IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-025441

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

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Notebook PC
Name and address of the applicant Nom et adresse du demandeur	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	1), 3), 6) DC 19V; 3.42A; Class III 2), 5), 7) DC 19V; 4.74A; Class III 4) DC 19V; 6.3A; Class III
Trade mark (if any) Marque de fabrique (si elle existe)	MSI
Model/type Ref. Ref. de type	1) MS-1034xxxxx, M660xxxxx, M662xxxxx, MS-1637xx, MS-163Cxx 2) MS-1039xxxxx, M655xxxxx, MS-1636xx, 3) MS-1613xxxxx, 4) MS-163Axx, 5) MS-163Gxxx, 6)MS-163Nxxx, 7)MS-163Pxxxx 1)-4),6) x=0-9, A-Z or blank; 5),7) x=0-9, a-z, A-Z or blank
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
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 60950-1:2001 National differences see test report
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 une partie de ce Certificat	11015280 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 23.12.2008

Signature: Dipl.-Ing. F. Stoelzel

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-025441

1. LG Electronics de Sao Paulo Ltda.
   Avenida Dom Pedro 1, W-7777
   Distrito Ind. Piracangagua II
   Taubate, SP
   Brazil

2. MSI Computer (Shenzhen) Co., Ltd.
   Longma Information Technology
   Industrial Park, Tangtou Village
   Shiyan Town, Baoan District
   Shenzhen, Guangdong 518108, P.R. China

3. MSI ELECTRONICS (KUNSHAN) CO., LTD.
   88E QIANJIN Rd., Kunshan City
   Jiangsu 215300
   P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 23.12.2008 Signature: Dipl.-Ing. F. Stoelzel

Ref. Certif. No.
JPTUV-025442

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

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Notebook PC
Name and address of the applicant Nom et adresse du demandeur	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Micro-Star Int'l Co., Ltd. 69, Li-De St. Chung Ho City, Taipei Hsien 235 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Rating and principal characteristics Valeurs nominales et caractéristiques principales	1) DC 19V; 3.42A or 19V; 4.74A; Class III 2) DC 19V; 3.42A; Class III 3) DC 19V; 3.42A or 19V; 4.74A; Class III
Trade mark (if any) Marque de fabrique (si elle existe)	LG
Model/type Ref. Ref. de type	1) LGF1 2) F1 3) LGE50, E500, ED500
Additional information (if necessary) Information complémentaire (si nécessaire)	For model differences, refer to the test report.
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 60950-1:2001 National differences see test report
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 une partie de ce Certificat	11015280 001

This CB Test Certificate is issued by the National Certification Body
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TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
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   Shenzhen, Guangdong 518108, P.R. China

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   88E QIANJIN Rd., Kunshan City
   Jiangsu 215300
   P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 23.12.2008

Signature: Dipl.-Ing. F. Stoelzel

TEST REPORT

IEC 60950-1 and/or EN 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report reference No	11015280 001
Tested by (printed name and signature)	Nai-Shiuan Yin
Approved by (printed name and signature)	Bonny Su
Date of issue	17th Dec., 2008
Testing Laboratory Name	TÜV Rheinland Taiwan Ltd., Taichung Laboratory
Address	10F, No. 219, Min Chuan Rd., Taichung 403, Taiwan
Testing location	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above.
Applicant's Name	Micro-Star Int'l Co., Ltd.
Address	69, Li-De St., Chung Ho City, Taipei Hsien 235 Taiwan
Test specification	
Standard	IEC 60950-1:2001 EN 60950-1:2001 + A11:2004
Test procedure	CB- scheme
Non-standard test method	N/A
Test Report Form No	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03

Test item description	Notebook PC
Trademark	1),2),5),7),8), 9), 10) MSI 3),4),6) LG
Manufacturer.....	Same as applicant
Model and/or type reference	1) MS-1034xxxxx, M660xxxxx, M662xxxxx, MS-1637xx, MS-163Cxx (x=0-9, A-Z or blank); 2) MS-1039xxxxx, M655xxxxx, MS-1636xx (x=0-9, A-Z or blank); 3) LGF1; 4) F1; 5) MS-1613xxxxx (x=0-9, A-Z or blank); 6) LGE50, E500, ED500; 7) MS-163Axx (x=0-9, A-Z or blank); 8) MS-163Gxxx (x=0-9, a-z, A-Z or blank), 9) MS-163Nxxx (x = 0-9, A-Z or blank), 10) MS-163Pxxxx (x = 0-9, a-z, A-Z or blank)
Serial number	Test samples without serial numbers
Rating(s)	1),4),5),9) 19Vdc, 3.42A; 2), 10) 19Vdc, 4.74A; 3) 19Vdc, 3.42A or 19Vdc, 4.74A; 6) 19Vdc, 3.42A or 19Vdc, 4.74A; 7) 19Vdc, 6.3A; 8) 19Vdc, 4.74A

Copy of marking plate:

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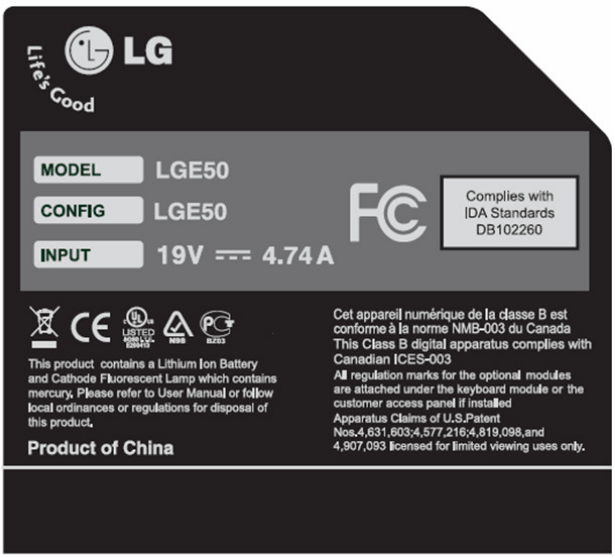
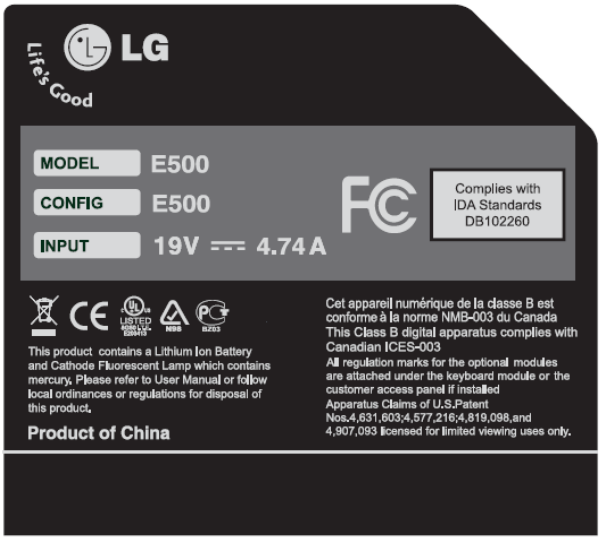
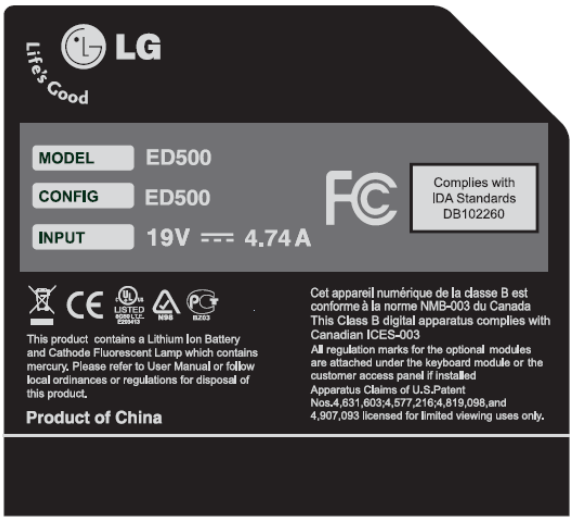
Copy of marking plate:







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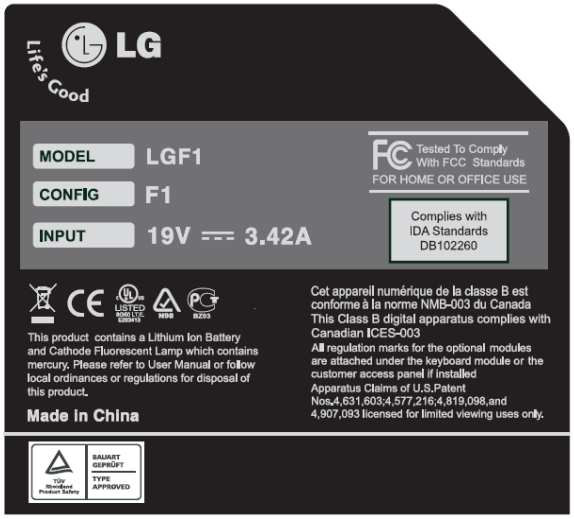

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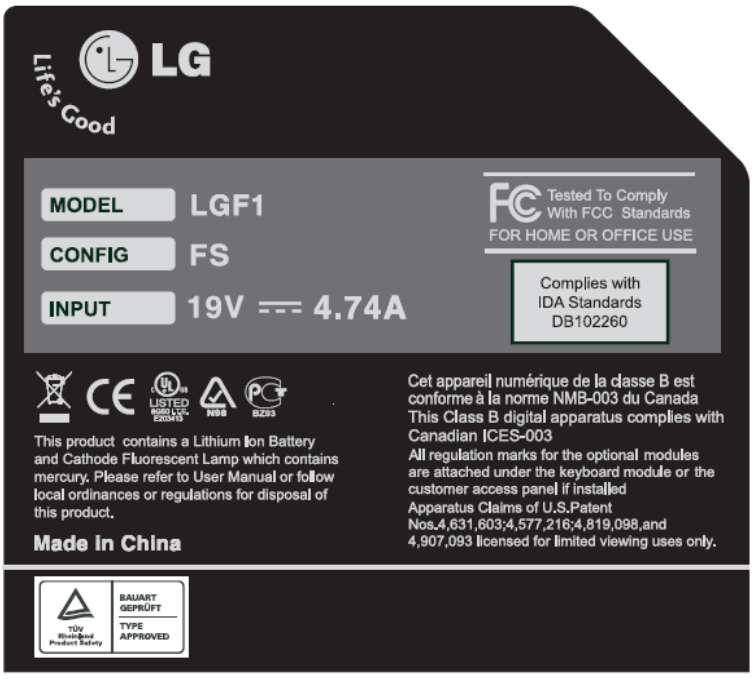

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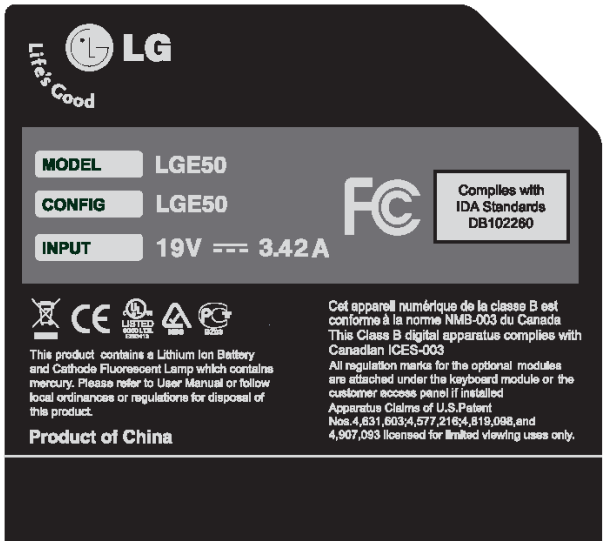

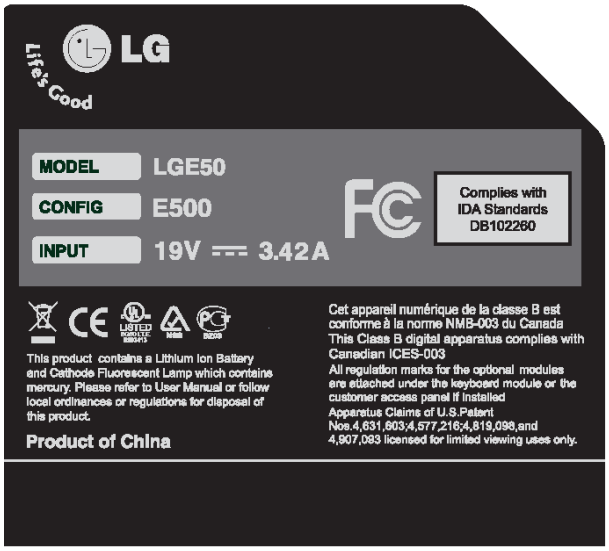

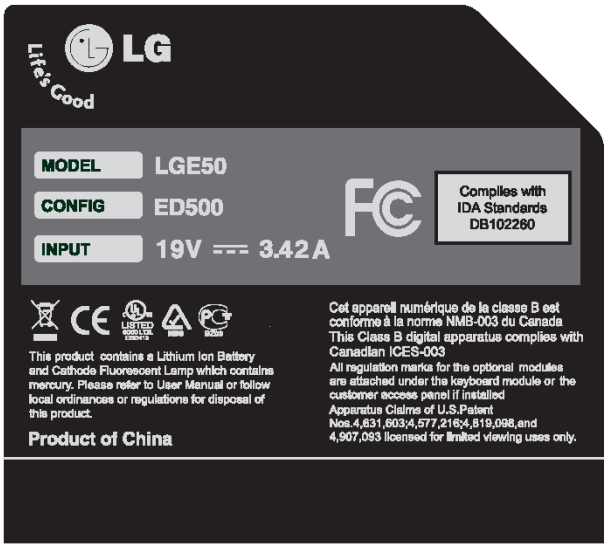

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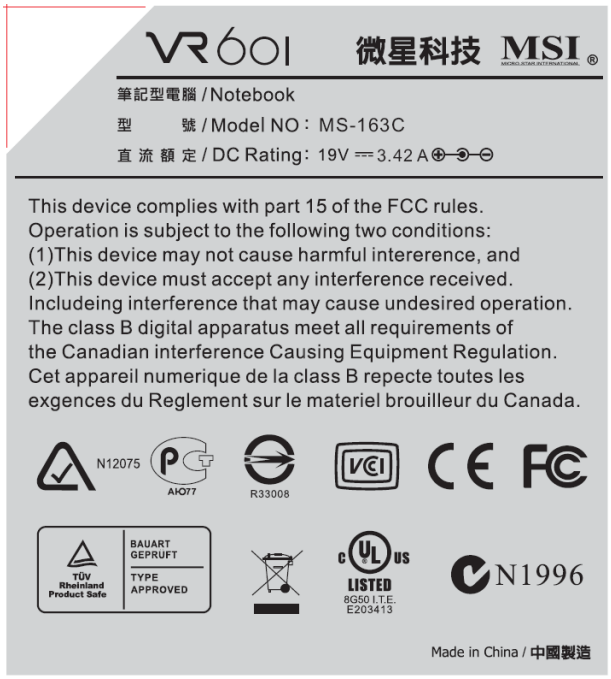

Summary of testing:

- The max. ambient temperature is depend on the different adapter source used, detailed information similar to below table are given in the user's manual to guide the user to use suitable adapter.

Model	Max. ambient temperature	Applicable adapter (manufacturer/ type designation)
MS-163Axx	40°C	Delta / ADP-120ZB BB Lite-On / PA-1121-04
MS-163Gxxx, MS-163Pxxxx, M655xxxxx, MS-1039xxxxx, MS-1636xx, LGE50, E500, ED500, MS-163Nxxx	1) 40°C 2) 25°C	1) Li shin / LSE0202D1990; LSE0202C1990 Lite-on / PA-1900-04; PA-1121-04 EPS / D10903-A EDAC / EA10953 Delta / ADP-120ZB BB, ADP-90SB BB 2) FSP / FSP090-1ADC21XX
MS-1637xx, MS-1613-xxxxx, MS-1034xxxxx, MS-163Cxx, M662xxxxx, M660xxxxx, F1, LGF1	1) 40°C 2) 25°C 3) 35°C	1) Li shin / LSE0202D1990; LSE0202C1990 Lite-on / PA-1900-04; PA-1121-04 EPS / D10903-A EDAC / EA10953 Delta / ADP-120ZB BB, ADP-90SB BB 2) FSP / FSP090-1ADC21XX 3) Lite-on / PA-1650-02XX

- Perform test under highest load for this equipment as reading/writing between HDD and playing optical drives, Max. brightness and contrast for LCD panel, the dummy loads of 2.5W for each USB, IEEE1394 ports and RJ45 transmission signal to other PC or server, charging to an empty battery pack. The operator can connect additional options like a parallel printer or a serial device.
- CPU: Intel, 2.16GHz for models MS-1034xxxxx, M660xxxxx, M662xxxxx, LGF1, F1 and Intel, 2.2GHz for models MS-1039xxxxx and M655xxxxx.
- CPU: Intel PBGA (478pin), 2.2GHz for models MS-1637xx, MS-163Nxxx, MS-1636xx, MS-163Cxx, M163Axx, LGE50, E500 and ED500.
- CPU: Intel / Celeron 530, 1.73GHz for model MS-163Pxxxx
- Unless otherwise indicated, all tests are conducted to model MS-1039xxxxx, MS-1636xx and MS-1637xx, M163Axx, MS-163Gxxx, MS-1034xxxxx, MS-163Nxxx, MS-163Pxxxx to represent all other models.
- The TV tuner design for model MS-163Axx was evaluated according to clause 7 of IEC 60950-1:2005, CB countries should investigate this matter during national mark approval.

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Model	DC Fan used under Test	Mainboard/TNV board	Bottom enclosure
MS-1039xxxxx	Mfr. Forcecon, type 451005M10T (5.1CFM)	Mainboard A/TNV board (a)	Bottom Enclosure (A)
M655xxxxx			
MS-1034xxxxx		Mainboard B/ TNV board (a)	
LGF1, F1, MS-1613-xxxxx, M662xxxxx, M660xxxxx			
MS-163Nxxx	Mfr. Forcecon, type DFS450805M10T (3CFM)	Mainboard G/ TNV board (b)	Bottom Enclosure (B)
MS-163Pxxxx	Mfr. Forcecon, type DFS451205M10T (4.5CFM)	Mainboard H/ TNV board (c)	
LGE50, E500, ED500	Mfr. Forcecon, type DFS450805M10T (3CFM)	Mainboard C, F/ TNV board (a)	
MS-163Gxxx	Mfr. Forcecon, type DFS451205M10T (4.5CFM)	Mainboard F/ TNV board (a)	
MS-163Axx	Mfr. Forcecon, type DFS450805M10T (3CFM)	Mainboard E/ TNV board (a)	
MS-1637xx, MS-163Cxx	Mfr. Forcecon, type DFS450805M10T (3CFM)	Mainboard C TNV board (b)	
MS-1636xx	Mfr. Forcecon, type DFS450805M10T (3CFM)	Mainboard D/ TNV board (b)	

Particulars: test item vs. test requirements

Equipment mobility .....: Transportable equipment

Operating condition .....: Continuous

Mains supply tolerance (%) .....: No direct mains connection

Tested for IT power systems .....: No

IT testing, phase-phase voltage (V) .....: N/A

Class of equipment .....: III

Mass of equipment (kg).....: 2.8

Protection against ingress of water .....: IPX0

Test case verdicts

Test case does not apply to the test object ..: N/A

Test item does meet the requirement .....: P(ass)

Test item does not meet the requirement ....: F(ail)

Testing

Date of receipt of test item .....: Nov., 2008

Date(s) of performance of test .....: Nov.-Dec., 2008

General remarks

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

The test result presented in this report relate only to the object(s) tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

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

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

Comments:

For all models except for MS-163Axx:

Summary of compliance with National Differences (for explanation of codes see below):
EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CA, CH, CN, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, PL, SG, SI, SK, US

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

For National Differences see end of this test report.

For model MS-163Axx only:

Summary of compliance with National Differences (for explanation of codes see below):
EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CA, CH, CN, DE, DK, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, PL, SE, SG, SI, SK, US

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

For National Differences see end of this test report.

Factories:

1. MSI Computer (Shenzhen) Co., Ltd.
   Longma Information Technology Industrial Park, Tangtou Village, Shiyan Town, Baoan District, Shenzhen, Guangdong 518108, P.R. China
2. MSI ELECTRONICS (KUNSHAN) CO., LTD.
   88E QIANJIN Rd., Kunshan City, Jiangsu 215300, P.R. China
3. LG Electronics de Sao Paulo Ltda.
   Avenida Dom Pedro 1, W-7777 Distrito Ind. Piracangagua II Taubate, SP Brazil

Definition of variables:

Variable:	Range of variable:	Content:
x (for models MS-1034xxxxx, MS-1637xx, MS-163Cxx, MS-1636xx, MS-1613xxxxx, MS-163Axx, MS-163Nxxx,M660xxxxx, M662xxxxx, MS-1039xxxxx, M655xxxxx)	0-9, A-Z or blank	Marketing purpose, no technical differences
x (for model MS-163Gxxx, MS-163Pxxxx)	0-9, a-z, A-Z or blank	Marketing purpose, no technical differences

General product information:

The equipment is Notebook PC intended for general office use.

The external power adapters (SPS) which used in final system are CB scheme tested according to IEC 60950-1: 2001, see appended table 1.5.1 for detail information.

This equipment model MS-163Axx provide an TV card which intended to be connected to the cable distribution system and which has been evaluated according to clause 7 of IEC 60950-1:2005, CB countries should investigate this matter during national mark approval.

This report contains all national deviation as the class III equipment itself is subject of this CB report, but CB countries using for external power adapter should investigate while the equipment under test is submitted for national approval.

Model Differences:

Model MS-1034xxxxx is similar to model MS-1039xxxxx except for design of motherboard, maximum ambient temperature, input current rating, sources of power adaptor and model designation.

Models M662xxxxx and M660xxxxx are similar to model MS-1034xxxxx except for type of keyboard, camera and model designation.

Model M655xxxxx is identical to model MS-1039xxxxx except for model designation.

Models LGF1 and F1 (LG) are identical to model MS-1034xxxxx, except for model designation and trademark.

Models MS-1613-xxxxx (x=0-9, A-Z or blank) which is similar to model MS-1034xxxxx (x=0-9, A-Z or blank) except for the model designation.

Models MS-1637xx (x = 0-9, A-Z or blank), which is similar to previous model MS-1034xxxxx except model name, main board and TNV board, DC fan source, bottom openings.

Models MS-1636xx (x = 0-9, A-Z or blank), which is similar to previous model MS-1637xx except model name, main board, DC fan source, current rating as 4.74A

Models MS-163Nxxx (x = 0-9, A-Z or blank), which is similar to previous model MS-1636xx except model name, main board, input rating

Models MS-163Pxxxx (x = 0-9, a-z, A-Z or blank), which is similar to previous model MS-163Gxx except for model name, main board, CPU source, additional dummy card provided, TNV-board and PTC sources.

Models LGE50, E500, ED500 (LG), that are similar to previous models MS-1637xx except for trademark, model name, white color enclosure and 4.74A current rating only.

Models MS-163Cxx (x=0-9, A-Z or blank) which is similar to previous model MS-1637xx (x=0-9, A-Z or blank) except for model designation.

Model MS-163Axx is similar to previous model MS-1637xx except for mainboard, electric rating and model designation.

Model MS-163Gxxx is similar to previous model MS-1636xx except for mainboard and model designation.

Model	Mainboard	TNV board	Bottom enclosure
MS-1039xxxxx	Mainboard A	TNV board (a)	Bottom Enclosure (A)
M655xxxxx			
MS-1034xxxxx	Mainboard B		
LGF1, F1, MS-1613-xxxxx, M662xxxxx, M660xxxxx			
LGE50, E500, ED500	Mainboard C, F		Bottom Enclosure (B)
MS-163Gxxx	Mainboard F		
MS-163Axx	Mainboard E		
MS-163Pxxxx	Mainboard H	TNV board (c)	
MS-1637, MS-163Cxx	Mainboard C	TNV board (b)	
MS-1636	Mainboard D		
MS-163Nxxx	Mainboard G		

Model	DC Fan source
MS-1637xx, MS-163Cxx	Mfr. LG, type MFNC-C537F (4.5CFM) Mfr. LG, type MFNC-C537A (5.0CFM) Mfr. LG, type MFNC-C537D (3.6CFM) Mfr. Forcecon, type DFB450805M10T(5.01CFM) **Mfr. Forcecon, type DFS450805M10T (3CFM)** Mfr. Forcecon, type 451005M10T (5.1CFM) Mfr. Tranyoung, type 6010H05F PF3 (7.08CFM)
MS-1636xx, MS-163Nxxx	Mfr. LG, type MFNC-C537F (4.5CFM) Mfr. LG, type MFNC-C537A (5.0CFM) Mfr. Forcecon, type DFB450805M10T(5.01CFM) Mfr. Forcecon, type 451005M10T (5.1CFM) Mfr. Tranyoung, type 6010H05F PF3 (7.08CFM) **Mfr. Forcecon, type DFS450805M10T (3CFM)**
MS-163Axx, LGE50, E500, ED500	Mfr. Forcecon, type 451005M10T (5.1CFM) **Mfr. Forcecon, type DFS450805M10T (3CFM)** Mfr. Tranyoung, type 6010H05F PF3 (7.08CFM)
MS-163Gxxx, MS-163Pxxxx	**Mfr. Forcecon, type DFS451205M10T (4.5CFM)** Mfr. Forcecon, type 451005M10T (5.1CFM) Mfr. Tranyoung, type 6010H05F PF3 (7.08CFM)
MS-1034xxxxx, M660xxxxx, M662xxxxx, F1, MS-1613xxxxx, MS-1039xxxxx, M655xxxxx, LGF1	**Mfr. Forcecon, type 451005M10T (5.1CFM)** Mfr. Tranyoung, type 6010H05F PF3 (7.08CFM)

Other Remarks:

- The model MS-163Axx provides one TV tuner card that can be considered as multimedia equipment under the Guide 112 © IEC:2000. Therefore, the surge test, insulation resistance test and dielectric strength test were performed according to sub clause 10.1 and 10.3 of IEC 60065 as following test condition:

  - Surge test performed from AC mains of building-in switch power supply to antenna connector of tuner with 50 discharges at a maximum rate of 12 per minute, from a 1nF capacitor charged to 10kV.

  - After the test, the insulation resistance greater then 4 MΩ at 500Vdc and subjected to dielectric strength test at test voltage 4240 V d.c.

- Due to fulfilled the following considerations for the equipment, the separation requirements and test of 6.2 are not apply to cable distribution system.

  - The circuit of cable distribution system under consideration is TNV-1 circuit.

  - The common sides or earthed side of the circuit are connected to the screen of the coaxial cable through an antenna connector of tuner and to all accessible parts and circuits (SELV and accessible metal parts).

  - The screen of the coaxial cable is intended to be connected to earth in the building installation.

- **The similar approach for CB-Scheme testing according to IEC 60950-1:2001, covering German, USA and Canada. However, in compliance with this requirement for other CB countries verified during national mark approval.**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		**P**
1.5	Components		**P**
1.5.1	General	See below.	**P**
	Comply with IEC 60950 or relevant component standard	Components, which were found to affect safety aspects, comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards (see appended table 1.5.1).	**P**
1.5.2	Evaluation and testing of components	Components, which are certified to IEC and/or national standards, are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	**P**
1.5.3	Thermal controls	No thermal control.	**N/A**
1.5.4	Transformers	Transformers used are suitable for their intended application and comply with the relevant requirements of the standard.	**P**
1.5.5	Interconnecting cables	No interconnection cable.	**N/A**
1.5.6	Capacitors in primary circuits .....:	Equipment is not directly connected to the AC mains supply.	**N/A**
1.5.7	Double insulation or reinforced insulation bridged by components	No such components.	**N/A**
1.5.7.1	General		**N/A**
1.5.7.2	Bridging capacitors		**N/A**
1.5.7.3	Bridging resistors		**N/A**
1.5.7.4	Accessible parts		**N/A**
1.5.8	Components in equipment for IT power systems	Equipment is not directly connected to the AC mains supply.	**N/A**
1.6	Power interface		**P**
1.6.1	AC power distribution systems	Equipment is not directly connected to the AC mains supply.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.6.2	Input current	Highest load according to 1.2.2.1 for this equipment which its contains max. rating of the optional optical drives and HDD permanently access, brightness and contrast for LCD back light circuit and charged with empty battery pack. Dummy load of 2.5W in connection to represent the each USB load. The operator can connect additional options like a parallel printer or a serial device. See appended table 1.6.2. See summary of testing and appended table.	**P**
1.6.3	Voltage limit of hand-held equipment	This appliance is a not hand held equipment.	**N/A**
1.6.4	Neutral conductor	Equipment is not directly connected to the AC mains supply.	**N/A**

1.7	Marking and instructions		**P**
1.7.1	Power rating	Marking label is located on bottom of enclosure.	**P**
	Rated voltage(s) or voltage range(s) (V) .....:	See copy of marking plate. (no direct connection to mains supply)	**N/A**
	Symbol for nature of supply, for d.c. only .....:	D.C. symbol used.	**N/A**
	Rated frequency or rated frequency range (Hz) ..:	No direct connection to the AC mains supply.	**N/A**
	Rated current (mA or A) .....:	See copy of marking plate. (no direct connection to mains supply)	**N/A**
	Manufacturer's name or trademark or identification mark .....:	See copy of marking plate.	**P**
	Type/model or type reference.....:	See copy of marking plate.	**P**
	Symbol for Class II equipment only .....:	Class III equipment.	**N/A**
	Other symbols .....:	Additional symbols or markings do not give rise to misunderstanding.	**P**
	Certification marks .....:	See copy of the marking plate.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2	Safety instructions	The user's manual provided including: Operating temperature, adapter source and "CAUTION Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction."	**P**
1.7.3	Short duty cycles	Equipment designed for continuous operation.	**N/A**
1.7.4	Supply voltage adjustment .....:	No voltage / Frequency setting.	**N/A**
	Methods and means of adjustment; reference to installation instructions .....:	No outlet.	**N/A**
1.7.5	Power outlets on the equipment .....:	No outlet.	**N/A**
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Fuse not located in operator access areas, unambiguous fuse cross-reference provided.	**P**
1.7.7	Wiring terminals	See below.	**N/A**
1.7.7.1	Protective earthing and bonding terminals .....:	No direct connection to AC mains supply.	**N/A**
1.7.7.2	Terminal for a.c. mains supply conductors	No direct connection to the AC mains supply.	**N/A**
1.7.7.3	Terminals for d.c. mains supply conductors	No direct connection to the DC mains supply.	**N/A**
1.7.8	Controls and indicators	See below.	**P**
1.7.8.1	Identification, location and marking .....:	The marking of the stand-by switch or functional switch or indicators were located that indication of function clearly.	**P**
1.7.8.2	Colours .....:	No safety relevant control and indicator.	**N/A**
1.7.8.3	Symbols according to IEC 60417 .....:	Marking for stand-by type switch according IEC 60417, No. 5009 (line half inside circle) was marked on stand-by type switch button.	**P**
1.7.8.4	Markings using figures .....:		**N/A**
1.7.9	Isolation of multiple power sources .....:	No direct connection to AC mains supply.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.10	IT power distribution systems	No direct connection to AC mains supply.	**N/A**
1.7.11	Thermostats and other regulating devices	No such devices.	**N/A**
1.7.12	Language(s) .....:	Marking label and operation manual are in English. Versions in other languages will be provided when national certificate approval.	—
1.7.13	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was neither curling nor lifting of the label edge.	**P**
1.7.14	Removable parts	No required markings placed on removable parts.	**P**
1.7.15	Replaceable batteries	The Lithium type RTC battery and battery pack are exchangeable. The warning text provided in user's manual.	**P**
	Language(s).....:	English.	—
1.7.16	Operator access with a tool .....:	No user access area.	**N/A**
1.7.17	Equipment for restricted access locations .....:	Use of equipment not limited to restricted access locations.	**N/A**

2	PROTECTION FROM HAZARDS		**P**
2.1	Protection from electric shock and energy hazards		**P**
2.1.1	Protection in operator access areas	See below.	**P**
2.1.1.1	Access to energized parts	See below.	**P**
	Test by inspection .....:	The notebook PC is supplied from an approved SPS adaptor or battery pack that provides only SELV.	**P**
	Test with test finger .....:	No access with test finger to any parts with only basic insulation to TNV-3.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Test with test pin .....:	The test pin can not touch TNV-3 circuit through any seams within the appliance.	**P**
	Test with test probe .....:	The test probe cannot touch pins of connector of TNV-3 circuit through any seams within the appliance.	**P**
2.1.1.2	Battery compartments .....:	TNV circuits are not accessible when replacing battery pack.	**P**
2.1.1.3	Access to ELV wiring	The Lithium type RTC battery and battery pack are exchangeable. The warning text provided in user's manual.	**N/A**
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	**N/A**
2.1.1.5	Energy hazards .....:	No energy hazard in operator access area. The connectors on the backside of the equipment below 240VA.	**P**
2.1.1.6	Manual controls	No conductive shafts of operating knobs and handles.	**N/A**
2.1.1.7	Discharge of capacitors in equipment		**N/A**
	Time-constant (s); measured voltage (V) .....:		—
2.1.2	Protection in service access areas		**N/A**
2.1.3	Protection in restricted access locations	The unit not intended to be used in restricted locations.	**N/A**

2.2	SELV circuits *Supply from an approved SPS adapter was considered to carry SELV at below 240VA only. No higher voltages generated.*		**P**
2.2.1	General requirements	The secondary circuits were tested as SELV. See 2.2.1 to 2.2.4.	**P**
2.2.2	Voltages under normal conditions (V) .....:	42.4V peak or 60Vd.c. are not exceeded in SELV circuit under normal operation.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.2.3	Voltages under fault conditions (V).....:	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120Vd.c. were not exceeded within 0.2 s and limits 42.4V peak and 60Vd.c. were not exceeded for longer than 0.2 seconds.	**P**
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Class III equipment.	**N/A**
2.2.3.2	Separation by earthed screen (method 2)		**N/A**
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		**N/A**
2.2.4	Connection of SELV circuits to other circuits.....:	See 2.2.2, 2.2.3 and 2.4.3.	**P**
2.3	TNV circuits *The Cable distribution system consider to comply with TNV-1 circuit.*		**P**
2.3.1	Limits	The modem module is an approved component that generates only signals within the limits of SELV circuits. The telecommunication network is considered to be TNV-3 circuit.	**P**
	Type of TNV circuits .....:	Same above.	—
2.3.2	Separation from other circuits and from accessible parts	Supplementary insulation between TNV and SELV provided. Requirements of 6.2.2 are applicable.	**P**
	Insulation employed.....:	Same above.	—
2.3.3	Separation from hazardous voltages	Both TNV separated to primary by reinforced or double insulation by the certified power adapter. TNV circuit only connected to SELV circuit.	**N/A**
	Insulation employed.....:	Same above.	—
2.3.4	Connection of TNV circuits to other circuits	Both TNV separated to primary by reinforced or double insulation by the certified power adapter. TNV circuit only connected to SELV circuit.	**P**
	Insulation employed.....:	Same above.	—
2.3.5	Test for operating voltages generated externally	Supplementary insulation provided. No test for this clause.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.4	Limited current circuits		**P**
2.4.1	General requirements	Considered.	**P**
2.4.2	Limit values	See below.	**P**
	Frequency (Hz) .....:	(Refer to the appended table)	—
	Measured current (mA).....:	(Refer to the appended table)	—
	Measured voltage (V) .....:	1.34kV max.	—
	Measured capacitance (μF).....:	For Sample/YIVNMS0018D11-- and YIVNMS0020D11-- = 270pF For Mitac/DA-1A08-MS02L---, Mitac/DA-1A08-MS01L--- and DA-1A08-MS01 L= 100pF For Sample/YIVNMS0018D11-B = 150pF For Sample/YIVNMS0018D11-A and YIVNMS0020D11-A = 180pF For others Max. 68pF	—
2.4.3	Connection of limited current circuits to other circuits	Limited current circuits are supplied from SELV and meet 2.4.1 to 2.4.2 under normal and single fault condition.	**P**

2.5	Limited power sources *Test for output of USB ports.*		**P**
	Inherently limited output		**N/A**
	Impedance limited output	Results see appended table 2.5.	**P**
	Overcurrent protective device limited output		**N/A**
	Regulating network limited output under normal operating and single fault condition		**N/A**
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		**N/A**
	Output voltage (V), output current (A), apparent power (VA).....:	Results see appended table 2.5.	—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding *Class III equipment*		**N/A**
2.6.1	Protective earthing		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.2	Functional earthing		**N/A**
2.6.3	Protective earthing and protective bonding conductors		**N/A**
2.6.3.1	General		**N/A**
2.6.3.2	Size of protective earthing conductors		**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.3	Size of protective bonding conductors		**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A) .....:		**N/A**
2.6.3.5	Colour of insulation .....:		**N/A**
2.6.4	Terminals		**N/A**
2.6.4.1	General		**N/A**
2.6.4.2	Protective earthing and bonding terminals		**N/A**
	Rated current (A), type and nominal thread diameter (mm) .....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		**N/A**
2.6.5	Integrity of protective earthing		**N/A**
2.6.5.1	Interconnection of equipment		**N/A**
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		**N/A**
2.6.5.3	Disconnection of protective earth		**N/A**
2.6.5.4	Parts that can be removed by an operator		**N/A**
2.6.5.5	Parts removed during servicing		**N/A**
2.6.5.6	Corrosion resistance		**N/A**
2.6.5.7	Screws for protective bonding		**N/A**
2.6.5.8	Reliance on telecommunication network or cable distribution system		**N/A**

2.7	Overcurrent and earth fault protection in primary circuits *With SELV supply from approved AC adapter or battery pack, no primary circuits inside.*		**N/A**
2.7.1	Basic requirements		**N/A**
	Instructions when protection relies on building installation		**N/A**
2.7.2	Faults not covered in 5.3		**N/A**
2.7.3	Short-circuit backup protection		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.4	Number and location of protective devices .....:		**N/A**
2.7.5	Protection by several devices		**N/A**
2.7.6	Warning to service personnel .....:		**N/A**
2.8	Safety interlocks		**N/A**
2.8.1	General principles		**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**
2.9	Electrical insulation *The unit is supplied from an approved power supply or battery pack that provides SELV. Only SELV, limited current circuit and approved modem module with TNV inside the unit.*		**P**
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material is not used.	**P**
2.9.2	Humidity conditioning	120 hours	**P**
	Humidity (%) .....:	95% R.H.	—
	Temperature (°C) .....:	40°C	—
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	**P**
2.10	Clearances, creepage distances and distances through insulation *The unit is supplied from an approved power supply or battery pack that provides SELV. Only SELV, limited current circuit and approved modem module with TNV inside the unit.*		**P**
2.10.1	General	See 2.10.3, 2.10.4 and 2.10.5.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.2	Determination of working voltage	Working voltage is considered to be within the TNV-3 parameters with U_{dc}≤120V, U_{ac}≤70.7Vpk. Therefore the following values have been used for tables 2K and 2L: U_{dc}≤125V used in table 2L, U_{dc}≤140V used in table 2K.	**P**
2.10.3	Clearances	See below and advantage of annex G is not considered.	**P**
2.10.3.1	General	See below.	**P**
2.10.3.2	Clearances in primary circuits	No primary circuit.	**N/A**
2.10.3.3	Clearances in secondary circuits	Considered.	**P**
2.10.3.4	Measurement of transient voltage levels	No transient voltage across the clearance lower than due or normal.	**N/A**
2.10.4	Creepage distances	See appended table 2.10.3 and 2.10.4.	**P**
	CTI tests .....:	CTI rating for all materials of min. 100.	—
2.10.5	Solid insulation	See below.	**P**
2.10.5.1	Minimum distance through insulation	See appended table 2.10.5.	**P**
2.10.5.2	Thin sheet material	The modem card was covered completely by mylar sheet.	**P**
	Number of layers (pcs) .....:	2 layers	—
	Electric strength test	1500Va.c. at each layer	—
2.10.5.3	Printed boards		**N/A**
	Distance through insulation		**N/A**
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs) .....:		**N/A**
2.10.5.4	Wound components		**N/A**
	Number of layers (pcs) .....:		**N/A**
	Two wires in contact inside wound component; angle between 45° and 90° .....:		**N/A**
2.10.6	Coated printed boards		**N/A**
2.10.6.1	General		**N/A**
2.10.6.2	Sample preparation and preliminary inspection		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.6.3	Thermal cycling		**N/A**
2.10.6.4	Thermal ageing (°C) .....:		**N/A**
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		**N/A**
	Electric strength test		—
2.10.7	Enclosed and sealed parts .....:		**N/A**
	Temperature T1=T2 + Tma – Tamb +10K (°C)....:		**N/A**
2.10.8	Spacings filled by insulating compound.....:		**N/A**
	Electric strength test		—
2.10.9	Component external terminations		**N/A**
2.10.10	Insulation with varying dimensions		**N/A**
3	WIRING, CONNECTIONS AND SUPPLY		**P**
3.1	General		**P**
3.1.1	Current rating and overcurrent protection	All internal wires are UL recognized wiring which is PVC insulated, rated VW-1, min. 80°C. Internal wiring gauge is suitable for current intended to be carried	**P**
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges and heatsinks which could damage the insulation and cause hazard.	**P**
3.1.3	Securing of internal wiring	The wires are secured by soldering and quick connector so that a loosening of the terminal connection is unlikely.	**P**
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see 3.1.1.	**P**
3.1.5	Beads and ceramic insulators	Not used.	**N/A**
3.1.6	Screws for electrical contact pressure	No such screws.	**N/A**
3.1.7	Insulating materials in electrical connections		**N/A**
3.1.8	Self-tapping and spaced thread screws	No self- tapping or spaced thread screws used.	**N/A**
3.1.9	Termination of conductors	All conductors are reliably secured.	**P**
	10 N pull test	Applied and passed.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.1.10	Sleeving on wiring	Heatshrinkable tube used as supplementary insulation on wiring to RJ-11 connector.	**P**
3.2	Connection to an a.c. mains supply or a d.c. mains supply *No direct connection to the AC or DC mains supply.*		**N/A**
3.2.1	Means of connection .....:		**N/A**
3.2.1.1	Connection to an a.c. mains supply		**N/A**
3.2.1.2	Connection to a d.c. mains supply		**N/A**
3.2.2	Multiple supply connections		**N/A**
3.2.3	Permanently connected equipment		**N/A**
	Number of conductors, diameter (mm) of cable and conduits .....:		—
3.2.4	Appliance inlets		**N/A**
3.2.5	Power supply cords		**N/A**
3.2.5.1	AC power supply cords		**N/A**
	Type.....:		—
	Rated current (A), cross-sectional area (mm^2), AWG.....:		—
3.2.5.2	DC power supply cords		**N/A**
3.2.6	Cord anchorages and strain relief		**N/A**
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage		**N/A**
3.2.8	Cord guards		**N/A**
	D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm).....:		—
3.2.9	Supply wiring space		**N/A**
3.3	Wiring terminals for connection of external conductors *Class III equipment.*		**N/A**
3.3.1	Wiring terminals		**N/A**
3.3.2	Connection of non-detachable power supply cords		**N/A**
3.3.3	Screw terminals		**N/A**
3.3.4	Conductor sizes to be connected		**N/A**
	Rated current (A), cord/cable type, cross-sectional area (mm^2).....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.3.5	Wiring terminal sizes		**N/A**
	Rated current (A), type and nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminals design		**N/A**
3.3.7	Grouping of wiring terminals		**N/A**
3.3.8	Stranded wire		**N/A**
3.4	Disconnection from the mains supply *No direct connection to the AC or DC mains supply.*		**N/A**
3.4.1	General requirement		**N/A**
3.4.2	Disconnect devices		**N/A**
3.4.3	Permanently connected equipment		**N/A**
3.4.4	Parts which remain energized		**N/A**
3.4.5	Switches in flexible cords		**N/A**
3.4.6	Single-phase equipment and d.c. equipment		**N/A**
3.4.7	Three-phase equipment		**N/A**
3.4.8	Switches as disconnect devices		**N/A**
3.4.9	Plugs as disconnect devices		**N/A**
3.4.10	Interconnected equipment		**N/A**
3.4.11	Multiple power sources		**N/A**
3.5	Interconnection of equipment		**P**
3.5.1	General requirements	See below.	**P**
3.5.2	Types of interconnection circuits .....:	Interconnection circuits of SELV, LCC and TNV through the connectors.	**P**
3.5.3	ELV circuits as interconnection circuits		**N/A**
4	PHYSICAL REQUIREMENTS		**P**
4.1	Stability		**P**
	Angle of 10°	This appliance is of a stable mechanical construction and does not overbalance when tilted to an angle of 10° from its normal upright position with and without LCD screen open conditions.	**P**
	Test: force (N).....:	Equipment is not a floorstanding unit.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.2	Mechanical strength		**P**
4.2.1	General	See below. After tests, unit comply with 2.1.1, 2.10 and 4.4.1.	**P**
4.2.2	Steady force test, 10 N	10N applied to components other than parts serving as an enclosure.	**P**
4.2.3	Steady force test, 30 N	30N applied to internal enclosure when removed battery pack. No energy or other hazards.	**P**
4.2.4	Steady force test, 250 N	250N applied to outer enclosure of notebook PC and battery pack. No energy or other hazards.	**P**
4.2.5	Impact test	Transportable equipment.	**N/A**
	Fall test	Transportable equipment.	**N/A**
	Swing test	Transportable equipment.	**N/A**
4.2.6	Drop test	After the test, no hazards.	**P**
4.2.7	Stress relief test	After 7hrs for Notebook PC and battery pack enclosure at 79°C cooling down to room temperature, no shrinkage, distortion or loosing of enclosure of battery pack and notebook PC was noticeable on this equipment.	**P**
4.2.8	Cathode ray tubes	No CRT.	**N/A**
	Picture tube separately certified .....:		**N/A**
4.2.9	High pressure lamps	No high pressure lamp.	**N/A**
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		**N/A**
4.3	Design and construction		**P**
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	**P**
4.3.2	Handles and manual controls; force (N).....:		**N/A**
4.3.3	Adjustable controls		**N/A**
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection solder pins are used.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.5	Connection of plugs and sockets	Mismatch of connectors were prevented by incompatible form or location.	**P**
4.3.6	Direct plug-in equipment	Not direct plug-in type.	**N/A**
	Dimensions (mm) of mains plug for direct plug-in :	Not direct plug-in type.	**N/A**
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) .....:	Not direct plug-in type.	**N/A**
4.3.7	Heating elements in earthed equipment		**N/A**
4.3.8	Batteries	Battery packs are approved components and used within their specified rating and no reverse polarity installation could happen due to design of pack. For non-rechargable lithium type RTC battery: • There is no reverse polarity installation possible due to design of socket. • The battery is protected from reverse charging by diode and resistor. Results see appended table 5.3.	**P**
4.3.9	Oil and grease	No oil or grease.	**N/A**
4.3.10	Dust, powders, liquids and gases	The equipment is intended use not considered to be exposed to dust, powers, liquids and gases.	**N/A**
4.3.11	Containers for liquids or gases	No container for liquid or gas.	**N/A**
4.3.12	Flammable liquids.....:	No flammable liquid.	**N/A**
	Quantity of liquid (l).....:		**N/A**
	Flash point (°C).....:		**N/A**
4.3.13	Radiation; type of radiation .....:	See below.	**P**
4.3.13.1	General	See below.	**P**
4.3.13.2	Ionizing radiation	No ionizing radiation.	**N/A**
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiation.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Part, property, retention after test, flammability classification .....:		**N/A**
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:		**N/A**
4.3.13.5	Laser (including LEDs)	LED power is far below LED Class 1 limit. All optional optical drives were evaluated according to relevant standard for laser product. Therefore, complied with this clause without further test. Class 1 laser symbol appeared on all optional optical drives and in user's manual.	**P**
	Laser class .....:	Laser Class 1 for all optional optical drives.	—
4.3.13.6	Other types .....:	No other types radiation.	**N/A**
4.4	Protection against hazardous moving parts		**P**
4.4.1	General	DC fan is protected by enclosure. Other motors are used in the certified HDD and all optional optical drives.	**P**
4.4.2	Protection in operator access areas	No hazardous moving parts within operator access areas.	**P**
4.4.3	Protection in restricted access locations	Not limited for restricted access locations.	**N/A**
4.4.4	Protection in service access areas		**N/A**
4.5	Thermal requirements		**P**
4.5.1	Maximum temperatures	See appended table 4.5.1.	**P**
	Normal load condition per Annex L.....:	See 1.6.2.	**P**
4.5.2	Resistance to abnormal heat		**N/A**
4.6	Openings in enclosures		**P**
4.6.1	Top and side openings	Transportable equipment.	**N/A**
	Dimensions (mm) .....:	Same as above.	—
4.6.2	Bottoms of fire enclosures	Same as above.	**N/A**
	Construction of the bottom .....:	Same as above.	—
4.6.3	Doors or covers in fire enclosures	No doors or covers which leading to an operator access area.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.6.4	Openings in transportable equipment	See appended table 4.6.1 and 4.6.2.	**P**
4.6.5	Adhesives for constructional purposes	No barrier secured by adhesive inside enclosure.	**N/A**
	Conditioning temperature (°C)/time (weeks) .....:	No barrier secured by adhesive inside encloure	—
4.7	Resistance to fire		**P**
4.7.1	Reducing the risk of ignition and spread of flame	See below.	**P**
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	**P**
	Method 2, application of all of simulated fault condition tests		**N/A**
4.7.2	Conditions for a fire enclosure	See below.	**P**
4.7.2.1	Parts requiring a fire enclosure	With having the following parts: • Components in secondary (not supplied by LPS) • Insulated wiring The fire enclosure is required.	**P**
4.7.2.2	Parts not requiring a fire enclosure	See clasue 4.7.2.1.	**N/A**
4.7.3	Materials		**P**
4.7.3.1	General	See appended table 1.5.1 for PCB material.	**P**
4.7.3.2	Materials for fire enclosures	See appended table 1.5.1 for enclosure material.	**P**
4.7.3.3	Materials for components and other parts outside fire enclosures		**N/A**
4.7.3.4	Materials for components and other parts inside fire enclosures	Internal components except small parts are V-2, HF-2 or better.	**P**
4.7.3.5	Materials for air filter assemblies	No air filter assemblies.	**N/A**
4.7.3.6	Materials used in high-voltage components	No high voltage component.	**N/A**
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		**P**
5.1	Touch current and protective conductor current		**P**
5.1.1	General	See below.	**P**
5.1.2	Equipment under test (EUT)		**N/A**
5.1.3	Test circuit	Using figure 5A.	**P**
5.1.4	Application of measuring instrument		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.1.5	Test procedure	Approved adapter used.	**N/A**
5.1.6	Test measurements	Approved adapter used.	**N/A**
	Test voltage (V) .....:	See 5.1.8.1.	—
	Measured touch current (mA) .....:	See 5.1.8.1.	—
	Max. allowed touch current (mA) .....:	See 5.1.8.1.	—
	Measured protective conductor current (mA) .....:		—
	Max. allowed protective conductor current (mA) .:		—
5.1.7	Equipment with touch current exceeding 3.5 mA :		**N/A**
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	See below.	**P**
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system	See below	**P**
	Test voltage (V) .....:	264V for adapter 19V for notebook PC	—
	Measured touch current (mA) .....:	See appended table.	—
	Max. allowed touch current (mA) .....:	0.25	—
5.1.8.2	Summation of touch currents from telecommunication networks .....:		**N/A**

5.2	Electric strength *Class III equipment.*		**N/A**
5.2.1	General		**N/A**
5.2.2	Test procedure		**N/A**

5.3	Abnormal operating and fault conditions		**P**
5.3.1	Protection against overload and abnormal operation	See below.	**P**
5.3.2	Motors	Certified DC fans used, see table 1.5.1 for detail. Other motors are used in the appliances that are certified HDD and all optional optical drives, see appended table 1.5.1.	**P**
5.3.3	Transformers	No safety isolation transformer.	**N/A**
5.3.4	Functional insulation .....:	Method c). Results see appended table 5.3.	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.3.5	Electromechanical components	No electromechanical component.	**N/A**
5.3.6	Simulation of faults	See appended table.	**P**
5.3.7	Unattended equipment	None of the listed components was provided.	**N/A**
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire occurred. No molten metal was emitted.	**P**
6	CONNECTION TO TELECOMMUNICATION NETWORKS		**P**
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		**P**
6.1.1	Protection from hazardous voltages		**P**
6.1.2	Separation of the telecommunication network from earth		**N/A**
6.1.2.1	Requirements	Supplementary insulation provided between TNV-3 circuit and SELV circuit.	**N/A**
	Test voltage (V) .....:	Results see appended table 6.2.2.2.	—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions.....:		**N/A**
6.2	Protection of equipment users from overvoltages on telecommunication networks		**P**
6.2.1	Separation requirements	Adequate electrical separation between TNV-3 to - Keyboard or external enclosure - User accessible connectors - SELV circuits	**P**
6.2.2	Electric strength test procedure	See appended table.	**P**
6.2.2.1	Impulse test		**P**
6.2.2.2	Steady-state test		**P**
6.2.2.3	Compliance criteria	Complied.	**P**
6.3	Protection of the telecommunication wiring system from overheating		**N/A**
	Max. output current (A).....:		—
	Current limiting method .....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	Circuits in the equipment intended to be directly connect to a cable distribution system which consider to comply with requirements for TNV-1 circuit	**P**
7.2	Protection of equipment users from overvoltages on the cable distribution system	See the page 15, 17	**P**
7.3	Insulation between primary circuits and cable distribution systems	See below.	**P**
7.3.1	General	See below	**P**
7.3.2	Voltage surge test	Test applied between the AC mains and the antenna connection points of TV card (without earthed connection). After the test, the insulation in comply with the electric strength test requirement of 5.2.2.	**P**
7.3.3	Impulse test	4 kV of test voltage applied between the AC mains and the antenna connection points of TV card (without earthed connection). After the test, the insulation in comply with the electric strength test requirement of 5.2.2.	**P**

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		**P**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		**N/A**
A.1.1	Samples.....:		—
	Wall thickness (mm).....:		—
A.1.2	Conditioning of samples; temperature (°C) .....:		**N/A**
A.1.3	Mounting of samples .....:		**N/A**
A.1.4	Test flame (see IEC 60695-11-3)		**N/A**
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		**N/A**
A.1.6	Compliance criteria		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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)		**P**
A.2.1	Samples, material.....:		—
	Wall thickness (mm).....:		—
A.2.2	Conditioning of samples		**N/A**
A.2.3	Mounting of samples .....:		**N/A**
A.2.4	Test flame (see IEC 60695-11-4)		**N/A**
	Flame A, B or C .....:		—
A.2.5	Test procedure		**N/A**
A.2.6	Compliance criteria		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4 and 8		**N/A**
	Sample 1 burning time (s) .....:		—
	Sample 2 burning time (s) .....:		—
	Sample 3 burning time (s) .....:		—
A.3	Hot flaming oil test (see 4.6.2)		**N/A**
A.3.1	Mounting of samples		**N/A**
A.3.2	Test procedure		**N/A**
A.3.3	Compliance criterion		**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	Approved DC Fan, all optional optical drives and HDD used.	**N/A**
	Position .....:		**—**
	Manufacturer .....:		**—**
	Type .....:		—
	Rated values .....:		—
B.2	Test conditions		**N/A**
B.3	Maximum temperatures		**N/A**
B.4	Running overload test		**N/A**
B.5	Locked-rotor overload test		**N/A**
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
B.6	Running overload test for d.c. motors in secondary circuits		**N/A**
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		**N/A**
B.7.1	Test procedure		**N/A**
B.7.2	Alternative test procedure; test time (h).....:		**N/A**
B.7.3	Electric strength test		**N/A**
B.8	Test for motors with capacitors		**N/A**
B.9	Test for three-phase motors		**N/A**
B.10	Test for series motors		**N/A**
	Operating voltage (V) .....:		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		**N/A**
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
	Method of protection.....:		—
C.1	Overload test		**N/A**
C.2	Insulation		**N/A**
	Protection from displacement of windings.....:		**N/A**
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		**P**
D.1	Measuring instrument	Complied.	**P**
D.2	Alternative measuring instrument		**N/A**
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		**N/A**
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		**P**
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		**N/A**
G.1	Summary of the procedure for determining minimum clearances		**N/A**
G.2	Determination of mains transient voltage (V) .....:		**N/A**
G.2.1	AC mains supply		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.2.2	DC mains supply		**N/A**
G.3	Determination of telecommunication network transient voltage (V).....:		**N/A**
G.4	Determination of required withstand voltage (V)...:		**N/A**
G.5	Measurement of transient levels (V).....:		**N/A**
G.6	Determination of minimum clearances.....:		**N/A**
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		**N/A**
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		**N/A**
	Metal used .....:		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		**N/A**
K.1	Making and breaking capacity		**N/A**
K.2	Thermostat reliability; operating voltage (V) .....:		**N/A**
K.3	Thermostat endurance test; operating voltage (V) .....:		**N/A**
K.4	Temperature limiter endurance; operating voltage (V) .....:		**N/A**
K.5	Thermal cut-out reliability		**N/A**
K.6	Stability of operation		**N/A**
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		**P**
L.1	Typewriters		**N/A**
L.2	Adding machines and cash registers		**N/A**
L.3	Erasers		**N/A**
L.4	Pencil sharpeners		**N/A**
L.5	Duplicators and copy machines		**N/A**
L.6	Motor-operated files		**N/A**
L.7	Other business equipment	See 1.6.2.	**P**
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		**N/A**
M.1	Introduction		**N/A**
M.2	Method A		**N/A**
M.3	Method B		**N/A**
M.3.1	Ringing signal		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA).....:		—
M.3.2	Tripping device and monitoring voltage.....:		**N/A**
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		**N/A**
M.3.2.2	Tripping device		**N/A**
M.3.2.3	Monitoring voltage (V).....:		**N/A**
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		**P**
N.1	ITU-T impulse test generators		**P**
N.2	IEC 60065 impulse test generator		**N/A**
P	ANNEX P, NORMATIVE REFERENCES		**P**
Q	ANNEX Q, BIBLIOGRAPHY		**P**
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)		**N/A**
R.2	Reduced clearances (see 2.10.3)		**N/A**
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		**N/A**
S.1	Test equipment		**N/A**
S.2	Test procedure		**N/A**
S.3	Examples of waveforms during impulse testing		**N/A**
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		**N/A**
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		**N/A**
			—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		**N/A**
V.1	Introduction		**N/A**
V.2	TN power distribution systems		**N/A**
V.3	TT power systems		**N/A**
V.4	IT power systems		**N/A**
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		**N/A**
W.1	Touch current from electronic circuits		**N/A**
W.1.2	Earthed circuits		**N/A**
W.2	Interconnection of several equipments		**N/A**
W.2.1	Isolation		**N/A**
W.2.2	Common return, isolated from earth		**N/A**
W.2.3	Common return, connected to protective earth		**N/A**
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		**N/A**
X.1	Determination of maximum input current		**N/A**
X.2	Overload test procedure		**N/A**
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		**N/A**
Y.1	Test apparatus .....:		**N/A**
Y.2	Mounting of test samples .....:		**N/A**
Y.3	Carbon-arc light-exposure apparatus .....:		**N/A**
Y.4	Xenon-arc light exposure apparatus .....:		**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
CENELEC COMMON MODIFICATIONS [C], SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A] (EN 60950-1:2001, Annex ZB and Annex ZC)			**P**
General	C: Delete all the "country" notes in the reference document according to the following list: 1.1.5 Note 2 1.5.8 Note 2 1.6.1 Note 1.7.2 Note 4 1.7.12 Note 2 2.6 Note 2.2.3 Note 2.2.4 Note 2.3.2 Note 2, 7, 8 2.3.3 Note 1, 2 2.3.4 Note 2,3 2.7.1 Note 2.10.3.1 Note 4 3.2.1.1 Note 3.2.3 Note 1, 2 3.2.5.1 Note 2 4.3.6 Note 1,2 4.7.2.2 Note 4.7.3.1 Note 2 6.1.2.1 Note 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7 Note 4 7.1 Note G2.1 Note 1, 2 Annex H Note 2	Deleted.	**P**
1.2.4.1	S (DK): 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.	No direct connection to the AC mains supply.	**N/A**
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No such switch.	**N/A**
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Class III equipment.	**N/A**
1.7.2	S (FI, NO, SE): CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:	Class III equipment. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
	FI: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	Class III equipment. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
	NO: "Apparatet må tilkoples jordet stikkontakt"	Class III equipment. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
	SE: "Apparaten skall anslutas till jordat uttag"	Class III equipment. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende instalationsvejledning."	Class III equipment.	**N/A**
1.7.5	S (DK): 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.	Class III equipment, no socket-outlet.	**N/A**
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	Class III equipment.	**N/A**
1.7.12	A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheits-gesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Not such equipment	**N/A**
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.	Battery Pack in compliance with requirements of IEC 60950-1. Overall compliance needs to be evaluated during the national approval process.	**N/A**
	A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an	This national difference was deleted by A11 of EN60950-1.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if 1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if 1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	See IEC 60950-1 report. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**P**
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	See IEC 60950-1 report. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	See IEC 60950-1 report. (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**P**
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.	Class III equipment.	**N/A**
2.7.1	C: Replace the subclause as follows: *Basic requirements* To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.	Replaced.	**N/A**
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.	Not direct plug-in equipment.	**N/A**
2.7.2	C: Void.	Void.	**N/A**
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".	Replaced.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault	No direct connection to the AC mains supply (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
3.2.1.1	S (CH): 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	No power supply cord provided.	**N/A**
	S (DK): 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. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If ply-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.	No power supply cord provided.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.	No power supply cord provided.	**N/A**
	S (GB): 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 Socket 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.	No power supply cord provided.	**N/A**
	S (IE): 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.	No power supply cord provided.	**N/A**
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Deleted.	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.5.1	C: Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 0,75[1)] Over 6 up to and including 10 (0,75)[2)] 1,0 Over 10 up to and including 16 (1,0)[3)] 1,5 In the Conditions applicable to Table 3B delete the words "in some countries" in condition [1)]. In Note 1, applicable to Table 3B, delete the second sentence.	Replaced.	**N/A**
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No power cord provided.	**N/A**
3.3.4	C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 1,5 to 2,5 1,5 to 4" Delete the fifth line: conductor sizes for 13 to 16 A.	Deleted.	**N/A**
3.3.4	S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: - 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.	No power supply cord provided.	**N/A**
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.	Not direct plug-in equipment.	**N/A**
	S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not direct plug-in equipment.	**N/A**
4.3.13.6	C: Add the following note: NOTE 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 are currently under development.	Added.	**N/A**
6.1.2.1	S (FI, NO, SE): Add the following text between the first and second paragraph:	Considered(for all models except for MS-163Axx)	**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINGE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.	Not applied for. (for model: MS-163Axx only)	
6.1.2.2	S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.	Not such equipment (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	Not connected to cable distribution system (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.	Not such equipment (for all models except for MS-163Axx) Not applied for. (for model: MS-163Axx only)	**N/A**
Annex H	C: Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete Note 2.	No CRT.	**N/A**
Annex P	C: Replace the text of this annex by: See annex ZA.	Replaced.	**P**
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		**P**

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Annex ZA	C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.		**P**

—	IEC 60050-151
—	IEC 60050-195
EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998
EN 60073:1996	IEC 60073:1996
HD 566 S1:1990	IEC 60085:1984
HD 214 S2:1980	IEC 60112:1979
HD 611.4.1.S1:1992	IEC 60216-4-1:1990
HD 21 [1)] Series	IEC 60227 (mod) Series
HD 22 [2)] Series	IEC 60245 (mod) Series
EN 60309 Series	IEC 60309 Series
EN 60317-43:1997	IEC 60317-43:1997
EN 60320 Series	IEC 60320 (mod) Series
HD 384.3 S2:1995	IEC 60364-3 (mod):1993
HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 [3)]
EN 132400:1994 [4)] + A2:1998 + A3:1998 + A4:2001	IEC 60384-14:1993
EN 60417-1	IEC 60417-1
HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992
EN 60695-2-2:1994	IEC 60695-2-2:1991
EN 60695-2-11:2001	IEC 60695-2-11:2000
—	IEC 60695-2-20:1995
—	IEC 60695-10-2:1995
—	IEC 60695-11-3:2000
—	IEC 60695-11-4:2000
EN 60695-11-10:1999	IEC 60695-11-10:1999
EN 60695-11-20:1999	IEC 60695-11-20:1999
EN 60730-1:2000	IEC 60730-1:1999 (mod)
EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993
EN 60825-2:2000	IEC 60825-2:2000
—	IEC 60825-9:1999
EN 60851-3:1996	IEC 60851-3:1996
EN 60851-5:1996	IEC 60825-5:1996
EN 60851-6:1996	IEC 60851-6:1996
—	IEC 60885-1:1987
EN 60990:1999	IEC 60990:1999
—	IEC 61058-1:2000
EN 61965:2001	IEC 61965:2000
EN ISO 178:1996	ISO 178:1993
EN ISO 179 Series	ISO 179 Series
EN ISO 180:2000	ISO 180:1993
—	ISO 261:1998
—	ISO 262:1998

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	EN ISO 527 Series — EN ISO 4892 Series — EN ISO 8256:1996 — EN ISO 9773:1998 — —	ISO 527 Series ISO 386:1984 ISO 4892 Series ISO 7000:1989 ISO 8256:1990 ISO 9772:1994 ISO 9773:1998 ITU-T:1988 Recommendation K.17 ITU-T:2000 Recommendation K.21	
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		

1.5.1	TABLE: list of critical components				P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity [1.]
Plastic Enclosure	Sabic	C7230	Min. V-1, 60°C, 1.0mm thickness	UL 94	UL
	Sabic	C7230P	Min. V-0, 85°C, 1.2mm thickness	UL 94	UL
Power Adapter (for all models except for MS-163Axx)	Li Shin	LSE0202D1990	I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 19Vdc, 4.74A, Class II, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB
	Li Shin	LSE0202C1990	I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 19Vdc, 4.74A, Class I, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB
	LITEON	PA-1900-04	I/P: 100-240Vac,50-60Hz, 1.5A O/P: 19Vdc, 4.74A, Class I, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB
	EPS	F10903-A	I/P: 1.2A, 100-240Vac, 50-60Hz, O/P: 19Vdc, 4.75A, Cl. I, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB (by TÜV /SÜD)
	EDAC	EA10953	I/P: 2.5A, 100-240Vac, 50-60Hz, O/P: 18-24Vdc, 4.75A, Cl. I, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB (by ITS)
	FSP	FSP090-1ADC21XX (X can be 0-9, A-Z or blank for marketing purpose)	I/P: 1.6A, 100-240Vac, 50-60Hz, O/P: 19Vdc, 4.74A, Cl. II, 25°C	IEC 60950-1:2001, EN 60950-1: 2001	TÜV, UL, CB (by NEMKO)
(for models with 3.42A input current rating)	Li Shin	0335A1965	I/P: 100-240Vac, 50-60Hz, 1.7A O/P: 19Vdc, 3.42A, Class I, 40°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB
	Lite-On (Gateway)	PA-1650-02XX (X=0-9, A-Z or blank for marketing purpose only)	I/P: 100-240Vac, 50-60Hz, 1.6A O/P: 19Vdc, 3.42A, Class I, 35°C	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL, CB
	FSP	FSP065-AAC	I/P: 100-240Vac,	IEC 60950-1:	TÜV, UL, CB

			50-60Hz, 1.5A O/P: 19Vdc, 3.42A, Class II, 40°C	2001, EN 60950-1: 2001	
	Delta Electronics Inc.	ADP-65HB BB or ADP-65HB B	I/P: 100-240Vac, 50-60Hz, 1.5A; O/P: 19Vdc, 3.42A, 40°C, Class I	IEC 60950-1: 2001, EN 60950-1: 2001+A11	TÜV
(for models with 3.42A or 4.74A input current rating)	Delta Electronics Inc.	ADP-90SB BB	I/P: 100-240Vac, 50-60Hz, 1.5A; O/P: 19Vdc, 4.74A, 40°C, Class I	IEC 60950-1: 2001, EN 60950-1: 2001+A11	TÜV, CB
Only for model MS-163Axx	Delta Electronics Inc.	ADP-120ZB BB	I/P: 100-240Vac, 50-60Hz, 2.0A; O/P: 19Vdc, 6.32A, 40°C, Class I	IEC 60950-1: 2001, EN 60950-1: 2001+A11	TÜV, CB
Only for model MS-163Axx	Lite-On Technology Corporation	PA-1121-04	I/P: 100-240Vac, 50-60Hz, 2.0A; O/P: 19Vdc, 6.3A, 40°C, Class I	IEC 60950-1: 2001, EN 60950-1: 2001+A11	TÜV, CB (by Nemko)
LCD panel	LG	LP154W01	15.4", TFT type	--	--
	LG	LP154WX4-TLC1	15.4" TFT type.	--	--
	LG	LP154WX4-TLC3	15.4" TFT type.	--	--
	LG	LP154WE2	15.4" TFT type.	--	--
	Samsung	LTN154X3-L01	15.4", TFT type	--	--
	Samsung	LTN154X3-L01-G	15.4", TFT type	--	--
	Samsung	LTN154X3-L01-K	15.4", TFT type	--	--
	Samsung	LTN154X3-L01-H	15.4", TFT type	--	--
	Samsung	LTN154P1-L02	15.4", TFT type	--	--
	Samsung	LTN154X7-L03	15.4", TFT type	--	--
	Samsung	LTN154AT01-001	15.4", TFT type	--	--
	Samsung	LTN154AT01-A03	15.4", TFT type	--	--
	Sharp	LQ154K1LBxx	15.4", TFT type	--	--
	AUO	B154EW01 V1	15.4" TFT type.	--	--
	AUO	B154EW01 V7	15.4", TFT type	--	--
	AUO	B154EW01 V9	15.4", TFT type	--	--
	AUO	B154EW02	15.4", TFT type	--	--
	AUO	B154EW02 V1	15.4", TFT type	--	--
	AUO	B154EW08 V1	15.4", TFT type	--	--

	Quanta	QD15AL0201	15.4“, TFT type	--	--
	Quanta	QD15TL0206	15.4“, TFT type	--	--
	Chi Mei	N154I2-L02	15.4” TFT type	--	--
	Chi Mei	N154I2-L05	15.4” TFT type.	--	--
	Chi Mei	N154I3-L03	15.4” TFT type.	--	--
	CMO	N154I1-L0B	15.4“, TFT type	--	--
	CPT	CLAA154WA05	15.4“, TFT type	--	--
	QDI	QD15TL02	15.4“, TFT type	--	--
Hard Disk Drive (HDD) (optional)	Seagate or equivalent	ST9 (will be followed by suffixes indicated storage capacity) or equivalent	5Vdc, 1.2A max.	IEC/EN 60950-1:2001	TÜV, UL
	Fujitsu Ltd. or equivalent	MHV2xxxAz (x= 0-9, z=A, H, J, K or S) or equivalent	5Vdc, 0.6A max.	IEC/EN 60950-1: 2001	TÜV, UL
	Fujitsu Ltd. or equivalent	MHW2xxxBy (x=0-9, y=A, H, J, K or S) or equivalent	5Vdc, 0.6A.	IEC/EN 60950-1:2001	TÜV
	Fujitsu Ltd. or equivalent	MHY2xxxBy (x= 0-9, y = A, H or S) or equivalent	5Vdc, 0.6A.	IEC/EN 60950-1:2001	TÜV
	Fujitsu Ltd. or equivalent	MHZ2xxxBy (x= 0-9, A-Z or blank, y = A, H or S) or equivalent	5Vdc, 1.5A max.	IEC/EN 60950-1: 2001+A11	TÜV, UL
	Hitachi Global Storage Technologies Japan, Ltd. or equivalent	HTS5410nnxG 9SA00 (n= 0-9, x=0-9 or A-Z) or equivalent	5Vdc, 1A max.	IEC/EN 60950-1:2001	TÜV, UL
	Hitachi Global Storage Technologies Japan, Ltd.	HTS7210nnG9SA 00 (n=0-9)	5Vdc, 1.1A	IEC/EN 60950-1:2001	TÜV
	Hitachi Global Storage Technologies Japan, Ltd. or equivalent	HTS5425nnK9A3 n n (n = 0-9) or equivalent	5Vdc, 700mA.	IEC/EN 60950-1:2001	TÜV
	Hitachi Global Storage Technologies Japan, Ltd. or equivalent	HTS5416nnJ9SA n n (n = 0-9) or equivalent	5Vdc, 700mA.	IEC/EN 60950-1:2001	TÜV

	Toshiba Corp. or equivalent	HDD2yyyx (x=A-Z, y=0-9 or A-Z) or equivalent	5Vdc, 1.1A max. or 5/3.3Vdc, 0.7/0.5A max.	IEC/EN 60950-1:2001	TÜV
	Western Digital Technologie, Inc. or equivalent	WD800BEVS or equivalent	5/12Vdc, 1.0/0.95A max.	IEC/EN 60950-1:2001	TÜV
DVD RW/CD-RW ROM (optional)	Hitachi-LG Data Storage or equivalent	GCC-4244N or equivalent	5Vdc, 2.8A max. Class 1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC 60950-1: 2001, IEC 60825-1: 1993+A1+A2	TÜV, UL
	Philips Optical Storage or equivalent	SCB5265 or equivalent	5Vdc, 1.5A max. Class 1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 6050-1: 2001+A11, IEC/EN 60825-1:1994+A1+A2	TÜV, UL
	Philips Optical Storage or equivalent	SDVD8821 or equivalent	5Vdc, 1.5A max. Class 1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 6050-1: 2001+A11, IEC/EN 60825-1: 1994+A1+A2	TÜV, UL
	Sony NEC Optiarc Inc. or equivalent	AD-7530B or equivalent	5Vdc, 1.5A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1 :2001, IEC/EN 60825-1+A1+A2	TÜV, CB
	Sony NEC Optiarc Inc. or equivalent	AD-7560S or equivalent	5Vdc, 1.9A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1 :2001, IEC/EN 60825-1+A1+A2	TÜV, UL
	Sony NEC Optiarc Inc. or equivalent	AD-7580S or equivalent	5Vdc, 1.9A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1 :2001, IEC/EN 60825-1+A1+A2	TÜV, UL
	Sony NEC Optiarc Inc. or equivalent	CRX880A or equivalent	5Vdc, 1.5A. Class1 Laser product, Front bezel rated V-1, 1.0 mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
	Sony NEC	CRX880A or	5Vdc, 1.5A.	IEC/EN	TÜV

	Optiarc Inc.or equivalent	equivalent	Class1 Laser product, Front bezel rated V-1, 1.0 mm min. thickness.	60950-1: 2001, IEC/EN 60825-1+A1+A2	
	Sony NEC Optiarc Inc. or equivalent	BC-5500S or equivalent	5Vdc, 2.0A. Class1 Laser product, Front bezel rated V-1, 1.0 mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
	Toshiba Samsung Storage Technology Corporation	TS-L802# (# = A-Z or blank)	5Vdc, 1.9A max. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1 :2001, IEC/EN 60825-1+A1+A2	TÜV
	Toshiba Samsung Storage Technology Corporation	TS-L633A	5Vdc, 1.9A max. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1 :2001, IEC/EN 60825-1+A1+A2	TÜV, UL
	Hitachi-LG Data Storage or equivalent	GSA-T20N or equivalent	5Vdc, 1.5A. Class1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
	Hitachi-LG Data Storage or equivalent	GCC-T10N or equivalent	5Vdc, 1.8A. Class1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
	Hitachi-LG Data Storage or equivalent	GT10N or equivalent	5Vdc, 1.9A. Class1 laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV, UL
	Toshiba or equivalent	SD-L912A or equivalent	5Vdc, 1.9A max. Laser Class I, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, EN60825-1:1994	TUV, CB by TUV
	Hitachi-LG Data Storage or equivalent	GCC-T20N or equivalent	5Vdc, 1.8A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV

	Hitachi-LG Data Storage or equivalent	GSA-T50N or equivalent	5Vdc, 1.5A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
	Philips & Lite-On Digital Solutions Corporation or equivalent	DS-8A2S or equivalent	5Vdc, 1.5A. Class1 Laser product, Front bezel rated V-1, 1.0mm min. thickness.	IEC/EN 60950-1: 2001, IEC/EN 60825-1+A1+A2	TÜV
DC/AC inverter	Taiwan Sumida	TWS-400-9589	I/P: 14.4Vdc max., 378mA max. O/P: 1400Vrms min., 6.4mA max.	--	--
- Transformer in DC/AC inverter (T1)	Taiwan Sumida	CL-14080TAZ	105°C	--	--
DC/AC inverter	Sampo Corporation	YIVNMS0018D11	I/P: 14.4Vdc max. 740mA max. O/P: 1600Vrms min., 6.0mA max.	--	--
-Transformer (PT1)	--	--	105°C	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--
DC/AC inverter	Sampo Corp.	YIVNMS0018D11 --	I/P: 20Vdc, 740mA max. O/P: 850Vrms, 6.5mA max.	--	--
- Transformer (PT1)	Yao Sheng Electronic Co. Ltd.	YCVT-1619ID-Z-A	105°C	--	--
	Darfon Electronics Corp.	YCVT-1619ID-Z-F	105°C	--	--
	Taiwan Thick-Film Ind. Corp.	YCVT-1619ID-Z-E	105°C	--	--
- Capacitor (C13)	--	--	Max. 270pF, min. 2KV	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--
DC/AC inverter	Sampo Corp.	YIVNMS0020D11 --	I/P: 20Vdc, 740mA max. O/P: 1400Vrms, 6.5mA max.	--	--

- Transformer (PT1)	Yao Sheng Electronic Co. Ltd.	YCVT-1619ID-Z-A	105°C	--	--
	Darfon Electronics Corp.	YCVT-1619ID-Z-F	105°C	--	--
	Taiwan Thick-Film Ind. Corp.	YCVT-1619ID-Z-E	105°C	--	--
- Capacitor (C13)	--	--	Max. 270pF, min. 2KV	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--
DC/AC inverter	Taiwan Sumida Electronics Inc.	IV14080/T-LF	I/P: 14.4Vdc, 387mA. O/P: 1400Vrms, 6.4mA		
- Transformer (T1)	Elytone	CL-14080TAZ-LF	105°C	--	--
- Capacitor (C24)	--	--	Max. 68pF, min. 2KV	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--
DC/AC inverter	Taiwan Sumida Electronics Inc.	TWS-400-9614	I/P: 14.4Vdc, 400mA max. O/P: 1600Vrms min., 6.5mA max.	--	--
- DC/AC Inverter Transformer (T1)	Taiwan Sumida	CL-14080TDZ-LF	105°C	--	--
- Capacitor (C14)	--	--	Max. 100pF, min. 2KV.	--	--
- PCB	--	--	Min. V-1, min. 105°C	UL 94	UL
DC/AC inverter	Sampo Corp.	YIVNMS0018D11-A	I/P: 14.4Vdc, 740mA max. O/P: 1400Vrms, 6.5mA max.	--	--
- DC/AC Inverter Transformer (PT1)	Yao Sheng Electronic Co. Ltd.	YCVT-1619ID-Z-A	105°C.	--	--
	Darfon Electronics Corp.	YCVT-1619ID-Z-F	105°C.	--	--
	Taiwan Thick-Film Ind. Corp.	YCVT-1619ID-Z-E	105°C.	--	--
- Capacitor (C13)	--	--	Max. 180pF, min. 2KV.	--	--

- PCB	--	--	Min. V-1, min. 105°C.	--	--
DC/AC inverter	Sampo Corp.	YIVNMS0020D11 -A	I/P: 14.4Vdc, 740mA max. O/P: 1400Vrms, 6.5mA max.	--	--
- DC/AC Inverter Transformer (PT1)	Yao Sheng Electronic Co. Ltd.	YCVT-1619ID-Z-A	105°C.	--	--
	Darfon Electronics Corp.	YCVT-1619ID-Z-F	105°C.	--	--
	Taiwan Thick-Film Ind. Corp.	YCVT-1619ID-Z-E	105°C.	--	--
- Capacitor (C13)	--	--	Max. 180pF, min. 2KV.	--	--
- PCB	--	--	Min. V-1, min. 105°C.	--	--
DC/AC inverter	Mitac Technology Corp.	DA-1A08-MS01 L	I/P: 14.4Vdc, 0.85A max. O/P: 1400Vrms min., 6.5mA max.	--	--
- DC/AC Inverter Transformer (T1)	Yao Sheng Electronic Co. Ltd.	273001051551	105°C.	--	--
- Capacitor (C3)	--	--	Max. 100pF, min. 2KV.	--	--
- PCB	--	--	Min. V-1, min. 105°C.	UL 94	UL
DC/AC Inverter (For model MS-163Cxx, MS-1637xx, MS-1636xx, MS-163Gxxx, MS-163Nxxx, LGE50, E500, ED500, MS-163Pxxxx)	Sampo	YIVNMS0018D11 -B	I/P: 20Vdc, 740mA max. O/P: 850Vrms, 6.5mA max.	--	--
- Transformer (PT1)	Yao Sheng	YCVT-1619ID-Z-A	105°C	--	--
	Darfon	YCVT-1619D-Z-F	105°C	--	--
	Taiwan Thick	YCVT-1619D-Z-E	105°C	--	--
- Capacitor (C13)	--	--	Max. 150pF, min. 2KV	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--

DC/AC inverter (Alternate) (For model MS-163Cxx, MS-1637xx, MS-1636xx, MS-163Gxxx, MS-163Nxxx, LGE50, E500, ED500, MS-163Pxxxx)	Mitac	DA-1A08-MS01L-- (“-“ can be 0-9, A- Z), DA-1A08-MS02L--- (“-“ can be 0-9, A- Z)	I/P: 20Vdc, 0.85A max. O/P: 1400Vrms, 6.5mA max.	--	--
- Transformer (T1)	Yao Sheng Electronic Co. Ltd.	273001051551	Min. 105°C	--	--
- Capacitor (C3)	--	--	Max. 100pF, min. 2KV	--	--
- PCB	--	--	Min. V-1, min. 105°C	--	--
Battery Pack	Celxpert	CBPILXX (X can be A-Z, 0-9 or blank)	11.1Vdc, 4400mAh or 4800mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, CB
	Celxpert	CBPIL72	11.1 or 10.8Vdc, 7200mAh, 40°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, CB
	Celxpert	BTY-MXX	11.1Vdc, 4400mAh, 45°C	IEC/EN 60950-1: 2001	TÜV/SÜD
	Celxpert	BTY- M66	11.1Vdc, 4400mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	MSI	BTY-M65	11.1Vdc or 10.8Vdc, 7200mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	MSI	BTY-M66	11.1Vdc or 10.8Vdc, 4800mAh or 4400mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	Simplo	SQU-524	11.1Vdc or 10.8Vdc, 4400mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	Simplo	SQU-528	11.1Vdc or 10.8Vdc, 4800mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	Simplo	SQU-529	11.1Vdc or 10.8Vdc, 7200mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001	TÜV, UL
	Simplo	SQU-706	10.8 or 11.1Vdc, 5200mAh, 45°C	IEC 60950-1: 2001 EN 60950-1:	TÜV, CB

				2001+A11	
(For model MS-163Cxx, MS-1637xx, MS-1636xx, MS-163Gxxx, MS-163Nxxx, LGE50, E500, ED500, MS-163Pxxxx)	Simplo	SQU-718	10.8 or 11.1Vdc, 7800mAh, 45°C	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, CB
	Welldone	BTY-M67	10.8Vdc, 4400mAh, 45°C,	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, CB
	Welldone	BTY-M67	10.8Vdc, 4800mAh, 45°C,	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, CB
	Welldone	BTY-M67	11.1Vdc, 5200mAh, 45°C,	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, CB
	STL	BTY-M66	10.8Vdc, 4800mAh, 50°C	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV
(For model MS-163Cxx, MS-1637xx, MS-1636xx, MS-163Gxxx, MS-163Nxxx, LGE50, E500, ED500, MS-163Pxxxx)	STL	BTY-M66	10.8Vdc, 5200mAh, 50°C	EN 60950-1 IEC 60950-1	TUV
(For model MS-163Cxx, MS-1637xx, MS-1636xx, MS-163Gxxx, MS-163Nxxx, LGE50, E500, ED500, MS-163Pxxxx)	STL	BTY-M66	10.8Vdc, 4400mAh, 50°C	EN 60950-1 IEC 60950-1	TUV
CPU Fan	Forcecon	DFB451005M10T	5Vdc, 0.33A max., 5.1 CFM	IEC 60950-1: 2001	TÜV, UL
	Tranyoung	6010H05F PF3	5Vdc, 0.55A max., 7.08CFM	IEC 60950-1: 2001	TÜV
(Only for models MS-1637xx, MS-1636xx, MS-163Cxx, MS-163Nxxx, LGE50,	LG	MFNC-C537F	5Vdc, 0.36A, 4.5CFM	IEC 60950-1: 2001	TÜV

E500, ED500)					
	LG	MFNC-C537A	5Vdc, 0.36A, 5.0CFM	IEC 60950-1: 2001	TÜV
	Forcecon	DFB450805M10T	5Vdc, 0.4A, 5.01CFM	IEC 60950-1: 2001	TÜV
(Only for model MS-1637xx, MS-163Cxx, MS-163Nxxx, LGE50, E500, ED500)	LG	MFNC-C537D	5Vdc, 0.25A, 3.6CFM	IEC 60950-1: 2001	TÜV
	LG	MFNC-C537A	5Vdc, 0.36A, 5.0CFM	IEC 60950-1: 2001	TÜV
	Forcecon	DFB450805M10T	5Vdc, 0.4A, 5.01CFM	IEC 60950-1: 2001	TÜV
(Only for model MS-1637xx and MS-163Cxx)	LG	MFNC-C537D	5Vdc, 0.25A, 3.6CFM	IEC 60950-1: 2001	TÜV
(Only for model MS-1637xx, MS-1636xx, MS-163Cxx, MS-163Axx, MS-163Nxxx LGE50, E500, ED50)	Forcecon	DFS450805M10T	5Vdc, 0.4A max., 3CFM.	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV, UL
(Only for model MS-163Gxxx, MS-163Pxxxx)	Forcecon	DFS451205M10T	5Vdc, 0.4A max., 4.5CFM min.	IEC 60950-1: 2001 EN 60950-1: 2001+A11	TÜV
(Only for model MS-1637xx, MS-163Cxx, MS-1636xx, MS-163Axx, LGE50, E500, ED500)	ADDA	AB0605HX-HE3	5Vdc, 0.25A max., 4.0CFM	IEC/EN 60950-1: 2001	TÜV, UL
Modem Card (optional) (for all models except MS-163Pxxxx)	Qcom	MD560(B)-01	3.3Vdc, 58mA	IEC 60950-1: 2001, EN 60950-1:2001	TÜV, UL
	Qcom	MD560LMI-2	3.8Vdc, 11mA	IEC 60950-1: 2001, EN 60950-1: 2001	TÜV, UL
	Qcom	MD560(B)	3.3Vdc, 58mA	IEC 60950-1: 2001, EN 60950-1:2001	TÜV, UL
	LSI	Athens AM2	3.3Vdc.	IEC 60950-1: 2001, EN 60950-1:2001	TÜV, UL, CB

Modem Card (optional)	LSI	D40	3.3Vdc, 500mA.	IEC 60950-1: 2001, EN 60950-1:2001	TÜV, UL
	Motorola Inc.	ML3054	3.3Vdc.	IEC/EN 60950-1:2001	TÜV, CB, UL
Insulation Sheet (around modem card)	--	--	V-2 min., thickness 0.4mm min.	UL 94	UL
Speakers (Two provided)	--	--	Max. 3.5Ω, Max. 5W	--	--
Insulation sheet (covered the inside of PCMCIA slot, near PCB side)	SP Pacific	FR765	VTM-0, 80°C, 0.1 mm thickness	UL 94	UL
Mesh Screen	SABIC INNOVATIVE PLASTICS US L L C	FR700	V-0, 125°C, 0.23 mm min. thickness	UL 94	UL
TV-Tuner Card (for model MS-163Axx) (Optional)	Pro-Nets Technology Corporation	HM100E	Rated 3.3Vdc	--	--
PCB	--	--	V-1 min. 105°C	UL 94	UL
RTC Battery	Panasonic Corporation (Matsushita)	CR2032	Max. abnormal charge current 10mA.	UL 1642	UL
	Sony Energy	CR2032	Max.abnormal charge current 10mA.	UL 1642	UL
	Toshiba	CR2032	Max.abnormal charge current 10mA.	UL 1642	UL
	Vic-Dawn	CR2032	Max. abnormal charge current 10mA.	UL 1642	UL
Polyswitch for all USB ports (F1 for mainboard A, B, C, D, F, G, H and TNV-board (a); FC1 for TNV-board(b))	Raychem	miniSMDC150 series	1.5A, 6Vdc	IEC 60730-1	VDE, UL
	Littelfuse	1812L150	1.5A, 6Vdc	IEC 60730-1	VDE, UL
	Bourns	MF-MSMF150	1.5A, 6Vdc	IEC 60730-1	VDE, UL
	Polytronics	SMD1812P150TF	1.5A, 6Vdc	IEC 60730-1	VDE, UL
Polyswitch for all	Littelfuse	1812L150-C	1.5A, 8Vdc	IEC 60730-1	VDE, UL

USB ports (F1 for mainboard E and FC7 for TNV-board (c) (for model MS-163Pxxxx use only)					
Dummy card of PCMCIA (for model MS-163Pxxxx)	Sabic	C7230P	Min. V-0, 85°C, 1.2mm thickness	UL 94	UL
Note(s): 1. An asterisk indicates a mark that assures the agreed level of surveillance.					

1.6.2	TABLE: electrical data (in normal conditions)					**P**
Fuse #	Irated (A)	U (Vdc)	P (W)	I (A)	Ifuse (A)	Condition/status
Model: MS-1039xxxxx with DC/AC inverter Taiwan Sumida, type TWS-400-9589 (Mainboard A)						
--	4.74	19	78.9	4.15	--	Maximum normal load
Model: MS-1039xxxxx with DC/AC inverter: Sampo type YIVNMS0018D11 (Mainboad A)						
--	3.42	19	60.0	3.16	--	Maximum normal load, test with battery pack SQU-528
--	3.42	19	60.0	3.16	--	Maximum normal load, test with battery pack SQU-529
--	3.42	19	60.0	3.16	--	Maximum normal load, test with battery pack SQU-524
Model: MS-1034xxxxx with DC/AC inverter Taiwan Sumida, type TWS-400-9589 (Mainboard B)						
--	3.42	19	60.4	3.18	--	Maximum normal load
Model: LGF1 with DC/AC inverter Taiwan Sumida, type TWS-400-9589 (Mainboard B)						
--	4.74	19	62.7	3.33	--	Maximum normal load
Model: MS-1637xx (Mainboard C)						
--	3.42	19	63.27	3.33	--	Maximum normal load
Model: MS-1636xx (Mainboard D)						
--	4.74	19	80.18	4.22	--	Maximum normal load
Model: MS-163Axx with DC/AC inverter: Taiwan Sumida / TWS-400-9614 (Mainboard E)						
--	6.3	19	106.1	5.58	--	Maximum normal load
Model: MS-163Gxxx with DC/AC inverter: Mitac / DA-1A08-MS01L (Mainboard F)						
--	4.74	19	82.4	4.34	--	Maximum normal load
Model: MS-163Nxxx (Mainboard G)						
--	3.42	19	60.99	3.21	--	Maximum normal load

Model MS-163Pxxxx (Mainboard H), DC/AC Inverter: Mitac /DA-1A08-MS01L, Battery pack: SIMPLO/SQU718 (7800mAh), CPU: Intel / Celeron 530, 1.73GHz, DC fan: Forcecon, type DFS451205M10T (4.5CFM)						
--	4.74	19Vdc	82.27	4.33	--	Maximum normal load
Note(s):						

2.1.1.5	TABLE: max. V, A, VA test				**N/A**
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Note(s):					

2.1.1.7	TABLE: discharge test				**N/A**
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments	
Note(s):					

2.2.2	TABLE: Hazardous voltage measurement			**N/A**
Transformer	Location	max. Voltage		Voltage Limitation Component
		V peak	V d.c.	
Note(s):				

2.2.3	TABLE: SEL voltage measurement	**N/A**
Location	Voltage measured (V)	Comments
Note(s):		

2.4.2	TABLE: limited current circuit measurement					**P**
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
Test with DC/AC inverter Taiwan Sumida, type TWS-400-9589						
Normal condition						
CN2 pin 1 to GND	--	--	--	--	Unit shutdown	
CN2 pin 2 to GND	--	--	--	--	Unit shutdown	
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown	
T1 pin 6 to GND	--	--	--	--	Unit shutdown	

T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (C24 short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (C21 short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (Q2 pin B-C short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (U1 pin 7-8 short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (U1 pin 17-18 short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown

T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (C18 short)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (U1 pin 2 open)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
single fault condition (R23 open)					
CN2 pin 1 to GND	--	--	--	--	Unit shutdown
CN2 pin 2 to GND	--	--	--	--	Unit shutdown
CN2 pin 1 to CN2 pin 2	--	--	--	--	Unit shutdown
T1 pin 6 to GND	--	--	--	--	Unit shutdown
T1 pin 7 to GND	--	--	--	--	Unit shutdown
T1 pin 6 to pin 7	--	--	--	--	Unit shutdown
Test with DC/AC inverter: Sampo type YIVNMS0018D11					
normal condition					
PT1 pin 6 to pin 5	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	4.4	2.2	63	44.1	--
CON2 pin 1 to 2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	3.2	1.6	63	44.1	--
single fault condition (C13 short)					
PT1 pin 6 to pin 5	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	4.4	2.2	63	44.1	--
CON2 pin 1 to 2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown

CON2 pin 2 to earth	3.2	1.6	63	44.1	--
single fault condition (C15 short)					
PT1 pin 6 to pin 5	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	4.4	2.2	63	44.1	Unit shutdown
CON2 pin 1 to 2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	3.2	1.6	63	44.1	Unit shutdown
single fault condition (Q2 pin 2-6 short)					
PT1 pin 6 to pin 5	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
CON2 pin 1 to 2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	--	--	--	--	Unit shutdown
Test with DC/AC inverter: Sampo type YIVNMS0018D11--					
Normal condition					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	3.44	1.72	61	42.7	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	2.76	1.38	113	70	
C13 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	3.28	1.64	61	42.7	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	2.92	1.46	125	70	
R8 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	3.44	1.72	61	42.7	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	2.80	1.40	132	70	

R9 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	3.12	1.56	136	70	
Q1 pin2-5 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	4.88	2.44	107	70	
Test with Sampo DC/AC inverter, type YIVNMS0020D11--					
Normal condition					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	5.28	26.4	133	70	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	0.76	0.38	64	44.8	
C13 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	5.44	2.27	140	70	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	0.82	0.41	112	70	
R8 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	5.68	2.84	422	70	
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	0.78	0.39	107	70	
R9 shorted					

CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
Q1 pin2-6 shorted					
CON2 pin 1 to pin2	--	--	--	--	Unit shutdown
CON2 pin 1 to earth	--	--	--	--	Unit shutdown
CON2 pin 2 to earth	--	--	--	--	Unit shutdown
PT1 pin 5 to pin 6	--	--	--	--	Unit shutdown
PT1 pin 5 to earth	--	--	--	--	Unit shutdown
PT1 pin 6 to earth	--	--	--	--	Unit shutdown
Test with Sumida DC/AC inverter, type IV14080/T-LF					
Normal condition					
CN2 pin 1 to pin 2	--	--	--	--	Unit shutdown
CN2 pin 1 to earth	--	--	--	--	Unit shutdown
CN2 pin 2 to earth	2.40	1.20	56	39.2	
T1 pin 7 to pin 8	--	--	--	--	Unit shutdown
T1 pin 7 to earth	--	--	--	--	Unit shutdown
T1 pin 8 to earth	0.92	0.46	58	40.6	
C24 Shorted					
CN2 pin 1 to pin 2	--	--	--	--	Unit shutdown
CN2 pin 1 to earth	--	--	--	--	Unit shutdown
CN2 pin 2 to earth	2.40	1.20	56	39.2	
T1 pin 7 to pin 8	--	--	--	--	Unit shutdown
T1 pin 7 to earth	--	--	--	--	Unit shutdown
T1 pin 8 to earth	1.02	0.51	56	39.2	
R20 Shorted					
CN2 pin 1 to pin 2	--	--	--	--	Unit shutdown
CN2 pin 1 to earth	--	--	--	--	Unit shutdown
CN2 pin 2 to earth	--	--	--	--	Unit shutdown
T1 pin 7 to pin 8	--	--	--	--	Unit shutdown
T1 pin 7 to earth	--	--	--	--	Unit shutdown
T1 pin 8 to earth	--	--	--	--	Unit shutdown
C17 Shorted					
CN2 pin 1 to pin 2	--	--	--	--	Unit shutdown

CN2 pin 1 to earth	--	--	--	--	Unit shutdown
CN2 pin 2 to earth	2.68	1.34	58	40.6	
T1 pin 7 to pin 8	--	--	--	--	Unit shutdown
T1 pin 7 to earth	--	--	--	--	Unit shutdown
T1 pin 8 to earth	1.04	0.52	114	70	
C23 Shorted					
T1 pin 7 to pin 8	--	--	--	--	Unit shutdown
T1 pin 7 to earth	--	--	--	--	Unit shutdown
T1 pin 8 to earth	--	--	--	--	Unit shutdown
Test with DC/AC inverter: Taiwan Sumida / TWS-400-9614					
Normal condition					
CN2 pin 1 to CN2 pin 2	20.6	10.3	56	39.2	
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	3.52	1.76	55	38.5	
T1 pin 5 to pin 4	0	0	--	--	Unit shutdown
T1 pin 5 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	2.30	1.15	54	37.8	
Single fault condition (C14 short)					
CN2 pin 1 to CN2 pin 2	20.4	10.2	56	39.2	
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	3.44	1.72	56	39.2	
T1 pin 5 to pin 4	0	0	--	--	Unit shutdown
T1 pin 5 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	2.48	1.24	56	39.2	
Single fault condition (Q3 pin 2-6 short)					
CN2 pin 1 to CN2 pin 2	19.8	9.9	56	39.2	
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
T1 pin 5 to pin 4	0	0	--	--	Unit shutdown
T1 pin 5 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (R9 short)					
CN2 pin 1 to CN2 pin 2	21.0	10.5	55	38.5	
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	3.52	1.76	56	39.2	
T1 pin 5 to pin 4	0	0	--	--	Unit shutdown

T1 pin 5 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	2.18	1.09	56	39.2	
Single fault condition (R4 short)					
CN2 pin 1 to CN2 pin 2	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
T1 pin 5 to pin 4	0	0	--	--	Unit shutdown
T1 pin 5 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (CR1 short)					
CN2 pin 2 to GND	3.55	1.77	56	39.2	
Test with DC/AC inverter: Mitac / DA-1A08-MS01 L					
Normal condition					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown
T1 pin 3 to GND	0.6	0.3	58	40.6	
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (C3 short)					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	3.2	1.6	56	39.2	
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown
T1 pin 3 to GND	0.6	0.3	57	39.9	
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (D2 pin 2-3 short)					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	3.96	1.98	58	40.6	
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown
T1 pin 3 to GND	0.67	0.34	55	38.5	
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (R15 short)					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown

T1 pin 3 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (U2 pin 4-13 short)					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown
T1 pin 3 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Single fault condition (U2 pin 2-4 short)					
CN2 pin 1 to pin 2	0	0	--	--	Unit shutdown
CN2 pin 2 to GND	0	0	--	--	Unit shutdown
CN2 pin 1 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to pin 3	0	0	--	--	Unit shutdown
T1 pin 3 to GND	0	0	--	--	Unit shutdown
T1 pin 4 to GND	0	0	--	--	Unit shutdown
Test with Inverter Model: DA-1A08-MS01L---, DA-1A08-MS02L---					
Normal Condition					
CN2 Pin1-2	--	--	--	--	The output shutdown immediately
CN2 Pin1-Earth	--	--	--	--	The output shutdown immediately
CN2 Pin2-Earth	3.4	1.7	55	38.5	
T1 Pin3-4	--	--	--	--	The output shutdown immediately
T1 Pin4-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-Earth	0.8	0.4	55	38.5	
C3Short					
CN2 Pin1-2	--	--	--	--	The output shutdown immediately
CN2 Pin1-Earth	--	--	--	--	The output shutdown immediately
CN2 Pin2-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-4	--	--	--	--	The output shutdown immediately
T1 Pin4-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-Earth	--	--	--	--	The output shutdown immediately

U1 pin2-4 Short					
CN2 Pin1-2	--	--	--	--	The output shutdown immediately
CN2 Pin1-Earth	--	--	--	--	The output shutdown immediately
CN2 Pin2-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-4	--	--	--	--	The output shutdown immediately
T1 Pin4-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-Earth	--	--	--	--	The output shutdown immediately
D1 pin2-3 Short					
CN2 Pin1-2	--	--	--	--	The output shutdown immediately
CN2 Pin1-Earth	--	--	--	--	The output shutdown immediately
CN2 Pin2-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-4	--	--	--	--	The output shutdown immediately
T1 Pin4-Earth	--	--	--	--	The output shutdown immediately
T1 Pin3-Earth	--	--	--	--	The output shutdown immediately

Note(s):

1. The DC/AC Inverter source of Sampo type YIVNMS0018D11-A is identical to model Sampo type YIVNMS0018D11-- except for rating of C13 changed from max. 270pF to 180pF. (The measured voltage of YIVNMS0018D11-A is 1.13kV, which is smaller than YIVNMS0018D11--), test were performed on YIVNMS0018D11-- to represent YIVNMS0018D11-A.
2. The DC/AC Inverter source of Sampo type YIVNMS0020D11-A is identical to model Sampo type YIVNMS0020D11-- except for rating of C13 changed from max. 270pF to 180pF. (The measured voltage of YIVNMS0020D11-A is 1.15kV, which is smaller than YIVNMS0020D11--), test were performed on YIVNMS0020D11-- to represent YIVNMS0020D11-A.
3. The DC/AC Inverter source of Sampo type YIVNMS0018D11-B is identical to model Sampo type YIVNMS0018D11-- except for rating of C13 changed from max. 180pF to 150pF. (The measured voltage of YIVNMS0020D11-A is 1.2kV, which is smaller than YIVNMS0020D11--) test were performed on YIVNMS0018D11-- to represent YIVNMS0018D11-B.

2.5	TABLE: limited power source measurement		**P**
	Limits	Measured	Verdict
For model MS-1039xxxxx (Mainboad A)			
According to Table 2B (normal condition) – USB1, USB2 (Uoc = 5.04V)			
current (in A)	8	2.7	Pass

apparent power (in VA)	25.2	10.2	Pass
According to Table 2B (normal condition) – USBJ1, USBJ2 (Uoc = 5.05V)			
current (in A)	8	3.5	Pass
apparent power (in VA)	25.3	14.1	Pass
For model MS-1637xx (Mainboard C)			
Right side USB ports [1.]			
According to Table 2B (normal condition) Uoc=5.02V			
current (in A)	8	3.00	Pass
apparent power (in VA)	25.10	12.60	Pass
Left side USB ports			
According to Table 2B (normal condition) Uoc=5.02V			
current (in A)	8	3.66	Pass
apparent power (in VA)	25.1	12.52	Pass
According to Table 2B (Q21 pin 1-8 shorted) Uoc=5.02V			
current (in A)	8	4.04	Pass
apparent power (in VA)	25.1	12.92	Pass
For model MS-1636xx (Mainboard D)			
Right side USB ports [1.]			
According to Table 2B (normal condition) Uoc=5.00V			
current (in A)	8	3.53	Pass
apparent power (in VA)	25.00	12.24	Pass
Left side USB ports			
According to Table 2B (normal condition) Uoc=5.00V			
current (in A)	8	3.64	Pass
apparent power (in VA)	25.0	14.59	Pass
According to Table 2B (PQ32 pin 1-8 shorted) Uoc=5.02V			
current (in A)	8	4.14	Pass
apparent power (in VA)	25.1	15.21	Pass
For model MS-163Axx(Mainboard E)			
According to Table 2B (normal condition), USB1 port (Uoc = 4.99V)			
current (in A)	8	3.04	Pass
apparent power (in VA)	5*Uoc= 24.95	11.29	Pass
According to Table 2B (normal condition), USB2 port (Uoc = 4.99V)			
current (in A)	8	3.10	Pass
apparent power (in VA)	5*Uoc= 24.95	11.62	Pass
According to Table 2B (normal condition), USB3 port (Uoc = 4.99V)			

current (in A)	8	3.35	Pass
apparent power (in VA)	5*Uoc= 24.95	13.16	Pass
According to Table 2B (normal condition), USB4 port (Uoc = 4.99V)			
current (in A)	8	3.47	Pass
apparent power (in VA)	5*Uoc= 24.95	13.19	Pass
For model MS-163Gxxx(Mainboard F)			
According to Table 2B (normal condition), USB1 port (Uoc = 5.01V)			
current (in A)	8	3.03	Pass
apparent power (in VA)	5*Uoc= 25.05	11.31	Pass
According to Table 2B (normal condition), USB2 port (Uoc = 5.01V)			
current (in A)	8	3.03	Pass
apparent power (in VA)	5*Uoc= 25.05	11.31	Pass
According to Table 2B (normal condition), USB3 port (Uoc = 5.01V)			
current (in A)	8	2.91	Pass
apparent power (in VA)	5*Uoc= 25.05	11.12	Pass
According to Table 2B (normal condition), USB4 port (Uoc = 5.01V)			
current (in A)	8	2.91	Pass
apparent power (in VA)	5*Uoc= 25.05	11.12	Pass
Model: MS-163Nxxx (Mainboard G)			
According to Table 2B (normal condition), Left side USB port (Uoc = 5.04V)			
current (in A)	8	3.5	Pass
apparent power (in VA)	25.4 (5 X Uoc)	13.19	Pass
According to Table 2B (normal condition), Right side USB port (Uoc = 5.04V)			
current (in A)	8	3.5	Pass
apparent power (in VA)	25.4 (5 X Uoc)	14.10	Pass
Model: MS-163Pxxxx (Mainboard H)			
According to Table 2B (normal condition), USB port (J38) (Uoc = 5.05V)			
current (in A)	8	3.0	Pass
apparent power (in VA)	5*Uoc= 25.25	13.14	Pass
According to Table 2B (normal condition), USB port (J39) (Uoc = 5.04V)			
current (in A)	8	2.9	Pass
apparent power (in VA)	5*Uoc= 25.2	12.56	Pass
According to Table 2B (normal condition), USB port (JC16) (Uoc = 5.04V)			
current (in A)	8	3.0	Pass
apparent power (in VA)	5*Uoc= 25.25	12.51	Pass
According to Table 2B (normal condition), USB port (JC15) (Uoc = 5.05V)			

current (in A)	8	2.8	Pass
apparent power (in VA)	5*Uoc= 25.25	11.7	Pass
Note(s): 1. Limited by polyswitch (F1). 2. The equipment provided an IEEE1394 port for data transmission only. No LPS test are considered to be necessary 3. The USB port circuits of Mainboard B are identical to Mainboard A. Test were performed on Mainboard A to represent Mainboard B.			

2.6.3.4	TABLE: ground continue test		**N/A**
Location	Resistance measured (mΩ)	Comments	
Note(s):			

2.10.2	Table: working voltage measurement			**N/A**
Location	RMS voltage (V)	Peak voltage (V)	Comments	
Note(s):				

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					**P**
Clearance cl and creepage distance dcr at/of:	U p (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
For model MS-1039xxxxx (TNV board (a))						
SELV components (with 10N) to TNV-3 components (with 10N)	140	125	1.0	2.0	1.5	2.5
SELV trace to TNV trace	140	125	1.0	2.5	1.5	2.5
For model MS-1636xx, MS-1637xx (TNV board (b))						
SELV components (with 10N) to TNV-3 components (with 10N)	140	125	1.0	2.0	1.5	2.0
SELV trace to TNV-3 trace (on TNV board)	140	125	1.0	4.2	1.5	4.2
For model MS-163Pxxxx (TNV board (c))						
SELV components (with 10N) to TNV-3 components (with 10N)	140	125	1.0	2.0	1.5	2.0
SELV trace to TNV-3 trace (on TNV board)	140	125	1.0	4.4	1.5	4.4

Note(s):
1. An insulation sheet wrapped around modem card.
2. The wire of RJ-11 connector was covered by heatshrunk tube.

2.10.5	TABLE: distance through insulation measurements			**P**
Distance through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)
Insulation sheet wrapped around modem card (supplementary insulation)	125	AC 1500	0.4	0.4
Heatshrunk tube covered wire to RJ-11 connector (supplementary insulation)	125	AC 1500	0.4	0.4
Note(s):				

4.5.1	TABLE: maximum temperatures		**P**
	test voltage (V) .....:	a. DC 19 b. Power from battery pack	—
	t1 (°C) .....:	--	—
	t2 (°C) .....:	--	—
Maximum temperature T of part/at:		T (°C)	allowed T_{max} (°C)
Model: MS-1039xxxxx (Mainboard A, with DC Fan source of Forcecon, type 451005M10T (5.1CFM))			
Test voltage		**a.**	--
PCB near U31 of mother board		82.2	105
PCB near CPU heatsink of mother board		60.5	105
PCB near U3 of mother board		76.8	105
PCB near U6 of mother board		70.9	105
PCB near PD5 of mother board		65.5	105
RTC battery of mother board		70.1	--
PCB near U1 of modem card		59.9	105
HDD		53.2	--
DVD RW/CD-RW ROM		53.8	--
Outside of Battery pack		40.9	95
T1 coil of DC/AC inverter		71.5	105
T1 core of DC/AC inverter		69.5	105
LCD panel		47.4	95
Enclosure inside near CPU heatsink		53.4	--
Enclosure outside near CPU heatsink		51.0	95

Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=30.2°C	40.0		--
For model MS-1636xx with DC fan: LG, type MFNC-C537F **(with Mainboard D, DC fan source of Forcecon, type DFS450805M10T (3CFM))**			
Test condition	a.	b.	--
PCB near U27	71.5	67.4	105
PCB near U29	84.6	82.5	105
PCB near U25	75.4	75.0	105
PCB near U31	75.6	70.4	105
DDR CHIP	64.8	60.2	--
RTC Battery	67.4	67.5	--
PL9 Body	73.5	68.9	105
PL5 Body	67.7	70.6	105
H.D.D. Body	61.4	64.3	--
DVD ROM	52.8	52.2	--
PCB near U8	69.9	64.4	105
Enclosure inside near U27 (Plastic)	49.2	52.6	--
Enclosure outside near U27 (Plastic)	46.9	60.7	95
Battery pack outside	43.6	60.0	95
PT1 coil	74.4	71.2	105
Enclosure inside near PT1 (Plastic)	60.6	61.0	--
Enclosure outside near PT1 (Plastic)	53.1	76.5	95
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=23.3°C and 21.7°C respectively	40.0	40.0	--
Test for model: MS-1637xx **(with Mainboard C, DC fan source of Forcecon, type DFS450805M10T (3CFM))**			
Test voltage	**a.**	**b.**	**--**
PCB near U21 (CPU)	82.1	80.1	105
PCB near U20	77.4	73.3	105
PCB near U25	67.9	68.2	105
PCB near U26	60.9	59.9	105
DDR chipset (touch PCB)	78.6	73.0	105
RTC battery	49.0	51.9	--
Enclosure inside near U21	52.1	54.7	--
Enclosure outside near U21	54.4	55.9	75
ODD body	52.3	54.1	--

HDD body	59.8	62.0	--
PCB near U11	50.8	54.0	105
PCB near U9	62.0	65.1	105
T1 coil (DC/AC inverter)	64.1	47.6	105
Enclosure inside near DC/AC inverter	54.9	45.2	--
Enclosure outside near DC/AC inverter	49.7	44.2	95
Battery pack enclosure outside	42.7	60.1	75
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=26.4°C and 24.1°C respectively	40.0	40.0	--
Test for model: MS-163Axx **(with Mainboard E, DC fan source of Forcecon, type DFS450805M10T (3CFM))**			
Test voltage	**a.**	**b.**	**--**
PCB near U30 (CPU)	71.7	72.4	105
PCB near U27	73.4	73.6	105
PCB near U32	72.9	72.8	105
DDR chipset (touch PCB)	69.5	69.6	105
RTC battery	69.7	70.0	--
Choke 7 near U30	72.7	71.0	105
PCB near U14	67.2	66.8	105
HDD body	64.8	64.8	--
ODD body	59.8	59.6	--
Enclosure inside near U30	53.1	57.0	--
Enclosure outside near U30	52.1	55.1	75
T1 coil (DC/AC inverter)	72.0	72.3	105
Enclosure inside near DC/AC inverter	57.5	58.9	--
Enclosure outside near DC/AC inverter	52.3	53.1	95
Battery pack enclosure outside	52.8	67.2	75
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=24.0°C and 24.1°C respectively	40.0	40.0	--
Test for model: MS-163Gxxx **(with Mainboard F, DC fan source of Forcecon, type DFS451205M10T (4.5CFM))**			
Test voltage	**a.**	**b.**	**--**
Test for unit			
PCB near U27 (CPU)	85.0	81.7	105

PCB near U33	73.3	72.1	105
PCB near U28	69.2	69.3	105
Memory body (touch PCB)	66.0	65.5	105
RTC battery	70.9	69.2	--
HDD body	65.1	65.5	--
ODD body	55.6	54.8	--
Enclosure inside near U27	61.0	61.9	--
Enclosure outside near U27	57.1	58.4	75
Panel (glass)	50.3	52.4	80
Keyboard body	52.9	53.4	75
Battery pack enclosure outside	48.3	59.1	75
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=27.0°C and 25.7°C respectively	40.0	40.0	--
Test for DC/AC inverter: Mitac / DA-1A08-MS01L			
T1 coil (DC/AC inverter)	82.2	--	105
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}= 25.7°C	40.0	--	--
Test for DC/AC inverter: Sample / YIVNMS0018D11-B			
Test Voltage	a.	b.	--
PT1 Coil	74.4	76.6	105
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=27.0°C and 27.5°C respectively	40.0	40.0	--
Test for DC/AC inverter: Mitac / DA-1A08-MS02L---			
T1 Coil	77.2	79.3	105
Max. ambient temperature T_{ma} (°C): Note: ambient air during test were T_{amb}=27.0°C and 27.5°C respectively	40.0	40.0	--
For model MS-163Nxxx with DC fan: LG, type MFNC-C537F **(with Mainboard G, DC fan source of Forcecon, type DFS450805M10T (3CFM))**			
Test condition	a.	b.	--
PT1 coil	82.1	77.6	105
PT1 core	74.1	71.1	105
PWB near IC1	68.9	66.8	105
PWB near U1	42.7	42.8	105
Enclosure inside near PT1	62.1	61.1	--

Enclosure outside near PT1	57.5	56.8	95
PWB near U17	69.2	66.1	105
PWB near U24	71.7	70.4	105
PWB near U22	77.2	75.6	105
PWB near U7	54.7	53.6	105
RTC battery body	59.6	58.7	105
DDR Ram board body	74.8	73.1	105
TNV card board body	55.6	54.8	105
DVD/RW ROM body	45.4	45.1	105
HDD body	57.6	59.3	105
Enclosure inside near U22	53.3	54.1	--
Enclosure outside near U22	49.7	49.1	95
Battery pack body	52.3	67.2	95
Max. ambient temperature Tma (°C): Note: ambient air during test were Tamb = 26.7°C and 27.2°C respectively	40.0	40.0	--
Test voltage	**(A)**	**(B)**	**--**
For mainboard MS-143P1			
PCB near U27 (CPU)	65.5	72.9	105
PCB near U33	65.2	73.1	105
PCB near U38	65.1	72.8	105
PCB near U32	63.8	68.1	105
RTC battery pack	57.8	61.9	100
HDD	53.0	55.7	--
ODD	47.1	46.8	--
For DC/AC Inverter：Mitac/DA-1A08-MS01L			
PCB near U2 (for Inverter)	74.0	73.8	105
T1 coil (for Inverter)	89.8	88.9	105
For Unit			
Enclosure inside near Inverter transformer (T1)	58.6	58.9	--
Enclosure outside near Inverter transformer (T1)	52.7	53.8	75
Enclosure inside near U27 (CPU)	51.8	58.3	--
Enclosure outside near U27 (CPU)	51.1	55.9	75
Enclosure inside near Battery pack	48.3	66.4	--
Enclosure outside near Battery pack	47.6	65.1	75
Tma	40.0	40.0	--

Test with model MS-163Pxxxx (Mainboard H), DC/AC Inverter: Mitac /DA-1A08-MS01L, Battery pack: SIMPLO/SQU-718 (7800mAh), CPU: Intel / Celeron 530, 1.73GHz, DC fan: Forcecon, type DFS451205M10T (4.5CFM)			
Test voltage	**A)**	**B)**	**--**
Test for unit			
Tma (Tamb)	40.0 (23.3)	40.0 (25.2)	--
PCB near U27 (CPU)	65.5	72.9	105
PCB near U33	65.2	73.1	105
PCB near U38	65.1	72.8	105
PCB near U32	63.8	68.1	105
RTC battery	57.8	61.9	--
HDD body	53.0	55.7	--
ODD body	47.1	46.8	--
PWB near U2 (DC/AC Inverter)	74.0	73.8	105
T1 coil (DC/AC Inverter)	89.8	88.9	105
Enclosure inside near T1	58.6	58.9	--
Enclosure outside near T1	52.7	53.8	75
Enclosure inside near U27	51.8	58.3	--
Enclosure outside near U27	51.1	55.9	75
Enclosure inside near Battery pack	48.3	66.4	--
Enclosure outside near Battery pack	47.6	65.2	75

Temperature T of winding:	R_1 (Ω)	R_2 (Ω)	T (°C)	allowed T_{max} (°C)	insulation class

Note(s):

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described above.

All values for T(°C) are re-calculated from Tamb respectively.

Using maximum ambient temperature of 40°C.

4.5.2	TABLE: ball pressure test of thermoplastic parts		**N/A**
	allowed impression diameter (mm) .....:	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)

Note(s):

4.6.1, 4.6.2	Table: enclosure openings	**P**

Location	Size (mm)	Comments
For all models		
Top	Max. 2.5 by 0.5	Numerous openings for speakers.
Front	Max. 24 by 4.2	One slot for MMC/SD/MS card, internal metal housing and PCB as barrier.
Right	Max. 55.8 by 6.7	1) For all models except for MS-163Pxxxx: One slot for PCM/CIA card, and one plastic dummy card (rated V-1) provided on the slot during normal operation. 2) For model MS-163Pxxxx only: One slot for PCM/CIA card provided with dummy card
Rear	Max. 8.8 by 3.0	Numerous openings which provide copper heat sink for DC fan, which with width of 1.0mm max. as internal barrier.
For bottom enclosure A		
Bottom	Min. 6.8 by 0.8	Numerous openings provided on HDD DOOR under mesh like(∅1.0mm max, 1.3mm between centre lines, 0.6 mm wire diameter, 0.45mm in thickness)
Bottom	Min. 3.5 by 1.9	Numerous openings provided on SYSTEM DOOR under mesh like(∅1.0mm max, 1.3mm between centre lines, 0.6 mm wire diameter, 0.45mm in thickness)
Bottom	Min. 8.0 by 2.5	Numerous openings provided on DC fan for CPU used under mesh like(∅1.0mm max, 1.3mm between centre lines, 0.6 mm wire diameter, 0.45mm in thickness)
For bottom enclosure B		
Bottom (on HDD cover)	7.0 x 1.0	28 openings, with internal mesh (the wire diameter= 0.6mm, between centre lines= 1.5mm, 0.45mm in thickness).
Bottom (on CPU cover)	4.5 x 5.0 15.0 x 2.1 117.0 x 33.0 27.0 x 15.0	Numerous openings, with internal metal chassis. The internal metal chassis has numerous openings which width is 0.9mm.
Note(s):		

4.7	Table: resistance to fire			**P**
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class
Plastic Enclosure	Sabic	C7230	1.0	V-1 min.
Plastic Enclosure	Sabic	C7230P	1.2	V-0 min.
PCB	--	--	--	V-1 min.

Note(s):

5.1.8.1	TABLE: TNV touch current measurement			**P**
Condition	L→ terminal A (mA)	N → terminal A (mA)	Limit (mA)	Comments
Test with TNV board (a) with all adapter sources of DC 19V 4.74A				
From L/N to Tip and Ring	0.03	0.03	0.25	With switch “e” opened.
Test with TNV board (b) with all adapter sources of DC 19V 3.42A				
From L/N to Tip and Ring	0.02	0.02	0.25	With switch “e” opened.
Test with TNV board (b) with all adapter sources of DC 19V 4.74A				
To RJ11 Tip & Ring	0.03	0.03	0.25	With switch “e” opened.
Test for TNV board (b) with adapter sources of DC 19V 6.3A				
To RJ11 Tip & Ring	0.02	0.02	0.25	With switch “e” opened.
Note(s): Performed all sources of power adapter and modem card, only record the maximum test result. Input voltage: 264V for adapter Input frequency: 60Hz for adapter Overall capacity: in approved adapter The TNV board (c) does not with any Y-Cap. therefore, the touch current result can be covered by TNV board (a) or TNV board (b) test with all adapter sources.				

5.2	TABLE: electric strength tests and impulse tests		**N/A**
Test voltage applied between:		Test voltage (V)	Breakdown
Note(s):			

5.3	TABLE: fault condition tests		**P**
	ambient temperature (°C) .....:	25°C, if not otherwise stated.	—
	model/type of power supply .....:	2) LSE0202D1990 (used for models MS-1039, MS-1636 and MS-163G) 2) 0335A1965 (used for models MS-1637, MS-163C, MS-163N) 3) ADP-120ZB BB	—
	manufacturer of power supply .....:	1), 2) Li-Shin 3) Delta	—
	rated markings of power supply .....:	See appended table 1.5.1	—

No.	Component no.	Fault	Test voltage (Vdc)	Test time	Fuse no.	Fuse current (A)	Result
For model MS-1039xxxxx							
1.	DC fan for CPU	stalled	19	1.5 hr	--	--	EUT shutdown after 20 min., temperature: PCB under CPU = 76.6°C, T1 coil of DC/AC inverter = 64.3°C, enclosure outside near CPU heatsink = 52.8°C, ambient = 26.9°C, no hazard.
2.	All ventilation openings	blocked	19	2.4 hr	--	--	EUT shutdown after 15 min., Temperature: PCB under CPU = 70.1°C, T1 coil of DC/AC inverter = 52.7°C, enclosure outside near CPU heatsink = 48.2°C, ambient = 26.9°C, no hazard.
3.	D10 pin 3-2 (for model MS-1034xxxxx)	shorted	19	1 s	--	--	Reverse current of RTC battery : 3mA.
4.	D2 pin 3-2 (for model MS-1039xxxxx)	shorted	19	1 s	--	--	Reverse current of RTC battery : 0.65mA.
5.	CI242 to CN11 pin 1 (for model MS-1034xxxxx)	shorted	19	7 hr	--	--	Reverse current of RTC battery : 0.01mA. Test for all sources of RTC battery, no hazard.
Test with DC/AC inverter Taiwan Sumida, type TWS-400-9589							
6.	T1 pin 6-7 of DC/AC inverter	shorted	19	1 s	--	--	Unit shutdown, no hazards.
Test with DC/AC inverter: Sampo type YIVNMS0018D11							
7.	PT1 pin 5-6 of DC/AC inverter	shorted	19	1 s	--	--	Unit shutdown, no hazards.
For models MS-1636xx							
8.	Openings	Blocked	19	2 hr 59 mins.	--	--	Unit shutdown, Max temp: U29=87.0°C, Ambient=22.3°C, no hazards.
9.	Fan	Locked	19	13 hr 13 mins.	--	--	Unit shutdown, Max temp: U29=85.3°C, Ambient=22.3°C, no hazards.
10.	DT1 pin 1-3 (for RTC Battery)	shorted	19	1 s	--	--	Reverse current of RTC battery=2.96mA, no hazard.
11.	R326 (for RTC Battery)	shorted	19	1 s	--	--	Reverse current of RTC battery=0A, no hazard.
For models MS-1637xx and MS-163Cxx							

12.	Openings	Blocked	19	4 hr 23 mins.	--	--	Normal operation, Max temp: PL9=70.6°C, Ambient=22.6°C, no hazards.
13.	Fan	Locked	19	2 hr 32 mins.	--	--	Normal operation, Max temp: PL9=72.1°C, Ambient=23.4°C, no hazards.
14.	DT1 pin 1-3 (for RTC Battery)	shorted	19	1 s	--	--	Reverse current of RTC battery=2.95mA, no hazard.
15.	R82 (for RTC Battery)	shorted	19	1 s	--	--	Reverse current of RTC battery=0A, no hazard.
For model MS-1636xx							
16.	All ventilation openings	blocked	19	2 hr 22 mins	--	--	Unit shutdown after 1hr 10min, max. temp. at PCB near U29= 78°C, ambient= 23.3°C, no damaged, no hazard.
17	DC fan for CPU	stalled	19	1 hr 31mins.	--	--	EUT shutdown after 45min, max. temp. at PCB near U29= 73.6°C, ambient= 22.9°C, no damaged, no hazard.
For model MS-1637xx							
18.	All ventilation openings	blocked	19	5 hr 44 mins.	--	--	Normal operation, max. temp. at DDR chipset= 70.3°C, ambient= 26.9°C, no damaged, no hazard.
19.	DC fan for CPU	stalled	19	1hr 31mins.	--	--	Normal operation, max. temp. at PCB near U21= 84.6°C, ambient= 26.3°C, no damaged, no hazard.
For model MS-163Axx							
20.	All ventilation openings	blocked	19	2 hr 17 mins.	--	--	EUT shutdown after 50min, max. temp. at PCB near U30= 89.3°C, ambient= 23.8°C, no damaged, no hazard.
21.	DC fan for CPU	stalled	19	35 mins.	--	--	EUT shutdown after 20min, max. temp. at PCB near U30= 81.6°C, ambient= 23.9°C, no damaged, no hazard.
22.	D24 pin 1-3	shorted	19	1 s	--	--	Test for RTC battery, reverse charging current= 3.19mA.
23.	R477	shorted	19	1 s	--	--	Test for RTC battery, no reverse charging current.
24.	Output ports	over-loaded	19	1 min.	--	--	Test for VGA port, S-Video port, IEEE 1394 port, RJ45 port, RJ11port, speaker connector, USB ports, HDMI port and tuner connector. The energy of connectors are below 240VA. No damaged, no hazard.

For model MS-163Gxxx							
25.	All ventilation openings	blocked	19	4 hr	--	--	EUT normal operation, max. temp. at PCB near U27= 82.6°C, ambient= 26.8°C, no damaged, no hazard.
26.	DC fan for CPU	stalled	19	3 hr	--	--	Unit shutdown after 10mins, max. temp. at PCB near U27= 95.0°C, ambient= 27.0°C, no damaged, no hazard.
27.	DT1 pin 1-3	shorted	19	1 s	--	--	Test for RTC battery, reverse charging current= 3.02mA.
28.	R326	shorted	19	1 s	--	--	Test for RTC battery, no reverse charging current.
29.	Output ports	over-loaded	19	1 min.	--	--	Test for VGA port, S-Video port, IEEE 1394 port, RJ45 port, audio connectors, USB ports. The energy of connectors is below 240VA. No damaged, no hazard.
For model MS-163Nxxx							
1	Ventilation	Blocked	19Vdc	3 hr	--	--	Unit operated normally, no damaged, no hazards. Measured max. temp for PWB near U22: 69.2°C, Ambient=27.1°C.
2	CPU Fan	Locked	19Vdc	2 hr 36 mins	--	--	Unit operated normally, no damaged, no hazards. Measured max. temp for PWB near U22:80.1°C, Ambient=26.9°C.
3	R226 of RTC battery type CR2032	short	19Vdc	10 mins	--	--	Abnormal reverse current: 0A. Not exceed the max. of abnormal charging current
4	DT1(Pin 1-3) of RTC battery type CR2032	short	19Vdc	10 mins	--	--	Abnormal reverse current: 3.0mA. Not exceed the max. of abnormal charging current
For model MS-163Pxxxx							
1	All ventilation openings	blocked	19	2 hr	--	--	Unit shutdown. The max. temp. at PCB near CPU (U27)= 85.2°C, DC/AC Inverter T1 coil= 75.1 °C, ambient= 26.8°C, no damaged, no hazard.
2	DC fan for CPU	stalled	19	1.5 hr	--	--	Unit shutdown. The max. temp. at PCB near CPU (U27)= 78.8°C, DC/AC Inverter T1 coil= 74.2 °C, ambient= 24.4°C, no damaged, no hazard.

3	DT1 pin X-Y	shorted	19	1 s	--	--	Test for RTC battery, reverse charging current= 3.27mA.
4	DT1 pin Z-Y	shorted	19	1 s	--	--	Test for RTC battery, reverse charging current= 3.02mA.
5	R326 of RTC battery type CR2032	short	19	10 mins	--	--	Abnormal reverse current: 0A. Not exceed the max. of abnormal charging current
Note(s):							

6.2.2.1 and 6.2.2.2	TABLE: electric strength tests and impulse tests	**P**

Test voltage applied between:	Test voltage (V)	Breakdown
Impulse test		
TNV to keyboard with metal foil	AC 2500	No
TNV to accessible conductive part	AC 1500	No
TNV to SELV circuit	AC 1500	No
Electric strength test		
TNV to keyboard with metal foil	AC 3000	No
TNV to accessible conductive part	AC 1500	No
TNV to SELV circuit	AC 1500	No
Note(s): Performed all sources of modem card.		

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

APPENDIX	Australian National Differences according to CB Bulletin No. 112A, December 2006 (AS/NZS 60950.1:2003) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
Annex ZZ Variations			
1.2	Between the definitions for "Person, service" and "Range, rated frequency" insert the following: Potential ignition source 1.2.12.201	Class III equipment, no direct connection to the AC mains supply	**N/A**
1.2.12.15	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.	**N/A**
1.5.1	Add the following to the end of first paragraph: "or the relevant Australian/New Zealand Standard."	Added.	**N/A**
1.5.2	Add the following to the end of first and third dash items: "or the relevant Australian/New Zealand Standard."	Added.	**N/A**
2.1	Delete the Note.	Deleted.	**N/A**
3.2.3	Delete Note 2.	Deleted.	**N/A**
3.2.5	Modify Table 3B as follows:	Modified.	**N/A**

Rated current of equipment A	Nominal cross-sectional area mm^2	AWG or kcmil (cross-sectional area in mm^2) see note 2
Over 0.2 up to and including 3	0.5[1)]	18 [0.8]

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict

	Over 3 up to and including 7.5	0.75	16 [1.3]		
	Over 7.5 up to and including 10	(0.75)[2] 1.00	16 [1.3]		
	Over 10 up to and including 16	(1.0)[3] 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 appliances, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1.				
4.3.6	Replace paragraph three with: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin 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.			Replaced.	**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.			See below.	**N/A**
4.7.201	Add the following after clause 4.7.3.6: 4.7.201 Resistance to fire - Alternative tests			Added. However, equipment under test used materials and components in compliance with requirements of IEC 60950-1. Alternative test methods were not considered.	**N/A**
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: Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NSZ 4695.707 and having openings only for the connecting wires filling the openings completely, and for the ventilation not exceeding 1 mm in width regardless of the length.			Alternative test methods were not considered.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	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 1750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material flammability category FV-1 or better according to AS/NZS 4695.707 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 is checked by tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base materials of printed boards, compliance is 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.		
4.7.201.2	Parts of non-metallic material are subjected to glow wire test of AS/NZS 4695.2.11, which is 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 materials classified at least FH-3 according to ISO 9772 provided that the sample was not thicker than the relevant part.	Alternative test methods were not considered.	**N/A**
4.7.201.3	Testing of insulating materials Parts of insulating materials supporting potential ignition sources shall be subject to the glow-wire test of AN/NZS 4695.2.11, which is carried out at 750 °C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE - Contacts in components such as switch contacts are considered to be connections.	Alternative test methods were not considered.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	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 4695.2.2 with the following modifications: **5 Severities** Replace with: The duration of application of the test flame shall be 30 s ± 1 s. **8 Test procedure** 8.2 Modification: Replace the first sentence 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. 8.4 Modification: The first paragraph does not apply. Addition: If possible, the flame shall be applied at least 10 mm from a corner. 8.5 Replacement: 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 then withstand the test. **10 Evaluation of test results** Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s. The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.		

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
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 is 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 to be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirement 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 burring or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirement of clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting in contact with or in close proximity to connections.	Alternative test methods were not considered.	**N/A**
4.7.201.5	Testing of printed boards The base material of printed boards is subjected to needle-flame test to Clause 4.7.201.3. The flame is 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 for 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 FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0	Alternative test methods were not considered.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the opening 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 printed boards supporting spark gaps which provide protection against overvoltages, is of flammability category FV-0 according to AS/NSZ 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires fill the openings completely. Compliance is 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.		
6.2.2	Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2. Delete the note.	See IEC 60950-1 report.	**P**
6.2.2.1	Delete Note 2. Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700 μs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc, is: - for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and - for 6.2.1b) and 6.2.1c): 1.5 kV. NOTE 201 - The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The 2.5 kV impulse for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate	See IEC 60950-1 report.	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	likely overvoltages.		
6.2.2.2	Delete the note. Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: - for 6.2.1a): 3 kV; and - for 6.2.1b) and 6.2.1c): 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.	See IEC 60950-1 report.	**P**
Annex P	Add the following Normative References to Annex P: IEC 60065, Audio, Video and similar electronic apparatus - Safety requirements AS/NZS 3112, Approval and test specification - Plugs and socket-outlets AS/NZS 3191, Approval and test specification - Electric flexible cords AS/NZS 4695.707, Fire hazard testing of electrotechnical products - Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	Added.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Canadian National Differences according to CB Bulletin No. 112A, December 2006 (CAN/CSA C22.2 No. 60950-1/UL60950-1) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
Special National Conditions			
1.1.1	All equipment is to be designed to allow installations 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.	Unit was evaluated according to IEC 60950-1. The requirements have to be checked during national approval.	**N/A**
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	No direct mains connection.	**N/A**
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	No external interconnecting cable provided.	**N/A**
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 “Normal Operating Conditions.” Likewise, a voltage rating shall not be lower than the specified “Normal Operating Conditions,” unless it is part of a range that extends into the “Normal Operating Conditions.”	Class III equipment.	**N/A**
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 applied for	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets, receptacles and medium-base or smaller lampholders 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 transformer overcurrent protection.	Class III equipment.	**N/A**
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Class III equipment.	**N/A**
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord provided.	**N/A**
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Class III equipment. No direct main connection.	**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 Article 400 of the NEC, and Tables 11 and 12 of the CEC.	No power supply cord provided.	**N/A**
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Class III equipment. No direct mains connection.	**N/A**
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Class III equipment.	**N/A**
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm²).	Class III equipment.	**N/A**
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	Class III equipment.	**N/A**
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12A, or if the motor has a nominal voltage rating greater than 120V, 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 switch provided.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Not applicable.	**N/A**
4.3.12	The maximum quantify of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquid.	**N/A**
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	Optical radiation in compliance with requirements of IEC 60825-1 (see corresponding sections of this test report). Overall compliance needs to be evaluated during national approval.	**N/A**
4.7	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not information storage systems.	**N/A**
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m² or a single dimension greater than 1.8 m 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 information storage systems.	**N/A**
Annex H	Equipment that produces ionizing radiation is required to comply with the Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No ionizing radiation.	**N/A**
Other differences			
1.5.1	Components of equipment must be suitable for the application, and must comply with the requirements of the equipment standard and the applicable national (Canadian and/or U.S.) component or material standards, as far as they may apply. The acceptance will be based on the following: component Certified by a Canadian or U.S. National Certification Body (NCB) to a Canadian or U.S. component standard will be checked for correct application and use in accordance with its specified rating. Where necessary, it will also be subject to the applicable tests of the equipment standard. component, which has a CB Test Certificate for compliance with a relevant IEC component standard, will be checked for correct application	Components are approved, see component list 1.5.1.	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	and use in accordance with its specified ratings. Where necessary, it will also be subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material standard, under the conditions occurring in the equipment. component, which has no approval as in A) or B) above or which is used not in accordance with its specified ratings, will be subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material standard, under the conditions occurring in the equipment. ome components may require annual re-testing, which may be carried out by the manufacturer, CSA International or another laboratory		
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mAd.c. under normal operating conditions.	TNV-3 circuits without other than ring signals.	**N/A**
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	Complied.	**P**
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.	Class III equipment.	**N/A**
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, writing, marking and installation instruction requirements.	No direct mains connection.	**N/A**
4.2.8.1	Enclosures around CRTs with a face diameter of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	**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.	Less than 0.25mA	**P**
6.2.1	Enamel coating on winding wire not considered electrical separation unless subjected to special investigation.	No used.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
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.	Shall be evaluated during national approval.	**N/A**
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.	Shall be evaluated during national approval.	**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.	TNV-3 circuits without other than ring signals.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Korean National Differences according to CB Bulletin No. 112A, December 2006 (K60950) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	No power cord provided.	**N/A**
7	Addition: EMC The apparatus shall comply with the relevant CISPR standards.	The CISPR requirements have to be considered during national approval.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	US National Differences according to CB Bulletin No. 112A, December 2006 (UL 60950-1) (IEC Publication 60950-1:2001)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
Special National Conditions			
1.1.1	All equipment is to be designed to allow installations 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.	Unit was evaluated according to IEC 60950-1. The requirements have to be checked during national approval.	**N/A**
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	No direct mains connection.	**N/A**
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	No external interconnecting cable provided.	**N/A**
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 “Normal Operating Conditions.” Likewise, a voltage rating shall not be lower than the specified “Normal Operating Conditions,” unless it is part of a range that extends into the “Normal Operating Conditions.”	Class III equipment.	**N/A**
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 applied for	**N/A**
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets, receptacles and medium-base or smaller lampholders if the supply branch	Class III equipment.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
	circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require transformer overcurrent protection.		
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Class III equipment.	**N/A**
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord provided.	**N/A**
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Class III equipment. No direct main connection.	**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 Article 400 of the NEC, and Tables 11 and 12 of the CEC.	No power supply cord provided.	**N/A**
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Class III equipment. No direct mains connection.	**N/A**
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Class III equipment.	**N/A**
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm²).	Class III equipment.	**N/A**
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	Class III equipment.	**N/A**
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12A, or if the motor has a nominal voltage rating greater than 120V, 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 switch provided.	**N/A**
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Not applicable.	**N/A**
4.3.12	The maximum quantify of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquid.	**N/A**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	Optical radiation in compliance with requirements of IEC 60825-1 (see corresponding sections of this test report). Overall compliance needs to be evaluated during national approval.	**N/A**
4.7	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not information storage systems.	**N/A**
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m² or a single dimension greater than 1.8 m 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 information storage systems.	**N/A**
Annex H	Equipment that produces ionizing radiation is required to comply with the Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No ionizing radiation.	**N/A**
Other differences			
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 (U.S. and Canadian) component or material requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches (including interlock switches), thermal cut-offs, thermostats, multi-layer transformer winding wire, tubing, wire connectors, and wire and cables.	Components are approved, see component list 1.5.1.	**P**

National Differences			
Clause	Requirement – Test	Result – Remark	Verdict
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	TNV-3 circuits without other than ring signals.	**N/A**
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	Complied.	**P**
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.	Class III equipment.	**N/A**
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, writing, marking and installation instruction requirements.	No direct mains connection.	**N/A**
4.2.8.1	Enclosures around CRTs with a face diameter of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	**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.	Less than 0.25mA	**P**
6.2.1	Enamel coating on winding wire not considered electrical separation unless subjected to special investigation.	No used.	**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.	Shall be evaluated during national approval.	**N/A**
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.	Shall be evaluated during national approval.	**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.	TNV-3 circuits without other than ring signals.	**N/A**