Vrms	VDE0884	VDE, UL
RJ Output connectors	Any	Any	Rated: 125V, 1.5A V-2 Min.	UL1863 UL94	UL
Laser transceiver (15 provided) (Optional)	JDSU Or equivalent	ACCELAR FAMILY	850mm Laser product Class 1,	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV
Laser transceivers Alternate (Optional)	JDS UNIPHASE	PLRXPL-VI- S24-22	850mm Laser product Class 1,	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV
Laser transceivers Alternate (Optional)	Sanoc	SI8512-X5ATO- 3C	850mm Laser product Class 1,	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV
Laser transceivers Alternate (Optional)	Finisar	FTLF1318P2BT L-RW	1310mm Laser product Class 1,	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV
Laser transceivers ,Gigabit Ethernet ports Alternate (Optional)	Sumitomo Electric Interconnect	SCP6G44-GL- AWH	1310mm Laser product Class 1,	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV
Copper transceivers Alternate (Optional)	Methode	DM7041-R-L	SFP Copper 1000Base-TX 3.3V	IEC60950-1 UL60950-1	UL , cULus
Laser transceivers ,Gigabit Ethernet ports Alternate (Optional)	Finisar	FTLX1471D3BC L-RW	SFP+ transceiver ,Single Mode Laser product Class 1, 1310nm ,3.3V, 10GBps	UL/CSA60950- 1, IEC60950-1 IEC-60825-1	cUL or cCSAus, TUV

Group and National Differences					
Clause	Requirement – Test		Result – Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Tec-nical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Laser transceivers ,Gigabit Ethernet ports Alternate (Optional)	Sumitomo Electric Interconnect	SPP5200LR-GL	SFP+ transceiver ,Single Mode  Laser product Class 1, 1310nm , 3.3V,10GBps	UL/CSA60950- 1, EN60825-1, EN60825-2	cUL or cCSAus, TUV
Laser transceivers Alternate (Optional)	Finisar	FTLX8571D3BC L-RW	SFP+ transceiver ,Single Mode  Laser product Class 1, 850nm -3.3V-10GBps	UL/CSA60950- 1, EN60825-1, EN60825-2	cUL or cCSAus, TUV
Laser transceivers Alternate (Optional)	Sumitomo Electric Interconnect	SPP5101SR- GL	SFP+ transceiver ,Single Mode  Laser product Class 1, 1310nm -3.3V-10GBps	UL/CSA60950- 1, EN60825-1, EN60825-2	cUL or cCSAus, TUV
Lithium battery BAT1	Spectrum Brands inc or equivalent	CR2032	3VVdc max 60°C abnormal charging current 10mA, protected by resistor R313 1k and diode D7	UL1642	UL
Battery holder	Any	Any	94V-2 min.	UL 94 (QMFZ2)	UL
Protection battery circuit (R313,D7)	Any	Any	Resistor R=1K and diode D7 in series	-	Evaluated in the equipment
<sup>1)</sup> An asterisk indicates a mark which assures the agreed level of surveillance					
Supplementary information:					

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
90V/60Hz	10	10	900			See supplementary information Data ports were loaded Optics connectors were lopped
100V/60Hz	10.4	10	1028			See supplementary information Data ports were loaded Optics connectors were lopped
240V/50Hz	4.8	5	970			See supplementary information Data ports were loaded Optics connectors were lopped
264V/50Hz	4.5	5	960			See supplementary information Data ports were loaded Optics connectors were lopped
Supplementary information: The test configuration <b><u>was performed with 4 power supplies</u></b> with the following boards: 4 ATCA 7365 boards (Emerson) 1 Switch board (CCPU) 1 Extension board (Radware) 4 RTM SSL boards (Radware) 2 FOM SWR boards (Emerson)						

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
90V/60Hz	9.5	10	860			See supplementary information Data ports were loaded Optics connectors were lopped
100V/60Hz	10	10	985			See supplementary information Data ports were loaded Optics connectors were lopped
240V/50Hz	4.3	5	930			See supplementary information Data ports were loaded Optics connectors were lopped
264V/50Hz	4.1	5	932			See supplementary information Data ports were loaded Optics connectors were lopped
Supplementary information: The test configuration <b><u>was performed with 3 power supplies</u></b> with the following boards: 4 ATCA 7365 boards (Emerson) 1 Switch board (CCPU) 1 Extension board (Radware) 4 RTM SSL boards (Radware) 2 FOM SWR boards (Emerson)						

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
90V/60Hz	9	10	820			See supplementary information Data ports were loaded Optics connectors were lopped
100V/60Hz	9.6	10	941			See supplementary information Data ports were loaded Optics connectors were lopped
240V/50Hz	4	5	894			See supplementary information Data ports were loaded Optics connectors were lopped
264V/50Hz	3.8	5	890			See supplementary information Data ports were loaded Optics connectors were lopped
Supplementary information: The test configuration <b><u>was performed with 2 power supplies</u></b> with the following boards : 4 ATCA 7365 boards (Emerson) 1 Switch board (CCPU) 1 Extension board (Radware) 4 RTM SSL boards (Radware) 2 FOM SWR boards (Emerson)						

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
90V/60Hz	8.8	10	800			See supplementary information Data ports were loaded Optics connectors were lopped
100V/60Hz	9.2	10	912			See supplementary information Data ports were loaded Optics connectors were lopped
240V/50Hz	3.7	5	860			See supplementary information Data ports were loaded Optics connectors were lopped
264V/50Hz	3.3	5	852			See supplementary information Data ports were loaded Optics connectors were lopped
Supplementary information: The test configuration <b><u>was performed with 1 power supply</u></b> with the following boards: 4 ATCA 7365 boards (Emerson) 1 Switch board (CCPU) 1 Extension board (Radware) 4 RTM SSL boards (Radware) 2 FOM SWR boards (Emerson)						

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
40		25	780	-	19.5	See supplementary information Data ports were loaded Optics connectors were lopped
48		25	772.8	-	16.1	See supplementary information Data ports were loaded Optics connectors were lopped
60		25	792	-	13.2	See supplementary information Data ports were loaded Optics connectors were lopped
72		25	813.6	-	11.3	See supplementary information Data ports were loaded Optics connectors were lopped
<p>Supplementary information:</p> <p>The test configuration was performed with the following boards:</p> <p>4 ATCA 7365 boards (Emerson)</p> <p>1 Switch board (CCPU)</p> <p>1 Extension board (Radware)</p> <p>4 RTM SSL boards (Radware)</p> <p>2 FOM SWR boards (Emerson)</p>						

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

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: Certified chassis, certified ATCA boards						
Switch extension board, considerations and evaluations were considered acc. To 5.3.4c)						
Basic/supplementary: Certified chassis, certified ATCA boards						
Switch extension board-						
DC mains to Ground/SELV	72		0.7	2	1.3	2
Reinforced: Certified AC chassis						
Supplementary information:						

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Supplementary information: Certified AC chasiss						



Group and National Differences									
Clause	Requirement – Test			Result – Remark				Verdict	
4.3.8	TABLE: Batteries								P
The tests of 4.3.8 are applicable only when appropriate battery data is not available				Secured by protection circuit: resistor and diode in series. Certified battery is located in 3,3 Vdc-circuit; resistor is 1 kΩ; max. allowed reverse current is 5 mA. If resistor is shorted: no charging (diode is blocking) If diode is shorted: max. charging current is 3,3 mA (protected by resistor)				P	
Is it possible to install the battery in a reverse polarity position?				No				P	
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:								Verdict	
- Chemical leaks								N/A	
- Explosion of the battery								N/A	
- Emission of flame or expulsion of molten metal								N/A	
- Electric strength tests of equipment after completion of tests								N/A	
Supplementary information: Approved battery used									

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

4.5	TABLE: Thermal requirements						P
	Supply voltage (V) .....	90/60	264/50				—
	Ambient T <sub>min</sub> (°C) .....	24	24				—
	Ambient T <sub>max</sub> (°C) .....	24	24				—
Maximum measured temperature T of part/at:		T (°C)				Allowed T <sub>max</sub> (°C)	
Metal Enclosure – front panel		32	32				56(70+24-40)
AC inlet –plastic		32.9	32				69(85+24-40)
Power supply -Storage capacitor C900 (105°c)		38.7	31.4				89(105+24-40)
Switch extension Board-							
Input power connector (125)		28	28				69(85-24+40)
Output power connector		29.4	29.4				69(85-24+40)
Lithium battery (BAT1)m (60°c)		31.5	31.5				69(85-24+40)
Battery holder		31.5	31.5				89(105-24+40)
Capacitor CE7 (105)		27.4	27.4				89(105+24-40)
M14 –DC/DC converterCoil		29.8	30				79(105-10+24-40)
M7- DC/DC converter -		34.8	34.4				89(105+24-40)
PCB near L1U4 (near output connector)		29.6	29.6				89(105+24-40)
RTM SSL Board							
P32 connector		35	35.1				69(85-24+40)
PCB near P30		37	37				89(105+24-40)
FM40-SWF RTM Board							
Floppy disk		33	33				69(85-24+40)
PCB near J31		31	31				89(105+24-40)
ATCA 7365 board							
Lithium battery (60)		28.1	28				69(85-24+40)
Input connector		28.8	28.4				69(85-24+40)
Supplementary information:							
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
Supplementary information:Test results are related to AC chassis							

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

4.5	TABLE: Thermal requirements						P
	Supply voltage (V) ..... :	72	40				—
	Ambient T <sub>min</sub> (°C) ..... :	23.2	23.2				—
	Ambient T <sub>max</sub> (°C) ..... :	23.2	23.2				—
Maximum measured temperature T of part/at:		T (°C)					Allowed T <sub>max</sub> (°C)
<b>Additional test for the DC chassis</b>							
Power entry module							
Coil L1		26.1	26.6				78(105-10+23-40)
Coil L2		26.9	27.7				78(105-10+23-40)
DC mains switch		24.5	24.2				58(85+23-40)
Switch extension board							
Input power connector (125)		26.3	26.8				68(85-23+40)
Output power connector		27.9	28.1				68(85-23+40)
Lithium battery (BAT1)m (60 <sup>0</sup> c)		29.5	29.4				68(85-23+40)
Battery holder		29.5	29.4				88(105-23+40)
Storage capacitor CE7 (105)		25.5	25.8				88(105+23-40)
M14 –DC/DC converter		28	28.3				78(105-10+23-40)
M7- DC/DC converter -		31.5	35.5				88(105+23-40)
PCB near L1U4 (near output connector)		28.1	28.2				88(105+23-40)
RTM SSL Board							
P32 connector		33	32.6				68(85-23+40)
PCB near P30		36.3	36				88(105+23-40)
ATCA 7365A							
Lithium battery (60)		29.1	29.1				68(85-23+40)
Input connector		28	27.9				68(85-23+40)
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class

Group and National Differences							
Clause	Requirement – Test			Result – Remark			Verdict
Supplementary information:							

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

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

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

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:considered trough 5.3.4c)				
Basic/supplementary:				
Switch extension board – Input – Ground /SELV circuits		DC	1001Vdc	No
AC chassis – lines (L/N) to ground (Max. working voltages-645Vp , 345Vrms)		DC	2770	No
Reinforced: Evaluated as part certified AC chassis				
Supplementary Information: The test on the AC chassis was reconducted after humidity conditionig test per <a href="#">National Differences China (CH) clause 2.9.2</a>				

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C) .....				23.6-25.7	—
	Power source for EUT: Manufacturer, model/type, output rating .....				See Table 1.5.1	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Whole AC unit	Only one power supply in work	100V/60 Hz	2H		10A	Max temperature was measured on C900 AC power supply 44.2°C No hazard , No breakdown
Whole AC Unit	DC Fan was disconnected (FTM2)	100V/60 Hz	2H		10A	Max temperature was measured on C900 AC power supply 48.2°C No hazard , No breakdown
Whole AC unit	Blocked DC fans openings front panel	100V/60 Hz	2H		10A	Max temperature was measured on C900 AC power supply 38°C No hazard , No breakdown
Whole DC unit	Only one power entry model in work	48Vdc	2H		16A	Temperature were measured same as in normal conditions No hazard , No breakdown
Switch extension board						
DC/DC converter M14	3.3V output shorted	Input 60Vdc	1H			Before the shorting in input current was 0.35A The DC/DC converter was on Hick up mode . no hazard , no breakdown
DC/DC converter M14	5V output shorted	Input 60Vdc	1H		0.35	Max temperature was measured on M14 65°C no hazard , no breakdown
DC/DC converter M7	12V output shorted	Input 60Vdc	1H		0.35	Max temperature was measured on M7 49.5°C no hazard , no breakdown
Supplementary information:						

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

Appendix 1 -*Photographs*  
*front side*



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

Rear side AC and DC units



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

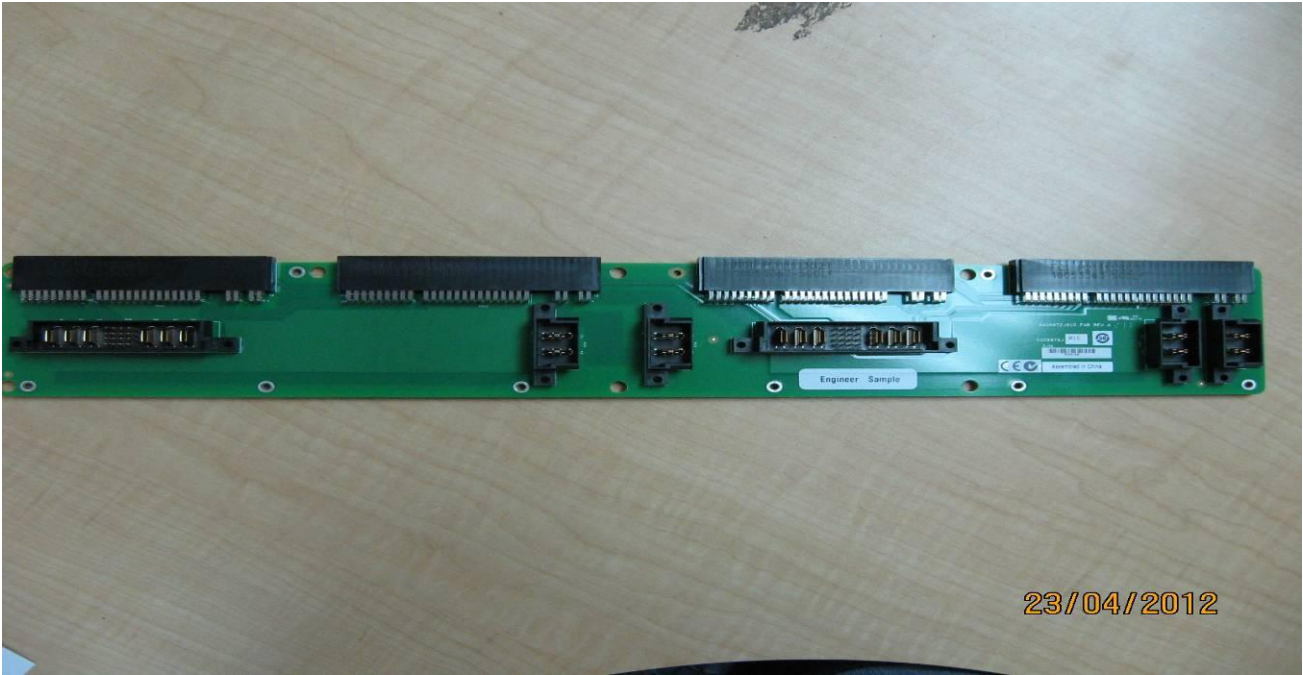
Back plan



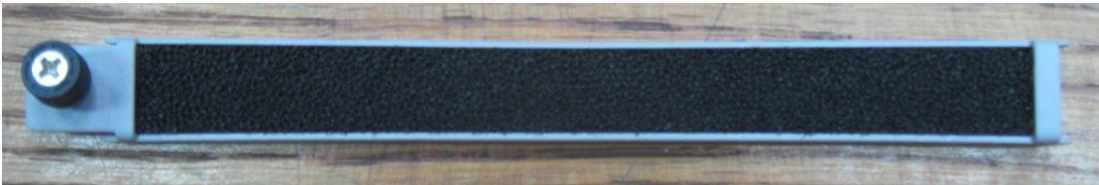
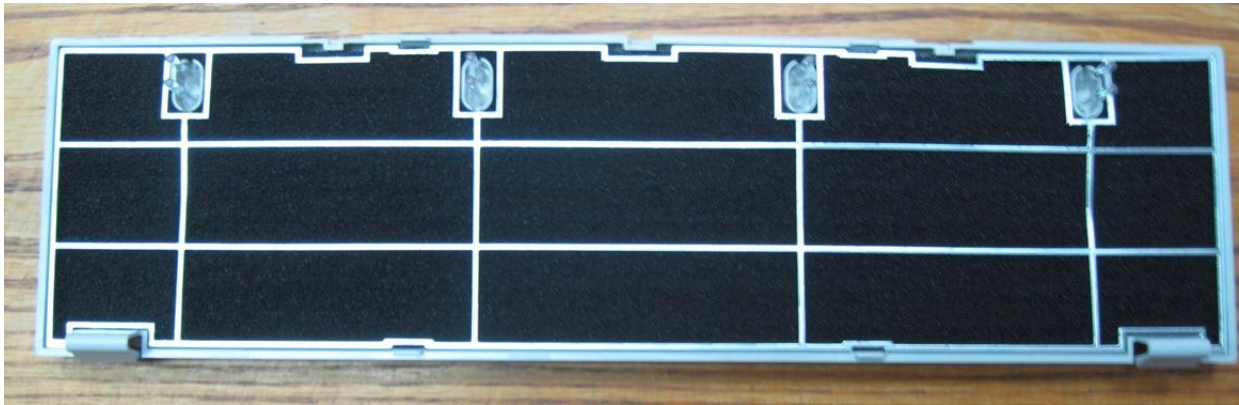


Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

Mains voltages back plan

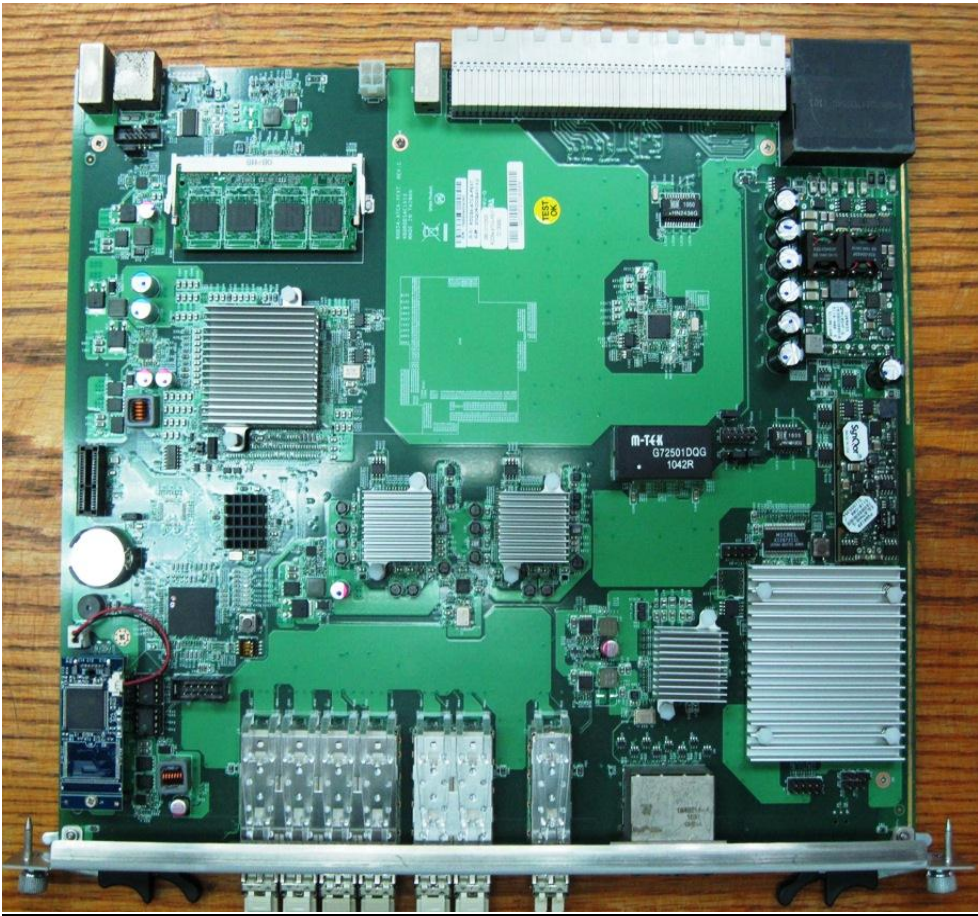


Air Filter front side



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

Switch extension board



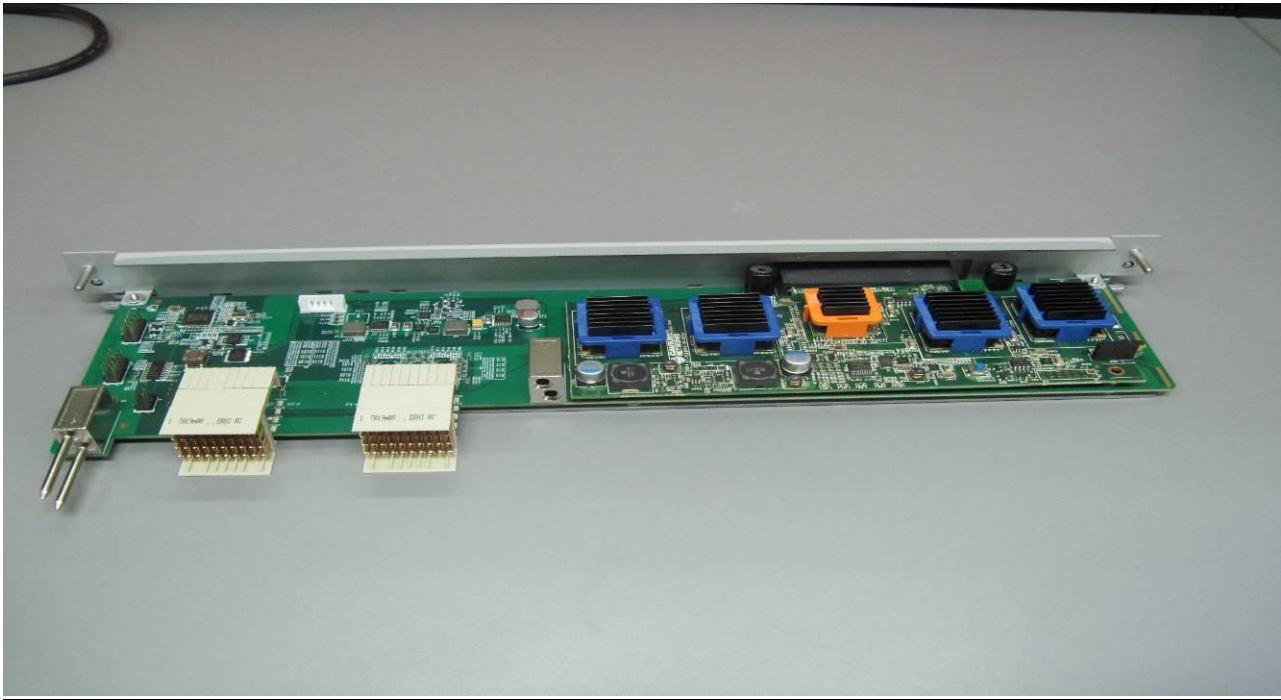
Shelf MGR board



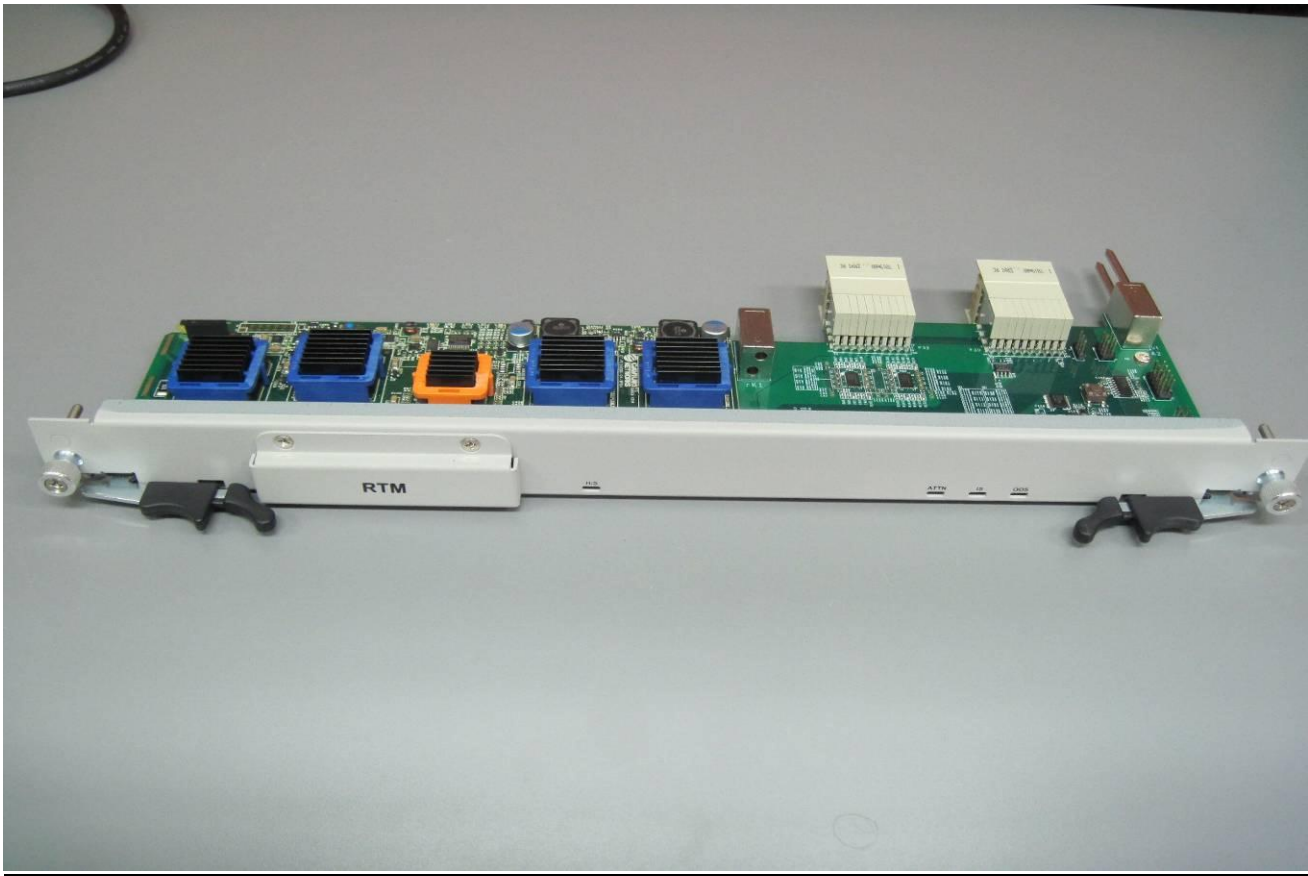


Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

**RTM SSL board**



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

### **Annex -National Differences CB Bulletin**

EU Group Differences, EU Special National Conditions, EU A-Deviations according to A11 of EN 60950-1:2006

AT=Austria \*\*  
 AU=Australia \*  
 BE=Belgium \*  
 BR=Brazil\*  
 CZ=Czech Republic \*  
 CA=Canada  
 CH=Switzerland  
 DE=Germany  
 Denmark=DK  
 FI=Finland  
 FR=France\*\*  
 GB=United Kingdom  
 HU=Hungary \*  
 IT=Italy\*\*  
 JP=Japan \*  
 KR=Korea  
 NL=The Netherlands\*\*  
 NO=Norway  
 PL=Poland\*\*  
 SE=Sweden  
 SI=Slovenia\*\*  
 SK=Slovakia \*  
 ES=Spain \*  
 SG=Singapore \*  
 US=United States of America  
 UK=Ukraine\*

\* National differences not declared

\*\* Group differences only



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Differences according to.....: EN 60950-1:2006+A11:2009			

	CENELEC COMMON MODIFICATIONS (EN)	P
<b>ZA</b>	<b>Normative references to international publications with their corresponding European publications</b>	—

<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>	<b>P</b>
1.2.13.14	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.	No connection to cable distribution system N/A
1.5.7.1	<b>Replace</b> the existing SNC by the following: In <b>Finland, Norway</b> and <b>Sweden</b> , 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.	Part of certified power supply N/A
1.7.2.1	<b>Add</b> as new SNC: In <b>Norway</b> and <b>Sweden</b> , 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 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).” NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator	No connection to cable distribution system N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyrsomerkoplettilbeskyttelsesjord via nettpluggog/eller via annetjordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustningochsamtidigtärkopplad till kabel-TV nätkanivissa fall medföra risk för brand. Förattundvikadettaskall vid anslutningavutrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		
1.7.5	<p><b>Add</b> the following paragraph to the existing SNC for <b>Denmark</b>:</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No Class II unit	N/A
7.3	<p><b>Delete</b> the existing SNC for Norway and Sweden (based on NOTE 1 of IEC 60950-1:2005 + corr. 1).</p> <p><b>Add</b> as new SNC (based on future NOTE 3 of IEC 60950-1:200X):</p> <p>In <b>Norway</b> and <b>Sweden</b>, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>	No connection to cable distribution system	N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)	P
1.5.1	<p><b>Sweden</b></p> <p><b>Delete</b> the A-deviation.</p>	P
1.7.2.1	<p><b>Denmark</b></p> <p><b>Delete</b> the A-deviation.</p>	N/A
1.7.5	<p><b>Denmark</b></p> <p><b>Delete</b> the A-deviation.</p>	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
5.1.7.1	<b>Denmark</b> <b>Delete</b> the A-deviation.	Deleted	N/A

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Differences according to ..... : EN 60950-1:2006/A1:2010			
	In IEC 60950-1:2005/A1 <b>delete</b> all the “country” notes according to the following list: - 1.5.7.1: Note - 6.1.2.1: Note 2 - 6.2.2.1: Note 2 <b>- EE.3: Note</b>	<b>Applied</b>	<b>P</b>
1.1.1	<b>Replace</b> the text of NOTE 3 by the following NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia <b>equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.</b>	<b>Applied</b>	<b>P</b>
1.2.3	<b>Add</b> the following definition: <b>1.2.3.Z1</b> <b>PORTABLE SOUND SYSTEM</b> small battery powered audio equipment: – whose prime purpose is to listen to recorded or broadcasted sound; and – that uses headphones or earphones that can be worn in or on or around the ears; and – that allows the user to walk around <b>NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment.</b>	<b>No such equipment</b>	<b>N/A</b>
1.7.2.1	<b>Delete</b> NOTE Z1. <b>Add</b> the following paragraph at the end of the subclause: In addition, for a <b>PORTABLE SOUND SYSTEM</b> , the instructions shall include a warning that <b>excessive sound pressure from earphones and headphones can cause hearing loss.</b>	<b>No such equipment</b>	<b>N/A</b>

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.13.6	<b>Replace</b> the existing NOTE by the following: NOTE Z1 Attention is drawn to : 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation). Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the <b>applicable EU Directive are indicated in the OJEC.</b>	<b>Applied</b>	<b>P</b>
	<b>CENELEC COMMON MODIFICATIONS (EN)</b>		<b>P</b>
<b>ZA</b>	<b>Normative references to international publications with their corresponding European publications</b>		—
<b>ZB</b>	<b>ANNEX ZB,</b>		<b>P</b>
1.5.7.1	In <b>Finland, Norway</b> and <b>Sweden</b> No changes needed - Correction of SNC already Part of A11.	Refer to A11 table	P

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
6.1.2.1	<p>In <b>Finland, Norway and Sweden</b>, add the following text between the first and second paragraph of the compliance clause:          If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <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"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).          It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.          A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</li> </ul>	No such parts	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

EN 60950-1: 2006 – CENELEC COMMON MODIFICATIONS						
Contents	Add the following annexes:  Annex ZA (normative) Normative references to international publications with their corresponding European publications  Annex ZB (normative) Special national conditions  Annex ZC (informative) A-deviations					P
General	Delete all the “country” notes in the reference document according to the following list:  1.4.8 Note 2                      1.5.1 Note 2 & 3                      1.5.7.1 Note 1.5.8 Note 2                      1.5.9.4 Note                      1.7.2.1 Note 4, 5 & 6 2.2.3 Note                      2.2.4 Note                      2.3.2 Note 2.3.2.1 Note 2                      2.3.4 Note 2                      2.6.3.3 Note 2 & 3 2.7.1 Note                      2.10.3.2 Note 2                      2.10.5.13 Note 3 3.2.1.1 Note                      3.2.4 Note 3.                      2.5.1 Note 2 4.3.6 Note 1 & 2                      4.7 Note 4                      4.7.2.2 Note 4.7.3.1 Note 2                      5.1.7.1 Note 3 & 4                      5.3.7 Note 1 6 Note 2 & 5                      6.1.2.1 Note 2                      6.1.2.2 Note 6.2.2 Note 6.                      2.2.1 Note 2                      6.2.2.2 Note 7.1 Note 3                      7.2 Note                      7.3 Note 1 & 2 G.2.1 Note 2                      Annex H Note 2					P
1.3.Z1	Add the following subclause:  1.3.Z1 Exposure to excessive sound pressure  The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.  NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.					N/A
1.5.1	Add the following NOTE:  NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC					P
1.7.2.1	Add the following NOTE:  NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss					N/A

Group and National Differences															
Clause	Requirement – Test	Result – Remark	Verdict												
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N/A												
2.7.2	This subclause has been declared ‘void’.		N/A												
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A												
3.2.5.1	<p>Replace “60245 IEC 53” by “H05 RR-F”;</p> <p>“60227 IEC 52” by “H03 VV-F or H03 VVH2-F”;</p> <p>“60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6</td><td></td><td>0,75<sup>a)</sup></td><td></td></tr><tr><td>Over 6 up to and including 10</td><td>(0,75)<sup>b)</sup></td><td>1,0</td><td></td></tr><tr><td>Over 10 up to and including 16</td><td>(1,0)<sup>c)</sup></td><td>1,5</td><td></td></tr></table> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition<sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 <sup>a)</sup>		Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0		Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5			P
Up to and including 6		0,75 <sup>a)</sup>													
Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0													
Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5													
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td>Over 10 up to and including 16</td><td>1,5 to 2,5</td><td>1,5 to 4</td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4		P									
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4													
4.3.13.6	<p>Add the following NOTE:</p> <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>		P												

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 <math>\mu</math>Sv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		P
Bibliography	Additional EN standards.		—



Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

**National Differences**

National Differences/EU Special National Conditions/EU A-Deviations for <b>Switzerland (CH)</b>			P
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.	No hazardous substances used	P
1.7.13	Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.	No hazardous substances used	P
3.2.1.1	In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:  SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:  SEV 5932-2.1998 Plug Type 25 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A	Cord with plug is not part of this investigation	N/A
3.2.4	In Switzerland, for requirements see 3.2.1.1 of this annex.	As above	N/A

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

National Differences/EU A-Deviations for <b>Germany (DE)</b>			P
1.7.2.1	<p>(Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>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.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>	Instructions in German will be provided when unit is distributed to Germany	P

Group and National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	<b>National Differences – Denmark</b>		P
General	<p>The clauses in this test report form replaces all the clauses in Test Report Form NoIECEN60950_1C that deals with Danish differences to IEC 60 950-1 2<sup>nd</sup> Ed. (2005) i.e. the Danish differences in the sections ZB and ZC of Test Report Form NoIECEN60950_1C are replaced by the clauses in this report form.</p> <p>The reason for the publication of this test report form is the publication of EN 60950-1/A11: 2009. The most significant difference introduced by that CENELEC amendment is the total deletion of all Danish A-deviations.</p>		P
1.2.4.1	In <b>Denmark</b> , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets	Plug is not part of investigation	N/A
1.7.5	In <b>Denmark</b> , 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.	No socket outlets	N/A
1.7.5	For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.	Class 1	N/A

3.2.1.1	<p>In <b>Denmark</b>, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>	Cord with plug is not part of investigation	N/A
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National Differences/EU Special National Conditions for <b>Spain (ES)</b>			N/A
3.2.1.1	<p>Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	Cord with plug is not part of investigation	N/A

National Differences/EU Special National Conditions for <b>Finland (FI)</b>			P
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.	Evaluated as part of certified power supply	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	<p>CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	Marking will be provided when unit is distributed to Finland	P
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"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> <li>○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecomm-unication centre; and</li> <li>○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li> <li>○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> </ul> </li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>	Marking and instructions are provided	P

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"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <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 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 132400;</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.</li> </ul>	Added	N/A
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6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No TNV	N/A
7.2	For requirements see 6.1.2.1 and 6.1.2.2 of this annex.  The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No cable distribution system	N/A

National Differences/EU Special National Conditions for the <b>United Kingdom (GB)</b>			P
2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.	Part of certified power supply	N/A
2.7.1	In the <b>United Kingdom</b> , 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.	No direct plug-in	N/A
3.2.1.1	In the <b>United Kingdom</b> , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.  NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Cord with plug is not part of investigation	N/A
3.2.5.1	In the <b>United Kingdom</b> , a power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.	Cord with plug is not part of investigation	N/A

3.3.4	In the <b>United Kingdom</b> , 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 <sup>2</sup> to 1,5 mm <sup>2</sup> nominal cross-sectional area.	No such equipment	N/A
4.3.6	In the <b>United Kingdom</b> , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	No direct plug-in	N/A

National Differences/EU Special National Conditions for <b>Ireland (IE)</b>			P
3.2.1.1	In <b>Ireland</b> , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.	Cord with plug is not part of investigation	N/A
4.3.6	In <b>Ireland</b> , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	No direct plug-in	N/A

National Differences for <b>Korea (KR)</b>			P
1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305)	Cord with plug is not part of investigation	N/A
8	EMC, The apparatus shall comply with the relevant CISPR standards	Compliance with relevant CISPR standards will be provided when unit is distributed to Korea	P



National Differences/EU Special National Conditions for <b>Norway (NO)</b> ; EN 60950-1:2005			P
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.	Part of certified power supply	P
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).	Capacitors are suitably rated for the applicable phase-to-phase voltage (230 V).	P
1.5.9.4	The third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	No such cause	N/A
1.7.2.1	<p>CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	Not connected to TNV	N/A
2.2.4	For requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No such connection	N/A
2.3.2	There are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	For requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.10.5.13	There are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No such components	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"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> <li>○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecomm-unication centre; and</li> <li>○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li> <li>○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> </ul> </li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>	Provided	P
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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"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <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 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 132400;</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.</li> </ul>	No such equipment	N/A
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6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No such equipment	N/A
7.2	For requirements see 6.1.2.1 and 6.1.2.2 of this annex.  The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No cable distribution system	N/A
7.3	There are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.	Replaced (EN 60950-1:A11)	N/A
7.3	For installation conditions see EN 60728-11:2005.	Replaced (EN 60950-1:A11)	N/A

National Differences/EU Special National Conditions/EU A-Deviations for <b>Sweden (SE)</b>			P
1.5.1	<b>Sweden</b> (Ordinance 1990:944)  Add the following:  NOTE In Sweden, switches containing mercury are not permitted.	Deleted (EN 60950-1:A11)	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.	Replaced (EN 60950-1:A11)  Part of power supply certifications	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.	No such equipment	N/A

1.7.2.1	<p>CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
2.3.2	There are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No such equipment	N/A
2.10.5.13	There are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No such equipment	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"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> <li>○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecomm-unication centre; and</li> <li>○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li> <li>○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> </ul> </li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>		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"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <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 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 132400;</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.</li> </ul>	No such equipment	N/A
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6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.	No such equipment	N/A
7.2	For requirements see 6.1.2.1 and 6.1.2.2 of this annex.  The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No cable distribution system	N/A
7.3	There are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.	No cable distribution system	N/A

National Differences for Canada			P
Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.			
SPECIAL NATIONAL CONDITIONS			
The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part I and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA	P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.....	Considered	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. ....	No interconnecting cords	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC/NEC are required to have special construction features and identification markings.	No interconnecting cords	N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	No such equipment	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	Not part of this investigation	N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	No such equipment	N/A




2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No such equipment	N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.  Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No outlets	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Comply	P
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Power supply cords are not provided.	N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	Provided	P
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Power cord is not part of this investigation	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.  ..... Flexible power supply cords are required to be compatible with Tables 11 and 12 of the CEC and Article 400 of the NEC.	Power supply cords are not part of this investigation	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Suitable wiring space is provided on certified DC terminal block	P
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	AC powered unit	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm <sup>2</sup> ).	As above	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	As above	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No motor control devices	N/A

3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No such switches	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No battery system of this type	N/A
	Battery system: ..... When power-off is activated: .....	No battery system of this type	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids	N/A
	Flammable liquid material: ..... Flash point:..... Boiling point:..... Container material: ..... Storage container size: .....	No flammable liquids	N/A
4.3.13.5	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	No lasers	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m <sup>3</sup> (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not this type of equipment	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m <sup>2</sup> (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	Not this type of equipment	N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	No ionizing radiation	N/A
OTHER DIFFERENCES			
The following key national differences are based on requirements other than national regulatory requirements.			

1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	Considered. See component list.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.		-
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V <sub>peak</sub> or 60 V <sub>d.c.</sub> , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	Device does not generate signals of this type	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, SELV Circuits and accessible conductive parts comply with the North American limits of 2.2.3.	No TNV circuits	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) subjected to the additional limited short circuit test conditions specified, if required.	No such conductors	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are provided with suitable enclosure to reduce the risk of injury due to the implosion of the CRT.	No such equipment	N/A
	Projected area of opening .....: Minor dimension of projected area .....:		

4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.	No such equipment	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	No handles	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	Not intended to receive ringing signals	N/A
	Ringing ports provided: ..... Simulation provided to: ..... Measured total touch current : .....		—
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.  During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	No such parts	N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	Not for connection to telecommunications network	N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	Does not produce ringing signals	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No such connection	N/A
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).	No such equipment	N/A

Annex NAF Household/home office Document shredders			N/A
NAF1.7	Markings and Instructions	No such equipment	N/A
NAF 1.7.15	Symbols alerting the user to the following considerations are provided adjacent to the document feed opening. These symbols are explained in the instructions:		N/A
	Product is not intended for use by children (product is not a toy) .....		N/A
	Avoid touching the document feed opening with hands .....		N/A
	Avoid clothing touching the document feed opening .....		N/A
	Keep aerosol products away (applicable for product with brush motor only) .....		N/A
	The  (ISO 7000-0434) symbol to alert user to important operating, maintenance and/or servicing instructions and the explanation of above symbols		N/A
	Marking is permanent, comprehensible and easily discernible on the equipment.		N/A
NAF 2.8.3	Safety interlock can not be activated by articulated accessibility probe (NAF.1)		N/A
			N/A
NAF 3.4	Isolation switch complying with 3.4.2 is provided to disconnect power to hazardous moving parts		N/A
	On/off marking is provided for two position switch..		N/A
	Off marking for multi-position switch .....		N/A
			N/A
NAF 4.4	Protection against hazardous moving parts		N/A
	Accessibility probe (Fig NAF.1) is inserted without force into each opening and did not contact hazardous moving parts		N/A
	Operator accessible guards are removed and Accessibility wedge is inserted into each opening according without contacting mechanical hazards:		—
	Strip-cut (45N): .....		N/A
	Cross-cut (90N).....		N/A

USA - Differences to IEC 60950-1:2005, Second Edition			P
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70	Equipment installed in accordance with the National Electrical Code ANSI/NFPA 70	P
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.	In accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.	No such equipment	N/A
1.1.2	Equipment intended for outdoor use	No such equipment	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	Tested and considered for the protection in the installation assumed to 20 A.	P
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of UL component standards in Annex P.1.	Comply	P
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of UL component standards	Comply	P
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.	Comply	P
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.	No such connectors	N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC	No part of this investigation	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	Not part of this investigation	N/A
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.	No such parts	N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863	No such parts	N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system subjected to special circuit classification requirements (e.g., TNV-2)	AC powered unit	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	No such components	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	No such case	N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions	No such parts	N/A
1.7.6	Fuse replacement marking for operator accessible fuses	No such fuses	N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor	AC approved inlet	P
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.	No such equipment	N/A
1.7.7	Marking located adjacent to terminals and visible during wiring	As above	N/A
2.1.1.1	Bare TNV conductive parts protected by a cover are exempt if instructions include directions for disconnection of TNV prior to removal of the cover	No TNV circuits	N/A
2.3.1.b	Other telecommunication signaling systems than described in 2.3.1(b) are subject to M.4.	No TNV circuits	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 max. current limit through a resistor $\geq 2000$ Ohm with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions	No TNV circuits	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.	No TNV circuits	N/A
2.3.2.1	For a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.	No TNV circuits	N/A
2.3.2.4	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications if subject to special construction requirements and testing	No TNV circuits	N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting according to the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable	Class 1	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.	No such equipment	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	Accessible conductive parts are connected to protective earth in accordance with 2.6.1a)	P
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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.	Testing was performed for current 20A.	P
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US	AC powered	N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment	No such equipment	N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC	No outlets	N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring	No such equipment	N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards	No such equipment	N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.	No such equipment	N/A
2.10.5.12	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.12 and Annex U.	Part of certified power supply.	N/A
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent & short circuit protection	All internal wiring is rated for the application	P
3.1.1	All interconnecting cables protected against overcurrent and short circuit.	The equipment used certified internal cable protected against overcurrent and short circuit.	P
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC	Wiring connection of equipment to primary power supply in accordance with the NEC	P
3.2.1	Permitted use for flexible cords and plugs.	No such parts	N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.	No part of this investigation	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.	No such equipment	N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements	Complies	P
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	Provided	P

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.	As above	P
3.2.1.2	Markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to the equipment earthing conductor	Provided	P
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the equipment earthing conductor	Provided	P
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 result in a hazard.	Provided	P
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	Provided	P
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm <sup>2</sup> ) and not less than 150 mm in length for connection of field installed wiring.	Provided	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.	No part of this investigation	N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.	No part of this investigation	N/A
3.2.5	Conductors in power supply cords sized per NEC	No part of this investigation	N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.	No part of this investigation	N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.	No such connection	N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.	As above	N/A
3.2.9	Equipment 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 when 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 comply with 3.3.	No such connection	N/A
3.3	Interconnection of units by LPS or Class 2	No such connection	N/A

	conductors may have field wiring connectors other than specified in 3.3 if wiring is reliably separated		
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means	No permanently connection of AC unit	N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm <sup>2</sup> ) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.	No such connection	N/A
3.3.4	Terminals accept US wire sizes (gauge)		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor for the terminals used	Marked	P
3.3.6	Aluminum conductors not permitted for connection to terminal for equipment earthing conductor	Not for connection to aluminum conductors	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.	Not for connection to aluminum conductors	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.	No such device	N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".	Switch is not regarded disconnect device	N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 minutes provided with battery disconnect means	No such equipment	N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.	No such equipment	N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.	No such parts	N/A
4.2.11	For equipment mounted on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails	No slides	N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg	No such equipment	N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310	No such equipment	N/A
4.3.12	The max. quantity of flammable liquid stored in	No liquid	N/A

	equipment per ANSI/NFPA 30 (Table NAE.6)		
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.	No liquid	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	No such equipment	N/A
4.3.13.5	Requirements contained in the applicable national codes apply to lasers (21 CFR 1040).	Provided	P
4.7	Automated information storage equipment intended to contain more than 0.76 m <sup>3</sup> of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.	No such equipment	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 (according to UL 2043). Equipment for installation in space used for environmental air, described in Sec. 300-22(c) of the NEC, provided with instructions indicating suitability for installation	No such equipment	N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m <sup>2</sup> or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.	No such equipment	N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.	The wire marked "VW-1" or "FT-1"	P
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.	No such cause	N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.	No such signals	N/A
5.3.7	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.	No such connectors, external connectors are LPS	N/A
5.3.7	Tests interrupted by opening of a component repeated two additional times.	No such case	N/A
5.3.9.1	Test interrupted by opening of wire or trace subject to certain conditions.	No such case	N/A
6	Specialized instructions for telephones that may be connected to a telecommunications network	Not for connection to telecommunications network	N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a	Not for connection to telecommunications network	N/A

	telecommunication network.		
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.	Not for connection to telecommunications network	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.	Not for connection to telecommunications network	N/A
6.4	Additional requirements for equipment connected to a telecommunication network using cable subject to overvoltage from power line failures	Not for connection to telecommunications network	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.	Not for connection to telecommunications network	N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.	Not for connection to cable distribution system	N/A
H	Ionizing radiation measurements made under single fault conditions according to 21 CFR 1020	No such part	N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.	No such signals	N/A
M.4	Special requirements for message waiting and similar telecommunications signals.	No such equipment	N/A
NAC	Equipment for use with a generic secondary protector marked with suitable instructions.	No such equipment	N/A
NAC	Equipment marked with suitable instructions if for use with a specific primary or secondary protector	No such equipment	N/A
NAD	Acoustic pressure from an ear piece for short and long duration disturbances	No such components	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	No such connection	N/A
NAF	Household/Home Office Document Shredders		
NAF.1.7	Markings and instructions alert the user to key safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products.	No such equipment	N/A
NAF.2.8.3	Safety interlock cannot be inadvertently activated by the articulated accessibility probe	No such equipment	N/A
NAF.3.4	Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch.	No such equipment	N/A

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NAF.4.4	Hazardous moving parts are not accessible, as determined using the articulated accessibility probe and the accessibility probe/wedge	No such equipment	N/A
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National Differences for <b>Australia (AU) and New Zealand – IEC 60950-1: ED. 2.0 (2005)</b>			P
1.2	Between the definitions for 'Person, service' and 'Range, rated frequency' insert the following: Ignition source 1.2.12.201	Inserted	P
1.2.12.201	After the definition of 1.2.12.15, add the following: 1.2.12.201 potential ignition source: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202 This definition is from AS/NZS 60065:2003.	Added	P
1.5.1	Add the following to the end of first paragraph: 'or the relevant Australian/New Zealand Standard'.	Added	P
1.5.2	Add the following to the end of first and third dash items: 'or the relevant Australian/New Zealand Standard'.	Added	P
3.2.5.1	Modify Table 3B as follows: Delete the first four rows and replace with	Deleted and replaced	P
Rated Current of the Equipment A		Minimum Conductor Sizes	
		Nominal cross-sectional area mm <sup>2</sup>	AWG or kcmil [cross-sectional area in mm <sup>2</sup> ] see note 2
Over 0.2 up to and including 3		0,5 <sup>1)</sup>	18 [0,8]
Over 3 up to and including 7.5		0,75	16 [1,3]
Over 7.5 up to and including 10	(0,75) <sup>2)</sup>	1,00	16 [1,3]
Over 10 up to and including 16	(1,0) <sup>3)</sup>	1,5	14 [2]
Replace footnote 1) with the following: 1) This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm <sup>2</sup> three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1			
4.1.201	Insert a new Clause 4.1.201 after Clause 4.10 as follows: 4.1.201 Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065.	Inserted	N/A

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4.3.6	Delete the third paragraph and replace with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.	No such equipment	N/A
4.3.13.5	Add the following to the end of the first paragraph: ', or AS/NZS 2211.1'.'. "	Added	N/A
4.7	Add the following paragraph: For alternative tests refer to Clause 4.7.201.	Added	N/A



4.7.201	<p>Add the following after Clause 4.7.3.6. 4.7.201 Resistance to fire – Alternative tests 4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following:</p> <p>Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. The following parts which would contribute negligible fuel to a fire: small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; small electrical components, such as capacitors with a volume not exceeding 1 750 mm<sup>3</sup>, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.</p> <p>NOTE In considering how to minimize propagation of fire and what ‘small parts’ are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.</p> <p>4.7.201.2 Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p> <p>4.7.201.3 Testing of insulating materials Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p>	No alternative tests applied	N/A
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	The test shall be also carried out on other parts of insulating material which are within a distance of 3mm of the connection. NOTE Contacts in components such as switch contacts are considered to be connections. For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:		No alternative tests applied	N/A
	Clause of AS/NZS 60695.11.5	Change	Considered	N/A
	9 Test procedure			
	9.2 Application of needleflame	Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s $\pm$ 1 s.		N/A
	9.3 Number of test specimens	Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		N/A
	11 Evaluation of test results	Replace with: The duration of burning ( $t_b$ ) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		N/A

	<p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part. 4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. 4.7.201.5 Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the — Printed board does not carry any POTENTIAL IGNITION SOURCE; Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. Compliance shall be determined using the smallest thickness of the material. NOTE – Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.</p>	No alternative tests applied	N/A
6.2.2	<p>For Australia only, delete the first paragraph and Note, and replace with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.</p>	Deleted and replaced.	N/A

6.2.2.1	For Australia only, delete the first paragraph including the Notes, and replace with the following: In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, $U$ , is: (i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and (ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV. NOTE 201 – The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	Deleted and replaced.	N/A
6.2.2.2	For Australia only, delete the second paragraph including the Note, and replace with the following: In Australia only, the a.c. test voltage is: (i) for 6.2.1 a): 3 kV; and (ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV. NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	Deleted and replaced.	N/A
7.3	Add the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.	No such equipment	N/A
Annex P	Add the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets	Added	N/A
Index	1. Insert the following between 'asbestos, not to be used as insulation' and 'attitude see orientation': AS/NZS 2211.1.....4.3.13.5 AS/NZS3112.....4.3.6 AS/NZS3191.....3.2.5.1 (Table 3B) AS/NZS60064.....4.1.201 AS/NZS60695.2.11.....4.7.201.2, 4.7.201.3 AS/NZS60695.11.10.....4.7.201.1, 4.7.201.5 AS/NZS60695.11.5.....4.7.201.3 2. Insert the following between 'positive temperature coefficient (PTC) device' and 'powder': potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5	Not applied	N/A

National Differences <b>China (CH)</b> GB4943.1-2011 Information technology equipment – Safety – Part 1: General requirements			P
1.1.2	GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates.  Amend the third dashed paragraph of 1.1.2 as: ——equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;	No such product	N/A
1.4.5	After the third paragraph, add a paragraph:  If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. The first dash paragraph "-the RATED VOLTAGE is 230V single -phase or 400V three-phase, in which case the tolerance shall be taken as +10% and -10%" of IEC 60950-1:2005 is deleted in GB 4943.1-2011	Tested at -/+10%	P
1.4.12.1	Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.  Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.  Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration.	Not for tropic climate conditions Added	N/A
1.5. 2	Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m.	added	N/A

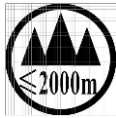

1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.	Instructions are given in English	N/A
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured.  And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.	Complies	P

1.7.2.1	<p>Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only the symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p>	<p>Tested for Max operation up to 2000M</p> <p>Applies when the product will be shipped to China</p>	P
2.7.1	<p>Amended the first paragraph as:</p> <p>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.</p> <p>Delete note of Clause 2.7.1.</p>	Complies	P

2.9.2	<p>First section of Clause 2.9.2 amended as two sections:</p> <p>Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature <math>40\pm 2^{\circ}\text{C}</math> and a relative humidity of <math>(93\pm 3)\%</math>. During this conditioning the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of <math>(93\pm 3)\%</math>. The temperature of the air, at all places where samples can be located, is maintained within <math>2^{\circ}\text{C}</math> of any convenient value between <math>20^{\circ}\text{C}</math> and <math>30^{\circ}\text{C}</math> such that condensation does not occur.</p> <p>Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered.</p> <p>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p>	<p>Humidity conditioning was conducted for 48 Hours at temp. <math>22^{\circ}\text{C}</math> with relative humidity 93%</p> <p>See also appended table 5.2 IEC60950-1</p>	P
2.10.3.1	<p>Amend the third paragraph of Clause 2.10.3.1 to be:</p> <p>These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.</p>	Up to 2000M	N/A



2.10.3.3& 2.10.3.4	Add "(applicable for altitude up to 2000m)" in header of Table 2K, 2L and 2M.	Added	P
2.10.3.4	<p>Add a new section above Table 2K and in Clause 2.10.3.4:</p> <p>Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1 ( IEC 60664-1 ) .</p> <p>For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1.</p>	Added	P
3.2.1.1	<p>Add a paragraph before the last paragraph:</p> <p>Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.</p>	Added	P
4.2.8	<p>Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011.</p> <p>Delete note of Clause 4.2.8.</p>	No such components	N/A
Annex E	<p>Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.</p>	Shall be evaluated as part of certified power supply	N/A

Annex G.6	Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.	Complies to 2000M	N/A
Annex BB (informative)	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.		P
Annex DD (normative)	<p>Added annex DD: Instructions for the new safety warning labels.</p> <p>DD.1 Altitude warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m .</p> <p>DD.2 Climate warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.</p>	Shall be updated when the product will be shipped to China	P

Annex EE (informative )	Added annex EE: Illustration relative to safety explanation in normative Chinese、Tibetan、Mongolian、Zhuang Language and Uighu.	Shall be updated when the product will be shipped	P
Other amendmen ts	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.		P

	<p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> <li>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;</li> <li>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted;</li> <li>- If the date of the national standard or industry standard is not given, the latest edition of the standard applies;</li> <li>- The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard.</li> </ul> <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> <li>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;</li> <li>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted.</li> </ul> <p>Meanwhile, in order to retain the relevant information on international standards</p>	<p>Quoting standards and reference documents</p>	<p>P</p>
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Meanwhile, in order to retain the relevant information on international standards informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011.	P
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## **Appendix 2 – Models name**

ODS4-FB-VX Quad AC is identical to the following model names:

RODS4-DEF2AC-FB
RODS4-DEF4AC-FB
ODS4-FB Dual AC
ODS4-FB Quad AC
Alteon 10000 220 VAC
Alteon 10000 110 VAC
OnDemand Switch 4 FB Dual AC
OnDemand Switch 4 FB Quad AC
OnDemand Switch 4 FB VX Dual AC
OnDemand Switch 4 FB VX Quad AC
Alteon Application Switch 10000 110VAC
Alteon Application Switch 10000 220VAC
AAS 10000 220VAC
AAS 10000 110VAC
19210052
192310052
Alteon 10000 VX 220 VAC
Alteon 10000 VX 110 VAC

ODS4-FB –VX DC NEBS is identical to the following model names ;

RODS4-DEF2DC-FB
ODS4-FB DC
Alteon 10000 DC NEBS
OnDemand Switch 4 FB DC NEBS
OnDemand Switch 4 FB VX DC NEBS
Alteon Application Switch 10000 DC
NEBS
AAS 10000 DC NEBS
19410052
Alteon 10000 VX DC NEBS

### Appendix 3 -Licences

		Ref. Certif. No. <b>CA/13889/CSA</b>
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME		SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC
<b>CB TEST CERTIFICATE</b>		
Product Produit	Rack-Mount Computer (component for building in)	
Name and address of the applicant Nom et adresse du demandeur	Emerson Network Power – Embedded Computing Inc. 2900 South Diablo Way, Suite 190, Tempe, AZ. 85282, U.S.A.	
Name and address of the manufacturer Nom et adresse du fabricant	Same as Applicant	
Name and address of the factory Nom et adresse de l'usine	<input checked="" type="checkbox"/> Additional information on page 2	
<small>Note: When more than one factory, please report on page 2</small> <small>Note: Lorsque il y a plus d'une usine, veuillez utiliser la 2<sup>ème</sup> page</small>		
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	100-140Vac, 200-240Vac, 50/60 Hz, 16A max.	
Trademark (if any) Marque de fabrique (si elle existe)		
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	TMP-025	
Model / Type Ref. Ref. De type	AXP640-AC and CENT-26XX-AC	
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2 <sup>ème</sup> page)	This Certificate replaces previously issued CB Certificate CA/13610/CSA issued 2011.-10-04  IEC 60950-1:2005 (2nd Edition); EN 60950-1:2006+A11:2009 CB scheme – National Deviations: AU, CA, CH, DE, DK, ES, FI, GB, IE, IL, KR, NO, NZ, SE, US and Common Modifications as posted at the following IECEE CB Website: <a href="http://mcmbcn.iecee.org/ieccc/iecccmcmbscn.nsf">http://mcmbcn.iecee.org/ieccc/iecccmcmbscn.nsf</a>	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	159122-2414884 (2484050)	
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat		
This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme National de Certification		
	CSA International 175 Rexdale Boulevard Toronto, ON M9W 1R3	
Date: 2012-01-11	Signature: Tiki Wong, P.Eng.	

		Ref. Certif. No.  <b>CA/13605/CSA</b>
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME		SYSTEME CBI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC
<b>CB TEST CERTIFICATE</b>		<b>CERTIFICAT D'ESSAI OC</b>
Product Produit	Advanced Telecommunication Computing Architecture (ATCA) Chassis/Shelf (component for building in)	
Name and address of the applicant Nom et adresse du demandeur	Emerson Network Power – Embedded Computing Inc. 2900 South Diablo Way, Suite 190, Tempe, AZ 85282, U.S.A.	
Name and address of the manufacturer Nom et adresse du fabricant	Emerson Network Power – Embedded Computing Inc. 2900 South Diablo Way, Suite 190, Tempe, AZ 85282, U.S.A.	
Name and address of the factory Nom et adresse de l'usine  <small>Note: When more than one factory, please report on page 2 Note: Lorsque il y a plus d'une usine, veuillez utiliser la 2<sup>me</sup> page</small>	Zhongshan General Carton Box Factory Co. Ltd. No. 45 Qi Guan Road West, Shiqi District Zhongshan, Guangdong, China	
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	-40 V dc to -72 V dc, 60 A;	
Trademark (if any) Marque de fabrique (si elle existe)		
Type of Manufacturer's Testing Laboratories used Type de programme de laboratoire d'essais constructeur	TMP-025	
Model / Type Ref. Ref. De type	AXP640-DC and CENT-26XX-DC	
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2 <sup>me</sup> page)	This certificate replaces Certificate CA/13519/CSA dated 2011-08-31.	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1:2005 (2nd Edition); EN 60950-1:2006+A11:2009 CB scheme – National Deviations: AU, CA, CH, DE, DK, ES, FI, GB, IE, IL, KR, NO, NZ, SE, US and Common Modifications as posted at the following IECEE CB Website: <a href="http://members.iecee.org/ieccc/iecccmembers.nsf">http://members.iecee.org/ieccc/iecccmembers.nsf</a>	
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	159122-2414883 (2461345)	
This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme National de Certification		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  <p>CSA International 175 Rexdale Boulevard Toronto, ON M9W 1R3</p> </div> <div>  </div> </div>		
Date: 2011-10-03	Signature: Tiki Wong, P.Eng.,	