

CB TEST REPORT

12311166 001

for

Laser Printer

FS-2100D, FS-2100DN, FS-4100DN,
FS-4200DN, FS-4300DN, ECOSYS FS-2100D,
ECOSYS FS-2100DN, ECOSYS FS-4100DN,
ECOSYS FS-4200DN, ECOSYS FS-4300DN

KYOCERA Document Solutions Inc.



This documentation consists of **208** pages (excluding this cover page).



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number	12311166 001
Date of issue	2012-09-19
Total number of pages	208
CB Testing Laboratory	TÜV Rheinland Japan Ltd. Osaka Laboratory
Address	Wakasugi Center Bldg., Honkan 16F, 2-9-1 Higashi Tenma, Kita-ku, 530-0044 Osaka, JAPAN
Applicant's name	KYOCERA Document Solutions Inc.
Address	1-2-28, Tamatsukuri, Chuo-ku, Osaka-shi, Osaka, 540-8585 Japan
Manufacturer's name	(same as Applicant)
Address	(same as Applicant)
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No	IEC60950_1C
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2010-04
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Test item description: Laser Printer

Trade Mark: KYOCERA (on the products)

Manufacturer: (Same as Applicant)



Model/Type reference: 1) FS-2100D, FS-2100DN,
ECOSYS FS-2100D, ECOSYS FS-2100DN

2) FS-4100DN, FS-4200DN, FS-4300DN
ECOSYS FS-4100DN, ECOSYS FS-4200DN,
ECOSYS FS-4300DN

Ratings: 1) 220-240V~, 50/60Hz, 4.4A
120V~, 60Hz, 8.3A
110V~, 60Hz, 9.1A

2) 220-240V~, 50/60Hz, 5.2A
120V~, 60Hz, 9.7A
110V~, 60Hz, 10.6A

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Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	TÜV Rheinland Japan Ltd., Osaka Laboratory
Testing location/ address.....:		Wakasugi Center Bldg., Honkan 16F, 2-9-1 Higashi Tenma, Kita-ku, 530-0044 Osaka, JAPAN
<input type="checkbox"/>	Associated CB Laboratory:	
Testing location/ address.....:		
Tested by (name + signature).....:		(see below)
Approved by (name + signature)		(see below)
<input checked="" type="checkbox"/>	Testing procedure: TMP	
Testing location/ address.....:		(Same as Applicant)
Tested by (name + signature).....:		S. Hamamoto 
Approved by (name + signature)		T. Izumi 
<input type="checkbox"/>	Testing procedure: WMT	
Testing location/ address.....:		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: SMT	
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature)		
Supervised by (name + signature).....:		
<input type="checkbox"/>	Testing procedure: RMT	
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature)		
Supervised by (name + signature).....:		

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Summary of testing:

To confirm the continued compliance with the standard, the following test were performed:

Serial No.: Production sample with serial number : SPL1916074

This test report is based on test data from the original TÜV CB reports 12310702 001, 12310702 002 and 12310702 003.

A sample of the equipment was subject of a construction check.

The following modifications were done for the models listed on the original CB reports and additionally evaluated by this report.

Modifications:

1. Standard updated to IEC 60950-1:2005 (Second Edition), Am 1:2009
(Additionally evaluated Test specifications updated to EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

2. Addition of alternate models **ECOSYS FS-2100D, ECOSYS FS-2100DN, ECOSYS FS-4100DN, ECOSYS FS-4200DN, and ECOSYS FS-4300DN**

these models are same as original models except for brand name.

3. Address change of manufacturing plant, regarding KYOCERA Document Technology (Dongguan) Co., Ltd

from Kyocera Industrial Park 3 Fangzheng East Rd, New City Zone, Shilong, Dongguan, Guangdong, P.R. China

to Kyocera Industrial Park 3 Fangzheng East Rd, **Shilong**, Dongguan, Guangdong, P.R. China

4. Addition of alternate Frame Fuser, manufacturer as follows

Manufacturer/trademark	Type/model
Kaneka Corp.	3401NH
E I Dupont De Nemours & Co., Inc.	RE19041 or RE19041A

5. Addition of alternate Fuse (F1) for Switching Power Supply Unit for 220-240V ac, Low Model as follows

Manufacturer/trademark	Type/model
Littelfuse Inc.	215

6. Type error of Photo Coupler (PC1, PC3, PC5) for Switching Power Supply Unit for 220-240V ac, Low Model as follows

From	To
PS2581AL	PS2581AL1

7. Addition of alternate Fuse (F1) for Switching Power Supply Unit for 220-240V ac, High Model as follows

Manufacturer/trademark	Type/model
Littelfuse Inc.	215

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8. Type error of Photo Coupler (PC1, PC3, PC4, PC5) for Switching Power Supply Unit for 220-240V ac, High Model as follows

From	To
PS2581AL	PS2581AL1

9. Addition of alternate Fuse (F1) for Switching Power Supply Unit for 110, 120V ac, Low Model as follows

Manufacturer/trademark	Type/model
Littelfuse Inc.	215

10. Type error of Photo Coupler (PC1, PC3, PC5) for Switching Power Supply Unit for 110, 120V ac, Low Model as follows

From	To
PS2581AL	PS2581AL1

11. Addition of alternate Fuse (F1) for Switching Power Supply Unit for 110, 120V ac, High Model as follows

Manufacturer/trademark	Type/model
Littelfuse Inc.	215

12. Type error of Photo Coupler (PC1, PC3, PC4, PC5) for Switching Power Supply Unit for 110, 120V ac, High Model as follows

From	To
PS2581AL	PS2581AL1

13. Addition of alternate Center Fan – Optional, alternate Rear Fan as follows

Manufacturer/trademark	Type/model
Minebea Motor Manufacturing Corporation	BM5115-05W-B40-XXX (X may be any number from 0 to 9 or alphabetical number or blank)

14. Addition of alternate manufacturer, regarding Enclosure Cover Top, Cover Left, Cover Rear as follows

Manufacturer/trademark	Type/model
Elix Polymers SL	P2H-AT
Styrolution Koeln GMBH	P2H-AT
Bayer Material Science	FR3006 HF
Teijin Chemicals Ltd. Research & Development Div or Teijin Chemicals Plastic Compounds Shanghai Ltd	TN-7900 or TN-7500 or TX-5700
Techno Polymer Hong Kong Co., Ltd. or Techno Polymer Co., Ltd.	JPH-150A or 330

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15. Type error as follows

- Heater Lamp

from	to
QIRF 240-854 MKFU	QIRF 240-854 XXXX
QIRF 240-641/427 MKFU	QIRF 240-641/427 XXXX
QIRF 120-800 MKFU	QIRF 120-800 XXXX
QIRF 120-600/400 MKFU	QIRF 120-600/400 XXXX
QIRF 110-800 MKFU	QIRF 110-800 XXXX
QIRF 110-600/400 MKFU	QIRF 110-600/400 XXXX

- UL file number Correction of Relay (RL1) from E98688 to **E43149**.
- Main Motor, Drum Motor – Optional from 48M069F180 to **48M069FXXX**
- Polygon Motor

from	to
MASQ6EF3LK	MASQ6EF3LKX
MASQ6NF10LK	MASQ6NF10LKX
MASQ6NF8LK	MASQ6NF8LKX

- FD Motor from PM42M-048-MIJX to PM42M-048-**XXXX**
- Trans Motor

from	to
48M069F261	48M069FXXX
PM55L-048-MIJX	PM55L-048-XXXX

- Lift Motor, Envelop Motor - Optional
from Lift Motor, Envelop Motor - Optional
to Lift Motor - **Optional**, Envelop Motor - Optional
- Alternate Lift Motor, Envelop Motor – Optional
from Alternate Lift Motor, Envelop Motor – Optional
to Alternate Lift Motor- **Optional**, Envelop Motor – Optional

For details, refer to the **bold letters** in appended table 1.5.1.

16. Humidity conditioning was additionally evaluated by customer's request.

17. Appended Table 4.5 Heating test data re-calculated by Max specified ambient temperature 35°C by customer's request.

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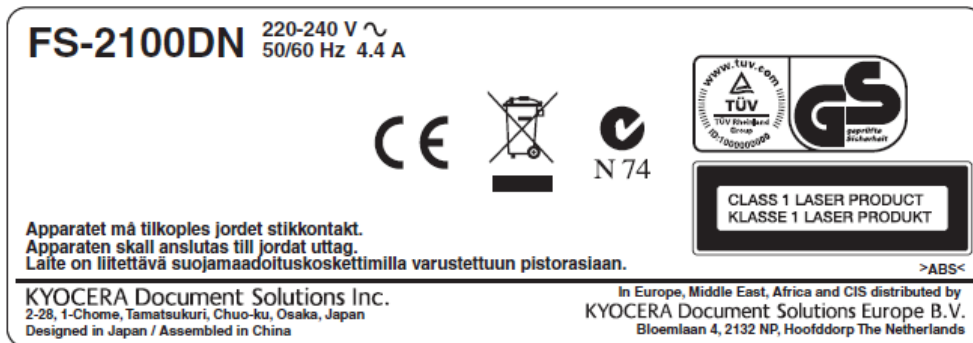
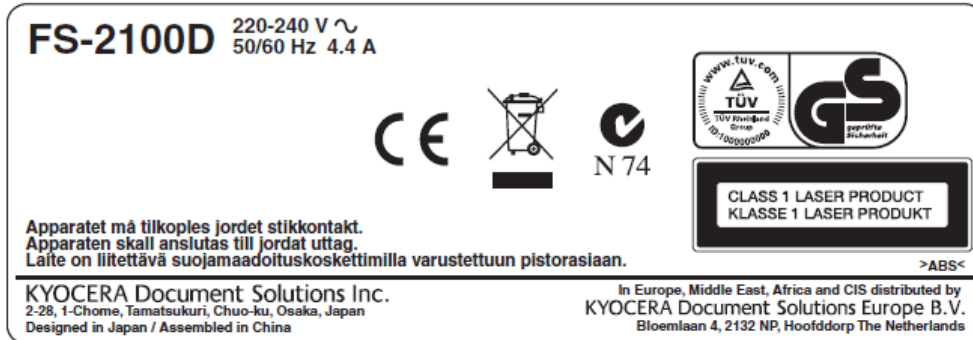
Tests performed (name of test and test clause): (see below)		Testing location: (see "testing procedure and testing location" on the 3rd page)	
Testing		Applicable (Yes/No)	Comments
Clause	Test description		
1.6.2	Input current	Yes	Tested by the original CB reports.
1.7.11	Durability	Yes	Tested by the original CB report.
2.1.1.5	Energy hazards	Yes	Tested by the original CB report.
2.1.1.7	Discharge of capacitors in equipment	Yes	Tested by the original CB report.
2.1.1.8	Energy hazards – d.c. mains supply	No	
2.2.2	SELV/Voltage measurement under normal condition	No	
2.2.3	SELV/Voltage measurement under fault conditions	Yes	Tested by the original CB report.
2.3.5	Operating voltages generated externally	No	
2.4.2	Limited current circuits	Yes	Tested by the original CB report.
2.5	Limited power sources	Yes	Tested by the original CB report.
2.6.3.4	Resistance of earthing conductors and their terminations	Yes	Tested by the original CB report.
2.9.2	Humidity conditioning	Yes	Tested by the original CB report and this report.
2.10	Creepage and Clearances, Distance through Insulation	Yes	Tested by the original CB report.
2.10.2.2/ 2.10.2.3	Determination of working voltage	Yes	Tested by the original CB report.
2.10.5	Solid insulation	Yes	Tested by the original CB report.
2.10.12	Enclosed and sealed parts	No	
3.2.6	Cord anchorages and strain relief	No	
4.1	Stability	Yes	Tested by the original CB report.
4.2	Mechanical strength	Yes	Tested by the original CB report and this report.

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4.3.6	Direct plug-in equipment	No	
4.3.13	Radiation	Yes	Tested by the original CB report.
4.5.2	Maximum Temperatures	Yes	Tested by the original CB report and this report.
4.5.5	Resistance to abnormal heat	Yes	Tested by the original CB report.
5.1	Touch current and protective conductor current	Yes	Tested by the original CB report.
5.2	Electric strength	Yes	Tested by the original CB report and this report.
5.3	Abnormal operating and fault conditions	Yes	Tested by the original CB report.
6.1.2	Separation of the telecommunication network from earth	No	
6.2	Protection of equipment users from overvoltages on telecom. Networks	No	
6.3	Protection of the telecommunication wiring system from overheating	No	
7.2	Protection of equipment users from overvoltages on cable distribution system	No	
7.3	Insulation between primary and cable distribution system	No	
Annex A	Resistance to heat and fire	No	
Annex B	Locked-rotor overload test	Yes	Tested by the original CB report and this report.
Annex C	Overload test	Yes	Tested by the original CB report.
Annex G	Determining minimum clearances	No	
Annex H	Ionizing radiation	No	
Annex K	Thermal controls	No	
Annex M	Criteria for telephone ringing signals	No	
Annex Q	Voltage dependent resistors (VDRs)	No	
Annex U	Insulated wire for use without interleaved insulation	No	
Annex Y	Ultraviolet light conditioning test	No	
Annex CC	Evaluation of Integrated circuit (IC) current limiters	No	
Annex DD	Requirements for the mounting means of rack-mounted equipment	No	

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Annex EE	Household and home/office document/media shredders	No	
<p>Additionally evaluated Test specifications (see appended test report).</p> <p>EN 60950-1:2006 + A11:2009 + A1:2010 + A12: 2011</p> <p>IEC 60825-1:2007</p> <p>EN 60825-1:2007</p>			
<p>Summary of compliance with National Differences</p> <p>EU Group Differences, EU Special National Conditions, EU A-Deviations, CA, DK, FI, DE, KR, SI, SE, GB, US.</p> <p>Explanation of used codes: CA=Canada, DK=Denmark, FI=Finland, DE=Germany, IL= Israel, KR=Republic of Korea, SI=Slovenia, SE=Sweden, GB=United Kingdom, US=United States of America.</p> <p>For National Differences see end of this test report.</p>			

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FS-4100DN 220-240 V ~
50/60 Hz 5.2 A

CE  N 74

Apparatet må tilkoples jordet stikkontakt.
Apparaten skall anslutas till jordat uttag.
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.


KYOCERA Document Solutions Inc.
2-28, 1-Chome, Tamatsukuri, Chuo-ku, Osaka, Japan
Designed in Japan / Assembled in China

In Europe, Middle East, Africa and CIS distributed by
KYOCERA Document Solutions Europe B.V.
Bloemlaan 4, 2132 NP, Hoofddorp The Netherlands

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT

>ABS<

FS-4200DN 220-240 V ~
50/60 Hz 5.2 A

CE  N 74

Apparatet må tilkoples jordet stikkontakt.
Apparaten skall anslutas till jordat uttag.
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.


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In Europe, Middle East, Africa and CIS distributed by
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CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT

>ABS<

FS-4300DN 220-240 V ~
50/60 Hz 5.2 A

CE  N 74

Apparatet må tilkoples jordet stikkontakt.
Apparaten skall anslutas till jordat uttag.
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

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ECOSYS FS-2100D 220-240 V ~
50/60 Hz 4.4 A



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ECOSYS FS-2100DN 220-240 V ~
50/60 Hz 4.4 A



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ECOSYS FS-4100DN 220-240 V ~
50/60 Hz 5.2 A



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ECOSYS FS-4200DN 220-240 V ~
50/60 Hz 5.2 A



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ECOSYS FS-4300DN 220-240 V ~
50/60 Hz 5.2 A



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FS-2100D 120 V ~
60 Hz 8.3 A

Complies with FDA radiation performance standards, 21 CFR Subchapter J.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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FS-2100DN 120 V ~
60 Hz 8.3 A

Complies with FDA radiation performance standards, 21 CFR Subchapter J.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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FS-4100DN 120 V ~
60 Hz 9.7 A

Complies with FDA radiation performance standards, 21 CFR Subchapter J.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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FS-4200DN 120 V ~
60 Hz 9.7 A

Complies with FDA radiation performance standards, 21 CFR Subchapter J.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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FS-4300DN 120 V ~
60 Hz 9.7 A

Complies with FDA radiation performance standards, 21 CFR Subchapter J.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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ECOSYS FS-2100D 120 V ~
60 Hz 8.3 A



Complies with FDA radiation performance standards, 21CFR Subchapter J.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received,
including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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ECOSYS FS-2100DN 120 V ~
60 Hz 8.3 A



Complies with FDA radiation performance standards, 21CFR Subchapter J.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received,
including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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ECOSYS FS-4100DN 120 V ~
60 Hz 9.7 A



Complies with FDA radiation performance standards, 21CFR Subchapter J.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received,
including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003.
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ECOSYS FS-4200DN 120 V ~
60 Hz 9.7 A



Complies with FDA radiation performance standards, 21CFR Subchapter J.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received,
including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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ECOSYS FS-4300DN 120 V ~
60 Hz 9.7 A



Complies with FDA radiation performance standards, 21CFR Subchapter J.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received,
including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003.
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製造年份:

FS-2100D 110 V ~
60 Hz 9.1 A (KYOCERA 雷射印表機)

設計開發: 日本 製造國別: 中國

KYOCERA Document Technology (Dongguan) Co., Ltd.

Kyocera Industrial Park, 3 Fang Zheng East Road,

Shilong Town, Dongguan City,

Guangdong Province, People's Republic of China

進口商(台灣分公司):

台灣京瓷辦公資訊系統股份有限公司

住址: 104台北市中山區民權東路三段 37號6樓

電話: 02-2507-6709 服務專線: 0800-055-828



功能規格和使用方法: 請參考使用手冊

注意: 維修及更換保險絲時, 請務必將電源線拆下。 >ABS<

製造年份:

FS-2100DN 110 V ~
60 Hz 9.1 A (KYOCERA 雷射印表機)

設計開發: 日本 製造國別: 中國

KYOCERA Document Technology (Dongguan) Co., Ltd.

Kyocera Industrial Park, 3 Fang Zheng East Road,

Shilong Town, Dongguan City,

Guangdong Province, People's Republic of China

進口商(台灣分公司):

台灣京瓷辦公資訊系統股份有限公司

住址: 104台北市中山區民權東路三段 37號6樓

電話: 02-2507-6709 服務專線: 0800-055-828



功能規格和使用方法: 請參考使用手冊

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製造年份:

FS-4100DN 110 V ~
60 Hz 10.6 A (KYOCERA 雷射印表機)

設計開發:日本 製造國別:中國

KYOCERA Document Technology (Dongguan) Co., Ltd.

Kyocera Industrial Park, 3 Fang Zheng East Road,

Shilong Town, Dongguan City,

Guangdong Province, People's Republic of China

進口商(台灣分公司):

台灣京瓷辦公資訊系統股份有限公司

住址:104台北市中山區民權東路三段 37號6樓

電話:02-2507-6709 服務專線:0800-055-828


 CLASS 1 LASER PRODUCT
1級雷射產品

功能規格和使用方法:請參考使用手冊

注意:維修及更換保險絲時,請務必將電源線拆下。 >ABS<

製造年份:

FS-4200DN 110 V ~
60 Hz 10.6 A (KYOCERA 雷射印表機)

設計開發:日本 製造國別:中國

KYOCERA Document Technology (Dongguan) Co., Ltd.

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製造年份:

FS-4300DN 110 V ~
60 Hz 10.6 A (KYOCERA 雷射印表機)

設計開發:日本 製造國別:中國

KYOCERA Document Technology (Dongguan) Co., Ltd.

Kyocera Industrial Park, 3 Fang Zheng East Road,

Shilong Town, Dongguan City,

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功能規格和使用方法:請參考使用手冊

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製造年份:

ECOSYS FS-2100D 110 V ~ 60 Hz 9.1 A (KYOCERA 雷射印表機)

設計開發:日本 製造國別:中國
 KYOCERA Document Technology (Dongguan) Co., Ltd.
 Kyocera Industrial Park, 3 Fang Zheng East Road,
 Shilong Town, Dongguan City,
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 R33492


CLASS 1 LASER PRODUCT
1級雷射產品

功能規格和使用方法:請參考使用手冊
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 R33492

CLASS 1 LASER PRODUCT
1級雷射產品

功能規格和使用方法:請參考使用手冊
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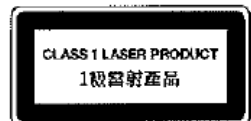
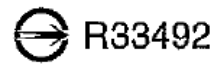
IEC 60950-1

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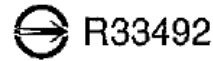


功能規格和使用方法: 請參考使用手冊
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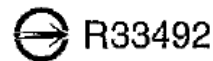


功能規格和使用方法: 請參考使用手冊
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製造年份:

ECOSYS FS-4300DN 110 V ~ 60 Hz 10.6 A (KYOCERA 雷射印表機)

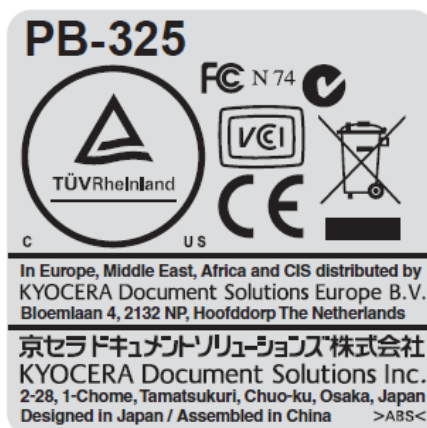
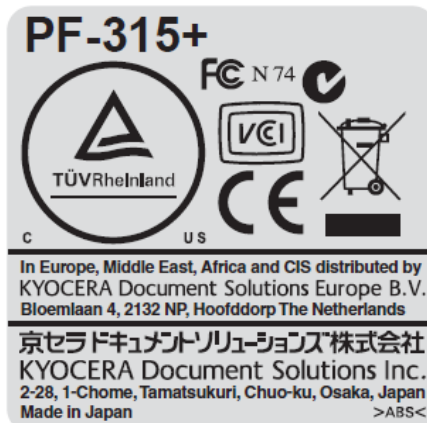
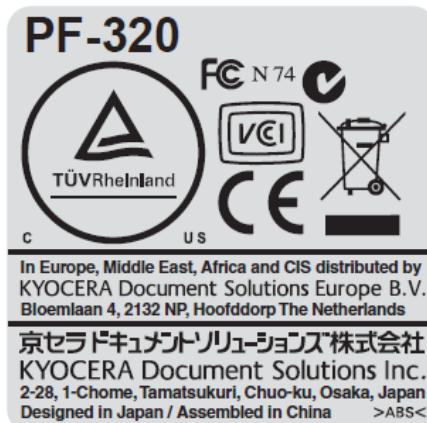
設計開發: 日本 製造國別: 中國
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功能規格和使用方法: 請參考使用手冊
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IEC 60950-1

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IEC 60950-1

Copy of marking plate:

Warnings in the main unit

DANGER	• CLASS 3B LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ATTENTION	• CLASSE 3B RAYONNEMENT LASER EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
VORSICHT	• KLASSE 3B LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENZIONE	• CLASSE 3B RADIAZIONE LASER IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
PRECAUCION	• CLASSE 3B RADIACIONE LASER CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
VAROI	• AVATTAESSA OLET ALTTIINA LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
	警告・该产品为3B类激光产品，打开盖子后会有激光辐射， 请避免光束照射。
	警告・該產品為3B類激光產品，打開蓋子後會有激光輻射， 請避免光束照射。
	위험・CLASS 3B 가시 레이저광선을 직접 보지마십시오.
	警告・ここを開くとクラス3Bレーザー光がでます。 ビームを直接見たリ、触れないでください。

on Cover Rear



on Fuser Unit



IEC 60950-1

Test item particulars.....:	
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition.....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	±10%
Tested for IT power systems	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	230V
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16A (for Europe) and 20A (for Canada and USA)
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	Not rated, indoor use only
Altitude during operation (m)	Up to 3500
Altitude of test laboratory (m)	< 1000
Mass of equipment (kg)	Approx. 14.5kg for FS-2100D, FS-2100DN 15.5kg for FS-4100DN, FS-4200DN, FS-4300DN
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A (or N)
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing.....:	
Date of receipt of test item.....:	2011-12-27 for cl. 4.3.13.5, N/A for TMP
Date(s) of performance of tests.....:	2011-12-27 to 2012-01-31 for cl. 4.3.13.5, 2012-03-05 to 2012-03-29 2012-07-09, 2012-07-25 2012-08-20 to 2012-08-25 Refer to Summary of testing.

IEC 60950-1

General remarks:

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

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

"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60950-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided

- ☒ Yes
☐ Not applicable

When differences exist; they shall be identified in the General product information section.

- Name and address of factory (ies)** :
1. KYOCERA Document Technology (Dongguan) Co., Ltd.
Kyocera Industrial Park
3 Fangzheng East Rd, Shilong, Dongguan, Guangdong, P.R. China
 2. YiHe PLASTIC & ELECTRONIC PRODUCTS (SHENZHEN) CO., LTD.
EVA Industrial Garden, Tang Xing Road, Shi Yan Town, Bao An District, Shenzhen, 518108 P.R. China
 3. Kyocera Document Solutions Inc. Tamaki Plant
704-19 Nojino, Tamaki-Cho, Watarai-Gun, Mie 519-0497, Japan
 4. Kyocera Document Solutions Inc. Hirakata Plant
1-38-12 Tsuda-Kita-machi, Hirakata-shi, Osaka 573-0121, Japan

IEC 60950-1**1) Application details / Description of the product:**

The product tested is a printer for use in a general office environment.

Max. specified ambient temperature (°C) 32.5°C

Supply connection Appliance inlet and detachable power cord set.

Laser classification Class 1

Non-approved building-in type switching power supplies in main unit were tested as part of the overall configuration of the equipment.

IEC 60950-1

2) Differences between the models:

The models of main units are essentially the same except for the items described in the following table.

Model Item	FS-2100D ECOSYS FS-2100D	FS-2100DN ECOSYS FS-2100DN	FS-4100DN ECOSYS FS-4100DN	FS-4200DN ECOSYS FS-4200DN	FS-4300DN ECOSYS FS-4300DN
Rating	220-240V~ : 4.4A	220-240V~ : 4.4A	220-240V~ : 5.2A	220-240V~ : 5.2A	220-240V~ : 5.2A
	120V~ : 8.3A	120V~ : 8.3A	120V~ : 9.7A	120V~ : 9.7A	120V~ : 9.7A
	110V~ : 9.1A	110V~ : 9.1A	110V~ : 10.6A	110V~ : 10.6A	110V~ : 10.6A
Printing Speed	40ppm	40ppm	45ppm	50ppm	60ppm
Ethernet Interface	Not provided	Provided	Provided	Provided	Provided
Switching Power Supply 220-240V	MPW3100L	MPW3100L	MPW3100	MPW3100	MPW3100
Switching Power Supply 110V, 120V	MPW3099L	MPW3099L	MPW3099	MPW3099	MPW3099
Heater Lamp	One provided	One provided	Two provided	Two provided	Two provided
PF-320 (Paper Feeder Unit)	Optionally provided (Max. 4 units)	Optionally provided (Max. 4 units)	Optionally provided (Max. 4 units)	Optionally provided (Max. 4 units)	Optionally provided (Max. 4 units)
PF-315+ (Paper Feeder Unit)	Optionally provided	Optionally provided	Optionally provided	Optionally provided	Optionally provided
PB-325 (Attachment Kit)	Optionally provided	Optionally provided	Optionally provided	Optionally provided	Optionally provided

Although it may be with "ECOSYS" in front of the model name, the difference is only brand name, and not affecting safety.

3) Options:

Paper Feeding Unit, Model PF-320, supplied by SELV
 Paper Feeding Unit, Model PF-315+, supplied by SELV
 Attachment Kit, Model PB-325, supplied by SELV

IEC 60950-1

4) Insulation system:

- Secondary circuits are separated from primary by double/reinforced insulation.
- Primary circuits are separated from earth by at least basic insulation.
- All output / interface voltages are at SELV level.
- Secondary circuits are conductively connected to earth.
- High voltage is generated from SELV circuits, see cl. 2.2.4.
- Internal metal chassis and relevant accessible metal parts are reliably connected to protective bonding.

4.1) Sub-units (PCB's, ...)

With pri – sec separation: SWPS, Fuser Unit

With pri – parts only: (none)

HV-unit(s): High Voltage Unit (see appended table 1.5.1)

.....:

4.2) Pri - sec components, which are not part of the above mentioned sub-units:

(none)

4.3) Non certified pri-components directly mounted to chassis:

(certified components were only checked for correct-application (see 1.5.1))

Attachments included in this Test Report:

- Measurement Section
- National Differences
- IEC/EN 60825-1 test report.

Attachments separated from this Test Report:

- Photo Documentation

IEC 60950-1

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	FI	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI
- protective earth/protective bonding	PE/PB	- primary	Pri
- (switching) power supply	(SW)PS	- secondary	sec
- high voltage	HV	- ground	gnd
- printed circuit (wiring) board	PCB	- input/output	I/O
- triple insulated wire	TIW	- installation instruction	ii
- built-in application	B/I		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Components, which are certified for IEC and/or national standards, are used correctly within their ratings.	P
1.5.3	Thermal controls	Certified components used; correct application confirmed.	P
1.5.4	Transformers	(see Annex C)	P
1.5.5	Interconnecting cables	No interconnecting cables.	N/A
1.5.6	Capacitors bridging insulation	Type X2 capacitors used between lines, type Y1 or Y2 capacitors used between line and earth, double or reinforced insulation bridged between primary and secondary by Y1 capacitors comply with IEC 60384-14. (see appended table 1.5.1)	P
1.5.7	Resistors bridging insulation	See below	P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Only resistors bridging functional insulations.	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No such components.	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No such components.	N/A
1.5.8	Components in equipment for IT power systems	Line to PE components are rated for line to line voltage.	P
1.5.9	Surge suppressors	See below.	P
1.5.9.1	General	Only approved VDRs used in primary.	P
1.5.9.2	Protection of VDRs	Fuse (F1 in SWPS) is installed in series.	P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR	No such VDRs.	N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	No such VDRs.	P

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

1.6	Power interface		P
1.6.1	AC power distribution systems	TN, TN-S, IT (considered for Norway)	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment.	N/A
1.6.4	Neutral conductor	Neutral insulated from earth and body like as line conductor. Components between neutral and earth are rated the same as for line to earth.	P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	See below.	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:	Single mains supply connection.	N/A
	Rated voltage(s) or voltage range(s) (V).....:	220-240V~ or 120V~ or 110V~	P
	Symbol for nature of supply, for d.c. only.....:	AC supply.	N/A
	Rated frequency or rated frequency range (Hz) ...:	50/60Hz or 60Hz	P
	Rated current (mA or A)	4.4A or 5.2A or 8.3A or 9.1A or 9.7A or 10.6A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	KYOCERA (on the products)	P
	Model identification or type reference	FS-2100D, FS-2100DN, FS-4100DN, FS-4200DN, FS-4300DN ECOSYS FS-2100D, ECOSYS FS-2100DN, ECOSYS FS-4100DN, ECOSYS FS-4200DN, ECOSYS FS-4300DN	P
	Symbol for Class II equipment only	Class I equipment	N/A
	Other markings and symbols	(see copy of marking plate)	P

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

1.7.2	Safety instructions and marking	See below.	P
	<p>Operating Instructions provided to the operator, containing necessary instructions and caution information. English version checked.</p> <p><u>Disconnect Device</u> according 3.4.3 described in the manual (pluggable equipment): "The socket outlet must be located close to the machine and be easily accessible."</p> <p>Dangerous levels of <u>ozone</u> not generated. Instruction for installation in a well-ventilated room is given.</p> <p><u>Non-toxic toner</u> used. Proper disposal instructions provided (manual).</p> <p>"Caution hot"; high temperature warning on fuser unit, as it does not immediately cool down when accessed during paper jam removal.</p> <p><u>Laser label and warning label</u> is provided: "CLASS 1 LASER PRODUCT" and other warning label. Refer to IEC/EN 60825-1 report.</p>		—
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Appliance inlet used.	N/A
1.7.2.3	Overcurrent protective device	Pluggable equipment type A	N/A
1.7.2.4	IT power distribution systems	Considered for Norway. No special modification, no instruction required.	P
1.7.2.5	Operator access with a tool	Only SELV voltages accessible to the operator without the use of another tool.	N/A
1.7.2.6	Ozone	See cl. 1.7.2.	P
1.7.3	Short duty cycles	Continuous operation.	N/A
1.7.4	Supply voltage adjustment	Single voltage range.	N/A
	Methods and means of adjustment; reference to installation instructions	--	—
1.7.5	Power outlets on the equipment	No power outlets provided.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	<p>Fuses are clearly and adequately marked with fuse numbers and ratings.</p> <p>SWPS: F1: T4AH 250V F51: T10AH 250V</p> <p>“CAUTION FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE(S).”</p> <p>No user accessible fuse holder.</p>	P
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals	<p>Approved appliance inlet used.</p> <p>PB terminals, connecting to the chassis, are marked with symbol IEC 60417, No. 5017.</p>	P
1.7.7.2	Terminals for a.c. mains supply conductors	Appliance inlet used.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No connection to DC mains.	N/A
1.7.8	Controls and indicators	See below.	P
1.7.8.1	Identification, location and marking	<p>Safety related switches and controls: Power Switches: Functions are obvious by positioning and markings (see 1.7.8.3)</p> <p>Other indicators/controls provided for functional reasons, not affecting safety.</p>	P
1.7.8.2	Colours	--	N/A
1.7.8.3	Symbols according to IEC 60417	Marking for power switch according to IEC 60417, No. 5007 “ I “ , 5008 “ O “ and 5009 (5009 was only provided for Korea model) .	P
1.7.8.4	Markings using figures	Not used.	N/A
1.7.9	Isolation of multiple power sources	Single supply.	N/A
1.7.10	Thermostats and other regulating devices	No such thermostats or the like.	N/A
1.7.11	Durability		P

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Clause	Requirement + Test	Result - Remark	Verdict
1.7.12	Removable parts	Safety relevant markings are located on fixed installed parts.	P
1.7.13	Replaceable batteries	Lithium battery not replaceable by user.	N/A
	Language(s)	--	—
1.7.14	Equipment for restricted access locations.....	Not intended for restricted access location.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	See below.	P
	Test by inspection	Operator cannot contact any hazardous bare parts or parts with only basic insulation to hazardous voltage.	P
	Test with test finger (Figure 2A)	No access to hazardous parts.	P
	Test with test pin (Figure 2B)	The test pin cannot touch hazardous bare parts through any openings in the enclosure.	P
	Test with test probe (Figure 2C)	Test probe cannot touch TNV circuits.	P
2.1.1.2	Battery compartments	No battery compartment.	N/A
2.1.1.3	Access to ELV wiring	No ELV circuits.	N/A
	Working voltage (V_{peak} or V_{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	Not accessible to operator.	P
2.1.1.5	Energy hazards	No energy hazards in operator access area. (see appended table 2.1.1.5)	P
2.1.1.6	Manual controls	Not connected to and sufficiently separated from hazardous voltages.	P
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s).....	(see appended table 2.1.1.7)	—
2.1.1.8	Energy hazards – d.c. mains supply	No d.c. mains supply.	N/A
	a) Capacitor connected to the d.c. mains supply ...	--	N/A
	b) Internal battery connected to the d.c. mains supply	--	N/A
2.1.1.9	Audio amplifiers	Not provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.1.2	Protection in service access areas	Bare parts carrying hazardous voltage or energy levels are located or guarded properly to avoid unintentional contact and bridging. No unexpected hazard.	P
2.1.3	Protection in restricted access locations	Not intended to be installed in a restricted access location.	N/A

2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	Measured 25.8V max. (see appended table 2.2.2)	P
2.2.3	Voltages under fault conditions (V)	Limits of 71V peak and 120Vdc were not exceed, SELV limits not for longer than 0.2 seconds, (see appended table 2.2.3 and table 5.3)	P
2.2.4	Connection of SELV circuits to other circuits	SELV not connected to primary. HV-unit(s): supplied from SELV; if HV (anode) was shorted to SELV side, SELV was not exceeded at the output connections of the unit. (measured with oscilloscope)	P

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits	--	—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions	--	N/A
2.3.3	Separation from hazardous voltages		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Insulation employed	--	—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed	--	—
2.3.5	Test for operating voltages generated externally		N/A
2.4	Limited current circuits <i>Test performed for evaluation of cl. 1.5.6 and HV circuit PWB MPH7462A</i>		P
2.4.1	General requirements	See below.	P
2.4.2	Limit values	(see appended table 2.4.2)	P
	Frequency (Hz)	--	—
	Measured current (mA)	--	—
	Measured voltage (V).....	--	—
	Measured circuit capacitance (nF or µF)	--	—
2.4.3	Connection of limited current circuits to other circuits	The limited current circuits are supplied from SELV circuits	P
2.5	Limited power sources <i>The following circuits were tested for limited power source:);</i> - 24V output for Paper feeder option unit - 3.3V output for Paper feeder option unit - 24V output for Polygon motor and Connect-L - 5V output for APC PWB and PANEL PWB - 3.3V output for Connect L PWB,PANEL PWB, APC PWB and High voltage PWB - 24V output for LSU fan motor and TH Connect PWB,PANEL PWB - 5V output for USB - 24V output for High voltage PWB		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		P
	d) Overcurrent protective device limited output	Fuses: YF7 on Engine PWB, YF8 on Engine PWB, YF1 on Engine PWB YF5 on Engine PWB YF6 on Engine PWB, YF2 on Engine PWB F1 on Main PWB, F1 on High voltage PWB	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	(see appended table 2.5)	—
	Current rating of overcurrent protective device (A) ..	Fuses: YF7 on Engine PWB, rated 3.15A YF8 on Engine PWB, rated 2A YF1 on Engine PWB, rated 3.15A YF5 on Engine PWB, rated 2A YF6 on Engine PWB, rated 2A YF2 on Engine PWB, rated 3.15A F1 on Main PWB, rated 4A. F1 on High Voltage PWB, rated 1.5A. The fuses have the characteristics required in remark 4 of table 2C.	—
	Use of integrated circuit (IC) current limiters		N/A

2.6	Provisions for earthing and bonding		P
	Protective Bonding wire is on one side hooked in and soldered to Protective Earth pin of appliance inlet, the other side has ring terminal (fixed by double crimping). Ring terminal fitted with toothed lock is secured to chassis by M4 screw.		—
2.6.1	Protective earthing	a) Accessible basic insulated conductive parts are reliably bonded to the protective earth terminal. f) Ground of SELV circuits was earthed to reduce touch current.	P
2.6.2	Functional earthing	Functional earthing either separated from hazardous voltages by double- or reinforced insulation or safely connected to PB.	P
2.6.3	Protective earthing and protective bonding conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.3.1	General	2.6.1 a) metal parts: See below. 2.6.1 f) Ground of SELV: adequate construction for actual current.	P
2.6.3.2	Size of protective earthing conductors	(refers to table 3B, cl. 3.2.5)	P
	Rated current (A), cross-sectional area (mm ²), AWG	Rated 5.2A, min 0.75mm ² Rated 9.7A, min 16AWG Rated 10.6A, min 2.00mm ²	—
2.6.3.3	Size of protective bonding conductors	Tested per cl. 2.6.3.4 PB wire inlet to chassis is the same size as power conductors.	P
	Rated current (A), cross-sectional area (mm ²), AWG	--	—
	Protective current rating (A), cross-sectional area (mm ²), AWG	--	—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)	(see appended table 2.6.3.4)	P
2.6.3.5	Colour of insulation	PE and PB conductors are green/yellow. Green/Yellow wire not used for other connections.	P
2.6.4	Terminals		P
2.6.4.1	General	Appliance inlet used.	P
2.6.4.2	Protective earthing and bonding terminals	Tested per cl. 2.6.3.4	P
	Rated current (A), type, nominal thread diameter (mm)	Rated 10.6A max., M4 screw used for PB terminals.	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Appliance inlet used.	P
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment		P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switches or fuses in earthing conductors.	P
2.6.5.3	Disconnection of protective earth	Appliance inlet: It is not possible to disconnect earth without disconnecting mains.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.4	Parts that can be removed by an operator	Plug and Appliance inlet: Earthing connected before and disconnected after hazardous voltage. No hazards expected on operator removable Fixing Unit.	P
2.6.5.5	Parts removed during servicing	It is not necessary to disconnect earthing except for the removing of the earthed parts itself.	P
2.6.5.6	Corrosion resistance	All protective earth connections in compliance with Annex J. Specifically no direct Al – Cu contacts.	P
2.6.5.7	Screws for protective bonding	Thread cutting or space thread screwed connections not used for protective bonding connections.	N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuits.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	<p>The built-in device fuse provides overcurrent protection.</p> <p>Pluggable equipment type A. Equipment relies on 16A rated fuse or circuit breaker of the building installation for short circuit and earth fault.</p>	P
	Instructions when protection relies on building installation	Neither pluggable equipment type B nor permanent connection.	N/A
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection	Pluggable equipment type A, the building installation is considered as providing short circuit protection. Additionally verification by short / abnormal tests	P
2.7.4	Number and location of protective devices	<p>Overcurrent protections in primary phase by fuse; F1 in SWPS.</p> <p>Earth fault protection by fuse or circuit breaker in the building installation.</p>	P
2.7.5	Protection by several devices	Only these fuses in phase or line.	N/A
2.7.6	Warning to service personnel	No unexpected hazard.	N/A

2.8	Safety interlocks		P
2.8.1	General principles	Safety interlocks are provided and prevent operator from access to hazardous moving parts and hazardous voltages.	P
	<p><u>Main Unit:</u> Power (DC 24V) to the following parts is cut by Interlock Switch on the Engine PWB when Front Cover opened. High Voltage PWB, Main Motor, Drum Motor, Lift Motor, Polygon Motor, Toner Motor, FD Motor, Envelop Motor, DLP Clutch, Feed Clutch, Reg Clutch, Mid Clutch, DU Clutch, Face U/D Solenoid, MPF Solenoid</p>		—

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Clause	Requirement + Test	Result - Remark	Verdict
2.8.2	Protection requirements	Hazardous voltages and energy levels are de-energized when interlock is activated, moving parts are stopped and/or slowed down to non hazardous speeds. No access to hazardous parts by test finger in interlocked areas.	P
2.8.3	Inadvertent reactivation	Inadvertent reactivation is not possible. Test finger can not override interlock system.	P
2.8.4	Fail-safe operation	Failure in interlock system will result in open circuit condition of the system, no hazard.	P
	Protection against extreme hazard		P
2.8.5	Moving parts	Relevant doors are provided with levers, directly activating the approved interlock switches. No intermediate mechanism involved.	N/A
2.8.6	Overriding	No such systems.	N/A
2.8.7	Switches, relays and their related circuits	Interlock Switches comply with IEC 61058-1. No relays related to interlock.	P
2.8.7.1	Separation distances for contact gaps and their related circuits (mm)	Approved switches.	N/A
2.8.7.2	Overload test	Approved switches.	N/A
2.8.7.3	Endurance test	Approved switches.	N/A
2.8.7.4	Electric strength test	Not tested per 2.8.7.2 / 3.	N/A
2.8.8	Mechanical actuators	Adequate design of the actuator/switch mechanism, no overstress.	P
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.9.2	Humidity conditioning	Humidity treatment conducted for 120h. Humidity conditioning were also conducted to Transformer, Photo Coupler and their alternate components.	P
	Relative humidity (%), temperature (°C)	93%, 40°C	—
2.9.3	Grade of insulation	Kind of insulation and working voltage considered.	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used	Method 1: a, b Method 2	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency	Max. 60.8kHz.	P
2.10.1.2	Pollution degrees	Pollution degree 2.	P
2.10.1.3	Reduced values for functional insulation	5.3.4 a) not applied except for before fuse. (see appended table 2.10.3/.4)	P
2.10.1.4	Intervening unconnected conductive parts	No considered.	N/A
2.10.1.5	Insulation with varying dimensions	No applied.	N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such lamps used.	N/A
2.10.2	Determination of working voltage	The r.m.s. and the peak voltages were measured on all sources of the switching power supply.	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(see appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(see appended table 2.10.2)	P
2.10.3	Clearances		P
2.10.3.1	General	Comply with 2.10.3.3/.4. Annex G applied for interlock in sec.	P
2.10.3.2	Mains transient voltages	Not measured, normal transient levels considered.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) AC mains supply	2500V considered for the rating AC220-240V.	P
	b) Earthed d.c. mains supplies	No direct connection to dc mains.	N/A
	c) Unearthed d.c. mains supplies	No direct connection to dc mains.	N/A
	d) Battery operation	No such batteries.	N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3/4)	P
2.10.3.4	Clearances in secondary circuits	(see appended table 2.10.3/4)	P
2.10.3.5	Clearances in circuits having starting pulses	No such lamps used.	N/A
2.10.3.6	Transients from a.c. mains supply	(see cl. 2.10.3.9)	N/A
2.10.3.7	Transients from d.c. mains supply	--	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems	--	N/A
2.10.3.9	Measurement of transient voltage levels	Not measured, normal transient levels considered.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply	--	N/A
	For a d.c. mains supply	--	N/A
	b) Transients from a telecommunication network :	--	N/A
2.10.4	Creepage distances	(see appended table 2.10.3/4)	P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index	See below.	P
	CTI tests	Material group IIIb is assumed to be used.	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3/4)	P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation	No such insulations.	N/A
2.10.5.4	Semiconductor devices	Photo-couplers are approved components.	N/A
2.10.5.5.	Cemented joints	Not considered.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.6	Thin sheet material – General	Provided for reinforced insulation within Transformer T1 used in SWPS.	P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs).....:	2 layers for the reinforced insulation within Transformer T1 used in SWPS.	—
2.10.5.8	Non-separable thin sheet material	No such construction.	N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components	no planar transformers used.	N/A
2.10.5.12	Wire in wound components	Not considered.	N/A
	Working voltage	--	N/A
	a) Basic insulation not under stress	--	N/A
	b) Basic, supplementary, reinforced insulation	--	N/A
	c) Compliance with Annex U	--	N/A
	Two wires in contact inside wound component; angle between 45° and 90°	--	N/A
2.10.5.13	Wire with solvent-based enamel in wound components	Not considered.	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	Not applied.	N/A
	Working voltage	--	N/A
	- Basic insulation not under stress	--	N/A
	- Supplementary, reinforced insulation	--	N/A
2.10.6	Construction of printed boards	--	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3/.4)	P
2.10.6.2	Coated printed boards	Coating not tested.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	Not used to provide supplementary or double/reinforced insulation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Distance through insulation		N/A
	Number of insulation layers (pcs): --		N/A
2.10.7	Component external terminations	No such components.	N/A
2.10.8	Tests on coated printed boards and coated components	Coating not tested.	N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	Photo Coupler (including alternate) PC1, PC3, PC4 and PC5 were certified.	P
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints	Photo Coupler (including alternate) PC1, PC3, PC4 and PC5 were certified.	P
2.10.12	Enclosed and sealed parts	Not applied.	N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	Sufficient cross sectional area of internal wiring. Internal wires are UL recognized wires.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges and heat sinks that could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring	Internal secondary wires with basic isolation are routed so that they are not close to any live bare components. Wires are adequately fixed to prevent excessive strain or damage of the conductors' insulation.	P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure	Relevant electrical and bonding connections engage at least two complete threads into metal. No screws of insulating material are used for electrical and earthing connections.	P
3.1.7	Insulating materials in electrical connections	Relevant current carrying and all protective earthing/bonding connections are metal to metal.	P
3.1.8	Self-tapping and spaced thread screws	Where safety is involved, thread cutting or space thread screws not used for current carrying electrical connections.	N/A
3.1.9	Termination of conductors	Conductors are suitable terminated, creepage and clearances maintained, second securing for soldered terminations provided.	P
	10 N pull test	10N applied to relevant conductors.	P
3.1.10	Sleeving on wiring	Relevant sleeving on primary and secondary wirings reliably kept in position.	P

3.2	Connection to a mains supply		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet.	P
3.2.1.2	Connection to a d.c. mains supply	No connection to DC mains.	N/A
3.2.2	Multiple supply connections	Only one supply connection.	N/A
3.2.3	Permanently connected equipment	Not such equipment.	N/A
	Number of conductors, diameter of cable and conduits (mm)	--	—
3.2.4	Appliance inlets	The appliance inlet complies with IEC 60320-1 and is located at the rear of the unit. The power cord can be inserted without difficulties and does not support the unit.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Power supply cords		P
3.2.5.1	AC power supply cords	The power supply cord is provided with this unit.	P
	Type	(see appended table 1.5.1)	—
	Rated current (A), cross-sectional area (mm ²), AWG	Rated 5.2A, min 0.75mm ² Rated 9.7A, min 16AWG Rated 10.6A, min 2.00mm ²	—
3.2.5.2	DC power supply cords	No connection to dc main.	N/A
3.2.6	Cord anchorages and strain relief	Appliance inlet used.	N/A
	Mass of equipment (kg), pull (N)	--	—
	Longitudinal displacement (mm)	--	—
3.2.7	Protection against mechanical damage	No sharp points or cutting edges that may damage the power supply cord.	P
3.2.8	Cord guards	(see above)	N/A
	Diameter or minor dimension D (mm); test mass (g)	--	—
	Radius of curvature of cord (mm)	--	—
3.2.9	Supply wiring space	Appliance inlet used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

3.4	Disconnection from the mains supply		P
3.4.1	General requirement	Disconnect device is provided.	P
3.4.2	Disconnect devices	Appliance inlet	P
3.4.3	Permanently connected equipment	Pluggable equipment type A.	N/A
3.4.4	Parts which remain energized	No parts remain energized.	P
3.4.5	Switches in flexible cords	Not provided.	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	The appliance inlet disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment	Single phase equipment.	N/A
3.4.8	Switches as disconnect devices	Switch not used as disconnect device.	N/A
3.4.9	Plugs as disconnect devices		P
3.4.10	Interconnected equipment	No such interconnection	N/A
3.4.11	Multiple power sources	Single supply connection.	N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements	See below.	P
3.5.2	Types of interconnection circuits	SELV	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.5.3	ELV circuits as interconnection circuits	No ELV circuits.	N/A
3.5.4	Data ports for additional equipment	Supplied from limited power source. (see appended table 2.5)	P

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°	Stable mechanical construction, equipment does not overbalance when tilted to an angle of 10° from its normal upright position.	P
	Test force (N)	Not a floor-standing unit.	N/A

4.2	Mechanical strength		P
4.2.1	General	Outer enclosure shows sufficient strength to withstand expected handling conditions.	P
	Rack-mounted equipment.	Not rack-mounted.	N/A
4.2.2	Steady force test, 10 N	Applied to relevant parts, no hazard.	P
4.2.3	Steady force test, 30 N	30 N applied to internal enclosures.	P
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. Test points: Cover Top, Cover Top-Alternate , Cover Rear, Cover Rear-Alternate , Right Cover, Right Cover-Alternate, Left Cover, Left Cover-Alternate	P
4.2.5	Impact test	See below:	P
	Fall test	Test points: Cover Top, Cover Top-Alternate , Cover Rear, Cover Rear-Alternate , Right Cover, Right Cover-Alternate, Left Cover, Left Cover-Alternate	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Swing test		N/A
4.2.6	Drop test; height (mm):	Neither direct plug-in nor hand held.	N/A
4.2.7	Stress relief test	After 7h at 75°C for enclosures , at 135°C for Frame Fuser and cooling down to room temperature, no shrinkage, distortion or loosening of enclosure parts was noticeable on the unit.	P
4.2.8	Cathode ray tubes	No CRT.	N/A
	Picture tube separately certified:	--	N/A
4.2.9	High pressure lamps	No such lamp.	P
4.2.10	Wall or ceiling mounted equipment; force (N):	Not intended for wall or ceiling mounting.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded and smooth.	P
4.3.2	Handles and manual controls; force (N)	15N (Main Switch)	P
4.3.3	Adjustable controls	Full range circuit, no voltage adjustment necessary. Operational controls not likely to cause any hazard.	N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. Relevant screws provided with lock-washer.	P
4.3.5	Connection by plugs and sockets	In operator and service areas, mismatching prevented by incompatible form or location.	P
4.3.6	Direct plug-in equipment	Not direct plug-in.	N/A
	Torque	--	—
	Compliance with the relevant mains plug standard	--	N/A
4.3.7	Heating elements in earthed equipment	Heating element protected by certified thermostat in one phase and TRIAC in the other.	P
4.3.8	Batteries	Lithium battery (CR2032) circuits in Main PWB utilize a diode in series with a 1kΩ resistor.	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery	(see above)	P
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery	(see above)	P
4.3.9	Oil and grease	Insulation not in contact with oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Insulation not exposed to any possible paper dust or toner; separation by internal covers.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.11	Containers for liquids or gases	No liquid contained.	N/A
4.3.12	Flammable liquids	No flammable liquids present.	N/A
	Quantity of liquid (l)	--	N/A
	Flash point (°C)	--	N/A
4.3.13	Radiation	See below.	P
4.3.13.1	General	Adequate construction confirmed.	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 ultraviolet (UV) radiation.	N/A
	Part, property, retention after test, flammability classification	--	N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation	--	N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		P
4.3.13.5.1	Lasers (including laser diodes)	For laser see IEC/EN 60825-1 test report. Indicator LEDs below laser class 1 limits. LEDs considered at lower level.	P
	Laser class	Class 1	—
4.3.13.5.2	Light emitting diodes (LEDs)	Only low power LED.	N/A
4.3.13.6	Other types	--	N/A
4.4	Protection against hazardous moving parts		P
4.4.1	General	Access to hazardous moving parts prevented by construction.	P
4.4.2	Protection in operator access areas	Operator accessible moving parts represent no hazard, e.g. paper feeding / –exit areas. Hazardous moving parts are protected by interlock per cl.2.8.	P

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Clause	Requirement + Test	Result - Remark	Verdict

	Household and home/office document/media shredders	Not shredder	N/A
4.4.3	Protection in restricted access locations	Not intended to be installed there.	N/A
4.4.4	Protection in service access areas	No unexpected hazard.	N/A
4.4.5	Protection against moving fan blades	No user accessible fan blade. Service accessible fan blade: see cl. 4.4.5.3.	N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....	--	N/A
	Is considered to cause pain, not injury. b).	--	N/A
	Considered to cause injury. c)	--	N/A
4.4.5.2	Protection for users	No user accessible fan blade.	N/A
	Use of symbol or warning	--	N/A
4.4.5.3	Protection for service persons	Inadvertent contact by service person is impossible.	N/A
	Use of symbol or warning	--	N/A

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L	Method L.7	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat	(see appended table 4.5.5)	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.6	Openings in enclosures		P
4.6.1	Top and side openings	No openings above parts with hazardous voltages. Side openings comply with the 5° angle projection. Requirements for fire enclosure considered.	P
	Dimensions (mm):	(see appended table 4.6.1)	—
4.6.2	Bottoms of fire enclosures	Protection against emission of flame, molten metal, flaming or glowing particles or drops by constructions.	P
	Construction of the bottommm, dimensions (mm) ...:	No openings below parts requiring fire enclosure.	—
4.6.3	Doors or covers in fire enclosures	Doors and covers are interlocked per cl. 2.8.	P
4.6.4	Openings in transportable equipment	Not transportable equipment.	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm):	--	—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	Not used.	N/A
	Conditioning temperature (°C), time (weeks).....:	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Materials with the required flammability classes are used. Safety relevant components used within their specified rating. Electrical parts are not likely to ignite nearby materials. Temperatures see 4.5.1.	P
	Method 1, selection and application of components wiring and materials	(see appended table 1.5.1)	P
	Method 2, application of all of simulated fault condition tests	Not considered.	N/A
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure	Components with windings, wiring, semiconductor devices, resistors, capacitors and inductors are located inside a fire enclosure.	P
4.7.2.2	Parts not requiring a fire enclosure	The following parts are located outside a fire enclosure: Cables and connectors in sec circuits supplied with LPS, power supply cord sets.	P
4.7.3	Materials		P
4.7.3.1	General	Materials with the required flammability classes are used. For overheating of VDR (Z1) by fault conditions, VDR was mounted on PCB with min. V-1 and other components / materials (C1, YC1, L1) within 13 mm from VDR were min. V-1 Class Material or approved components.	P
4.7.3.2	Materials for fire enclosures	Metal enclosure Plastic enclosures: min V-1 (see appended table 1.5.1)	P
4.7.3.3	Materials for components and other parts outside fire enclosures	Decorative parts rated at least HB75 or HB40.	P

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Clause	Requirement + Test	Result - Remark	Verdict
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. Small parts were mounted on min. V-1 PCB.	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	Transformers main materials of flammability V-1 or better.	P

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	Tested for TN system.	P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply	Single supply, independently tested.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply	Single-phase equipment.	N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Per figure 5A.	P
5.1.4	Application of measuring instrument	Per Annex D.	P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V)	(see appended table 5.1)	—
	Measured touch current (mA)	(see appended table 5.1)	—
	Max. allowed touch current (mA)	(see appended table 5.1)	—
	Measured protective conductor current (mA)	(see appended table 5.1)	—
	Max. allowed protective conductor current (mA) ..	3.5mA	—
5.1.7	Equipment with touch current exceeding 3,5 mA	Leakage current does not exceed 3.5mA	N/A
5.1.7.1	General	--	N/A
5.1.7.2	Simultaneous multiple connections to the supply	Single supply equipment.	N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuits.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Supply voltage (V)	--	—
	Measured touch current (mA)	--	—
	Max. allowed touch current (mA)	--	—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports	--	N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure		P

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Motors locked, stepping motors excluded. Temperature limits of Annex B not exceeded. (see appended Annex B)	P
5.3.3	Transformers	Adequate protection against overload provided. (see appended table 5.3)	P
5.3.4	Functional insulation	Short circuit tests. (see appended table 5.3)	P
5.3.5	Electromechanical components	Movement locked. Solenoids and clutches continuously energized. Stepping motors driver short or one winding continuously energized. (see appended table 5.3)	P
5.3.6	Audio amplifiers in ITE	Not provided.	N/A
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	Fault condition in temperature regulating circuit for heater lamp did not result in a hazard. (see appended table 5.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire propagated beyond the equipment. No molten metal was emitted.	P
5.3.9.2	After the tests	Electric strength test primary to SELV passed.	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Supply voltage (V)	--	—
	Current in the test circuit (mA)	--	—
6.1.2.2	Exclusions	--	N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)	--	—
	Current limiting method	--	—

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Clause	Requirement + Test	Result - Remark	Verdict
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS <i>No Cable Distribution System.</i>		N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
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)		P
B.1	General requirements		P
	Position	(see appended table 1.5.1)	—
	Manufacturer	(see appended table 1.5.1)	—
	Type	(see appended table 1.5.1)	—
	Rated values	(see appended table 1.5.1)	—
B.2	Test conditions	Motors were locked inside the equipment or in a bench test set-up. For stepping motors no test performed. (see appended table annex B)	P
B.3	Maximum temperatures	(see appended table annex B)	P
B.4	Running overload test	DC motors in secondary only	N/A
B.5	Locked-rotor overload test	DC motors in secondary only.	N/A
	Test duration (days)	--	—
	Electric strength test: test voltage (V)	--	—
B.6	Running overload test for d.c. motors in secondary circuits	Running overload not likely. Electronically controlled.	N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)	--	N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		P
B.7.1	General	See below.	P
B.7.2	Test procedure	(tested per B.7.3)	N/A
B.7.3	Alternative test procedure	(see appended table annex B)	P
B.7.4	Electric strength test; test voltage (V)	--	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.8	Test for motors with capacitors	(none)	N/A
B.9	Test for three-phase motors	(none)	N/A
B.10	Test for series motors	(none)	N/A
	Operating voltage (V) :	--	—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position :	Pri – sec transformer: T1	—
	Manufacturer :	(see appended table 1.5.1)	—
	Type :	(see appended table 1.5.1)	—
	Rated values :	(see appended table 1.5.1)	—
	Method of protection :	--	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 2.10.5, 5.2)	P
	Protection from displacement of windings :	Adequate construction; for further details, see appended table 2.10.3/4.	P

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13) <i>Thermocouples used.</i>		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G) <i>Measured accordingly.</i>		P
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Clause	Requirement + Test	Result - Remark	Verdict

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		P
G.1	Clearances	Applied for interlock in sec.	P
G.1.1	General		P
G.1.2	Summary of the procedure for determining minimum clearances		P
G.2	Determination of mains transient voltage (V)		P
G.2.1	AC mains supply	2500V considered.	P
G.2.2	Earthed d.c. mains supplies	No d.c. mains.	N/A
G.2.3	Unearthed d.c. mains supplies	--	N/A
G.2.4	Battery operation	No such operation.	N/A
G.3	Determination of telecommunication network transient voltage (V)	No TNV circuits.	N/A
G.4	Determination of required withstand voltage (V)		P
G.4.1	Mains transients and internal repetitive peaks	1500V, rule 3) b3) used.	P
G.4.2	Transients from telecommunication networks	No TNV circuits.	N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems	No such systems.	N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances	(see appended table 2.10.3/4)	P

H	ANNEX H, IONIZING RADIATION (see 4.3.13) <i>No ionising radiation source.</i>		N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal(s) used	Mild steel/ Ni on steel.	—

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Clause	Requirement + Test	Result - Remark	Verdict

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

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		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	Tested at continuous printing and others.	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
M.3.1.1	Frequency (Hz)	--	—
M.3.1.2	Voltage (V)	--	—
M.3.1.3	Cadence; time (s), voltage (V)	--	—
M.3.1.4	Single fault current (mA)	--	—
M.3.2	Tripping device and monitoring voltage	--	N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)	--	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5) <i>Not used.</i>		P
N.1	ITU-T impulse test generators		P
N.2	IEC 60065 impulse test generator		N/A

P	ANNEX P, NORMATIVE REFERENCES		—
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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	a) Preferred climatic categories	40/085/56	P
	b) Maximum continuous voltage	300V	P
	c) Pulse current	Tested accordingly.	P

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) <i>Considered.</i>		P
S.1	Test equipment		P
S.2	Test procedure		P
S.3	Examples of waveforms during impulse testing		P

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Clause	Requirement + Test	Result - Remark	Verdict
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2) <i>Not applied.</i>		N/A
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) <i>Not used.</i>		N/A
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) <i>Considered.</i>		P
V.1	Introduction		P
V.2	TN power distribution systems		P
W	ANNEX W, SUMMATION OF TOUCH CURRENTS <i>Not applied.</i>		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) <i>Considered.</i>		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P

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Clause	Requirement + Test	Result - Remark	Verdict
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) <i>No ultraviolet light source.</i>		N/A
Y.1	Test apparatus	--	N/A
Y.2	Mounting of test samples	--	N/A
Y.3	Carbon-arc light-exposure apparatus	--	N/A
Y.4	Xenon-arc light exposure apparatus	--	N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2) <i>Considered.</i>		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8) <i>Not applied</i>		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters <i>Not applied.</i>		N/A
CC.1	General		N/A
CC.2	Test program 1.....	--	N/A
CC.3	Test program 2.....	--	N/A
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment <i>Not applied.</i>		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....	--	N/A
DD.3	Mechanical strength test, 250N, including end stops.....	--	N/A
DD.4	Compliance.....	--	N/A
EE	ANNEX EE, Household and home/office document/media shredders <i>Not applied.</i>		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Use of markings or symbols.....:	--	N/A
	Information of user instructions, maintenance and/or servicing instructions.....:	--	N/A
EE.3	Inadvertent reactivation test.....:	--	N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:	--	N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A):		N/A
	Test with wedge probe (Figure EE1 and EE2):	--	N/A

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

1.5.1	TABLE: List of critical components					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Power Supply Cord Set (for 220-240V)	Volex	Cord H05VV-F 3 X 0.75mm ²	0.75 mm ²	DIN VDE 0281-5	VDE	
		Plug M2511X (X may be any number from 0 to 9 or alphabetical number or blank)	250V ac, 16A	DIN VDE 0620-1	VDE	
		Connector V1625	250V ac, 10A	IEC/EN 60320-1	VDE	
Power Supply Cord Set (for 120V)	Volex	Cord 3 X 16AWG UL SJT	16AWG, 2500mm (+100mm, - 50mm)	UL62	UL(E159216 or E156136)	
		Plug PS204	125V ac, 15A			
		Connector V1625	125V ac, 13A			
Power Supply Cord Set (for 110V)	Volex (Asia) Pte Ltd.	Cord VCTF 3 X 2.00 mm ²	2.00 mm ²	CNS3199	BSMI	
		Plug TW15CS3	125V, 15A	CNS10917-2		
		Connector V1625	125V, 15A			
Appliance Inlet	Rong Feng Industrial Co., Ltd.	SS-120	250V ac, 10A (for 220-240V, 110V) 250V ac, 15A (for 120V)	IEC / EN60320- 1 UL498	VDE UL(E102641)	
Lithium Battery	Sony Corporation	CR2032	3V, 220mAh	UL1642	UL(MH12566)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Switch						
Main Switch - Optional	Alps Electric Co., Ltd.	SDDJE	250V, 10(6)A	IEC / EN61058- 1 UL1054	VDE UL(E38433)	
Interlock Switch	Omron	D3V-16506- 3C25 (10E)	250V ac/16(3)A, 50,000 Cycles (for 220-240V, 110V) 250V ac/11A, 100,000 Cycles (120V)	EN61058-1 UL1054	VDE UL(E41515)	
Fuser Unit						
Thermal Cutoff (PRI)	Wako Electronics Co., Ltd.	CS-7TA-35	250V ac, 202°C	IEC 60730 UL873	TUV UL(E50367)	
Frame Fuser	Kaneka Corp.	3401NX or 3401NH	Min. V-1	UL94	UL(E48854)	
Alternate Frame Fuser	E I Dupont De Nemours & Co., Inc.	RE19041 or RE19041A	Min. V-1	UL94	UL(E41938)	
Heater Lamp for 220-240V ac, Low Model	Ushio Inc.	QIRF 240-854 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	240V, 854W	-	Evaluated together with unit	
Heater Lamp for 220-240V ac, High Model	Ushio Inc.	QIRF 240- 641/427 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	240V, 641W/427W	-	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Heater Lamp for 120V ac, Low Model	Ushio Inc.	QIRF 120-800 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	120V, 800W	-	Evaluated together with unit	
Heater Lamp for 120V ac, High Model	Ushio Inc.	QIRF 120- 600/400 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	120V, 600W/400W	-	Evaluated together with unit	
Heater Lamp for 110V ac, Low Model	Ushio Inc.	QIRF 110-800 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	110V, 800W	-	Evaluated together with unit	
Heater Lamp for 110V ac, High Model	Ushio Inc.	QIRF 110- 600/400 XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	110V, 600W/400W	-	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
SWPS						
Switching Power Supply Unit for 220-240V ac, Low Model	Murata Mfg. Co., Ltd.	MPW3100L	Input: 220-240V Output: 24V, 4.5A	---	Evaluated together with unit	
Diode (D1)	Shindengen Electric Mfg. Co., Ltd.	D3SBA60	600V, 4A	---	Evaluated together with unit	
X-Capacitor (C1)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.22uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	
X-Capacitor (C6)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.1uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	
Y-Capacitor (C4, C5)	Murata Mfg. Co., Ltd.	KH	250V, 470pF Y2 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	
Electrolytic Capacitor (C7)	Various	Various	400V, Min.150uF	---	Evaluated together with unit	
Bridging Capacitor (C50)	Murata Mfg. Co., Ltd.	KX	250V, 3300pF Y1 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	
Fuse (F1)	Cooper Bussmann Inc.	S505	250V,T4AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F1)	Littelfuse Inc.	215	250V,T4AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E10480)	
Fuse (F51)	Cooper Bussmann Inc.	S505	250V, T10AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F51)	Littelfuse Inc.	0215	250V, T10AH	IEC/EN 60127 UL248-1 UL248-14	SEMKO UL(E10480)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Surge Absorber (Z1)	Panasonic Corporation, Panasonic Corporation of North America or Matsushita Electric Ind. Co., Ltd. or Panasonic	V10471U or V14471U	470V or Continuous voltage 300Vrms, pulse current 6000A	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 UL1449	VDE UL(E321499)	
Bleeding Resistor (R25, R26, R27)	Various	Various	1/4W, 470kΩ	---	Evaluated together with unit	
Inductor (L1)	Tokyo Parts Industrial Co., Ltd.	1R3A163F24A	Class E, 16mH	---	Evaluated together with unit	
Inductor (L2)	Tokyo Parts Industrial Co., Ltd.	1R5A402F20A	Class E, 4mH	---	Evaluated together with unit	
Inductor (L51)	Tamura Corporation	SKP-T16274	Class E, 40uH	---	Evaluated together with unit	
Triac (TRA31)	Various	Various	600Vmin, 12Amin	---	Evaluated together with unit	
Photo Coupler (PC1, PC3, PC5)	NEC Corp. or Renesas Electronics Corporation	PS2581AL1	Isolation Thickness: > 0.4 mm, Ext.cr. > 8mm, Int.cr. =thermal cycling tested(2.10.11), Isolation: min. AC 5000V	IEC/EN 60950-1 UL1577	SEMKO UL(E72422)	
Alternate Photo Coupler (PC1, PC3, PC5)	Sharp Corp. Electronic Components Group.	3SH21	Isolation Thickness: > 0.4 mm, Ext.cr. > 8mm, Int.cr. =thermal cycling tested(2.10.11), Isolation: min. AC 5000V	IEC/EN 60950-1 UL1577	SEMKO UL(E64380)	

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

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Transistor (Q1)	Various	Various	500Vmin, 6Amin	---	Evaluated together with unit	
Connector (YC1)	Japan Solderless Terminal Mfg. Co., Ltd.	VT	AC250V, Max.12A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Connector (YC2)	Japan Solderless Terminal Mfg. Co., Ltd.	VH	AC400V, 7A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Transformer (T1)	Murata Mfg. Co. Ltd.	68Q1	Class B	---	Evaluated together with unit	
Relay (RL1)	Panasonic Electric Works Co., Ltd. or Matsushita Electric Works Co., Ltd.	LKP1aF-24V	Contact:250/277 V, 10A Coil:24 Vdc	IEC/EN 60255- 23 IEC/EN 61810-1	VDE	
Alternate Relay (RL1)	Daiichi Electric Co., Ltd.	DG1U series	Contact:250V, 10A Coil:24Vdc	EN 61810-1 EN 61058-1	TUV SEMKO	
PWB	Various	Various	Flam. Class V-1 or better	UL796	UL	
Switching Power Supply Unit for 220-240V ac, High Models	Murata Mfg. Co., Ltd.	MPW3100	Input: 220-240V Output: 24V, 6.5A	---	Evaluated together with unit	
Diode (D1)	Shindengen Electric Mfg. Co., Ltd.	D3SBA60	600V, 4A	---	Evaluated together with unit	
X-Capacitor (C1)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.22uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	
X-Capacitor (C6)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.1uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	

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

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Y-Capacitor (C4, C5)	Murata Mfg. Co., Ltd.	KH	250V, 470pF Y2 type	IEC/EN 60384-14 UL1414 UL60384-14	VDE UL(E37921)	
Electrolytic Capacitor (C7)	Various	Various	400V, Min.180uF	---	Evaluated together with unit	
Bridging Capacitor (C50)	Murata Mfg. Co., Ltd.	KX	250V, 3300pF Y1 type	IEC/EN 60384-14 UL1414 UL60384-14	VDE UL(E37921)	
Fuse (F1)	Cooper Bussmann Inc.	S505	250V,T4AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F1)	Littelfuse Inc.	215	250V,T4AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E10480)	
Fuse (F51)	Cooper Bussmann Inc.	S505	250V, T10AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F51)	Littelfuse Inc.	0215	250V, T10AH	IEC/EN 60127 UL248-1 UL248-14	SEMKO UL(E10480)	
Surge Absorber (Z1)	Panasonic Corporation, Panasonic Corporation of North America or Matsushita Electric Ind. Co., Ltd. or Panasonic	V10471U or V14471U	470V or Continuous voltage 300Vrms, pulse current 6000A	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 UL1449	VDE UL(E321499)	
Bleeding Resistor (R25, R26, R27)	Various	Various	1/4W, 470kΩ	---	Evaluated together with unit	
Inductor (L1)	Tokyo Parts Industrial Co., Ltd.	2R0A452F24A	Class E, 4.5mH	---	Evaluated together with unit	
Alternate Inductor (L1)	Tokyo Parts Industrial Co., Ltd.	2R0A133F28YA	Class E, 13mH	---	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Inductor (L2)	Tokyo Parts Industrial Co., Ltd.	1R5A402F20A	Class E, 4mH	---	Evaluated together with unit	
Inductor (L51)	Tamura Corporation	SKP-T16274	Class E, 40uH	---	Evaluated together with unit	
Triac (TRA31,TRA41)	Various	Various	600Vmin, 12Amin	---	Evaluated together with unit	
Photo Coupler (PC1, PC3, PC4, PC5)	NEC Corp. or Renesas Electronics Corporation	PS2581AL1	Isolation Thickness: > 0.4 mm, Ext.cr. > 8mm, Int.cr. =thermal cycling tested(2.10.11), Isolation: min. AC 5000V	IEC/EN 60950-1 UL1577	SEMKO UL(E72422)	
Alternate Photo Coupler (PC1, PC3, PC4, PC5)	Sharp Corp. Electronic Components Group.	3SH21	Isolation Thickness: > 0.4 mm, Ext.cr. > 8mm, Int.cr. =thermal cycling tested(2.10.11), Isolation: min. AC 5000V	IEC/EN 60950-1 UL1577	SEMKO UL(E64380)	
Transistor (Q1, Q2)	Various	Various	500Vmin, 6Amin	---	Evaluated together with unit	
Connector (YC1)	Japan Solderless Terminal Mfg. Co., Ltd.	VT	AC250V, Max.12A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Connector (YC2)	Japan Solderless Terminal Mfg. Co., Ltd.	VH	AC400V, 7A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Transformer (T1)	Murata Mfg. Co. Ltd.	2Q106	Class B	---	Evaluated together with unit	
Relay (RL1)	Panasonic Electric Works Co., Ltd. or Matsushita Electric Works Co., Ltd.	LKP1aF-24V	Contact:250/277 V, 10A Coil:24 Vdc	IEC/EN 60255- 23 IEC/EN 61810-1	VDE	
Alternate Relay (RL1)	Daiichi Electric Co., Ltd.	DG1U series	Contact:250V, 10A Coil:24Vdc	EN 61810-1 EN 61058-1	TUV SEMKO	
PWB	Various	Various	Flam. Class V-1 or better	UL796	UL	
Switching Power Supply Unit for 110, 120V ac, Low Model	Murata Mfg. Co., Ltd.	MPW3099L	Input: 110,120V Output: 24V, 4.5A	---	Evaluated together with unit	
Diode (D1)	Shindengen Electric Mfg. Co., Ltd.	D3SBA60	600V, 4A	---	Evaluated together with unit	
X-Capacitor (C1,C6)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.33uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	
Y-Capacitor (C4, C5)	Murata Mfg. Co., Ltd.	KH	250V, 2200pF Y2 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	
Electrolytic Capacitor (C7)	Various	Various	200V, Min.680uF	---	Evaluated together with unit	
Bridging Capacitor (C50)	Murata Mfg. Co., Ltd.	KX	250V, 3300pF Y1 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Fuse (F1)	Cooper Bussmann Inc.	S505	250V, T6.3AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F1)	Littelfuse Inc.	215	250V, T6.3AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E10480)	
Fuse (F51)	Hollyland Co., Ltd.	65TS	250V, 15A	UL248-1 UL248-14	UL(E156471)	
Surge Absorber (Z1)	Panasonic Corporation, Panasonic Corporation of North America or Matsushita Electric Ind. Co., Ltd. or Panasonic	V10471U or V14471U	470V or Continuous voltage 300Vrms, pulse current 6000A	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 UL1449	VDE UL(E321499)	
Bleeding Resistor (R25, R26, R27)	Various	Various	1/4W, 470kΩ	---	Evaluated together with unit	
Inductor (L1, L2)	Tokyo Parts Industrial Co., Ltd.	2R7A182F24A	Class A, 1.8mH	---	Evaluated together with unit	
Inductor (L51)	Tamura Corp	SKP-T16413	Class A, 35uH	---	Evaluated together with unit	
Triac (TRA31)	Various	Various	600Vmin, 12Amin	---	Evaluated together with unit	
Photo Coupler (PC1, PC3, PC5)	NEC Corp. or Renesas Electronics Corporation	PS2581AL1	5000V, Insulation thickness 0.4mm	IEC/EN 60950-1 UL1577	SEMKO UL(E72422)	
Alternate Photo Coupler (PC1, PC3, PC5)	Sharp Corp. Electronic Components Group.	3SH21	5000V, Insulation thickness 0.4mm	IEC/EN 60950-1 UL1577	SEMKO UL(E64380)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Transistor (Q1)	Various	Various	500Vmin, 6Amin	---	Evaluated together with unit	
Connector (YC1)	Japan Solderless Terminal Mfg. Co., Ltd.	VT	AC250V, Max.12A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Connector (YC2)	Japan Solderless Terminal Mfg. Co., Ltd.	VH	AC400V,7A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Transformer (T1)	Murata Mfg. Co. Ltd.	67Q1	Class B UL System Designation CM	---	Evaluated together with unit	
Relay (RL1)	Panasonic Electric Works Co., Ltd. or Matsushita Electric Works Co., Ltd.	ALE1PB24	Contact:250/277 V, 16A Coil:24 Vdc	UL508 UL60497	UL(E43149)	
Alternate Relay (RL1)	Daiichi Electric Co., Ltd.	DH1U series	Contact:250V, 10A Coil:24Vdc	UL508 UL60947	UL(E98688)	
PWB	Various	Various	Flam. Class V-1 or better	UL796	UL	
Switching Power Supply Unit for 110,120V ac, High Models	Murata Mfg. Co., Ltd.	MPW3099	Input: 110,120V Output: 24V, 6.5A	---	Evaluated together with unit	
Diode (D1)	Shindengen Electric Mfg. Co., Ltd.	D3SBA60	600V, 4A	---	Evaluated together with unit	
X-Capacitor (C1,C6)	Okaya Electric Industries Co., Ltd.	LE	275V or 310V, 250V(UL), 0.33uF X2 type	IEC/EN 60384- 14 UL1414 UL60384-14	SEMKO UL(E47474)	
Y-Capacitor (C4, C5)	Murata Mfg. Co., Ltd.	KH	250V, 2200pF Y2 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Electrolytic Capacitor (C7)	Various	Various	200V, Min.1000uF	---	Evaluated together with unit	
Bridging Capacitor (C50)	Murata Mfg. Co., Ltd.	KX	250V, 3300pF Y1 type	IEC/EN 60384- 14 UL1414 UL60384-14	VDE UL(E37921)	
Fuse (F1)	Cooper Bussmann Inc.	S505	250V,T6.3AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E19180)	
Alternate Fuse (F1)	Littelfuse Inc.	215	250V,T6.3AH	IEC/EN 60127 UL248-1 UL248-14	VDE UL(E10480)	
Fuse (F51)	Hollyland Co., Ltd.	65TS	250V, 15A	UL248-1 UL248-14	UL(E156471)	
Surge Absorber (Z1)	Panasonic Corporation, Panasonic Corporation of North America or Matsushita Electric Ind. Co., Ltd. or Panasonic	V10471U or V14471U	470V or Continuous voltage 300Vrms, pulse current 6000A	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 UL1449	VDE UL(E321499)	
Bleeding Resistor (R25, R26, R27)	Various	Various	1/4W, 470kΩ	---	Evaluated together with unit	
Inductor (L1, L2)	Tokyo Parts Industrial Co., Ltd.	3R5A382F28YA	Class A, 3.8mH	---	Evaluated together with unit	
Inductor (L51)	Tamura Corporation	SKP-T16413	Class A, 35uH	---	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Triac (TRA31, TRA41)	Various	Various	600Vmin, 12Amin	---	Evaluated together with unit	
Photo Coupler (PC1, PC3, PC4, PC5)	NEC Corp. or Renesas Electronics Corporation	PS2581AL1	5000V, Insulation thickness 0.4mm	IEC/EN 60950-1 UL1577	SEMKO UL(E72422)	
Alternate Photo Coupler (PC1, PC3, PC4, PC5)	Sharp Corp. Electronic Components Group.	3SH21	5000V, Insulation thickness 0.4mm	IEC/EN 60950-1 UL1577	SEMKO UL(E64380)	
Transistor (Q1, Q2)	Various	Various	500Vmin, 6Amin	---	Evaluated together with unit	
Connector (YC1)	Japan Solderless Terminal Mfg. Co., Ltd.	VT	AC250V, Max.12A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Connector (YC2)	Japan Solderless Terminal Mfg. Co., Ltd.	VH	AC400V,7A	IEC/EN 61984 UL1977	TUV Rheinland UL(E60389)	
Transformer (T1)	Murata Mfg. Co. Ltd.	2Q107	Class B UL System Designation CM	---	Evaluated together with unit	
Relay (RL1)	Panasonic Electric Works Co., Ltd. or Matsushita Electric Works Co., Ltd.	ALE1PB24	Contact:250/277 V, 16A Coil:24 Vdc	UL508 UL60497	UL(E43149)	
Alternate Relay (RL1)	Daiichi Electric Co., Ltd.	DH1U series	Contact:250V, 10A Coil:24Vdc	UL508 UL60947	UL(E98688)	
PWB	Various	Various	Flam. Class V-1 or better	UL796	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
High Voltage Unit						
High Voltage Unit	Murata Mfg. Co., Ltd.	MPH7462X (X may be any number from 0 to 9 or alphabetical number or blank)	Input: 24V dc Outputs: M : 1100V (p-p) B : 1.5kV (p-p) T : -2.4kV S : 2kV	-	Evaluated together with unit	
High Voltage Unit - Transformer (B51)	Murata Mfg. Co., Ltd.	QU004	Class A	-	Evaluated together with unit	
High Voltage Unit - Transformer (B101)	Murata Mfg. Co., Ltd.	QM113	Class A	-	Evaluated together with unit	
High Voltage Unit - Transformer (B200)	Murata Mfg. Co., Ltd.	QU003	Class A	-	Evaluated together with unit	
High Voltage Unit - Transformer (B301)	Murata Mfg. Co., Ltd.	QW014	Class A	-	Evaluated together with unit	
High Voltage Unit - Transformer (B451)	Murata Mfg. Co., Ltd.	QJ002	Class A	-	Evaluated together with unit	
High Voltage Unit - Transformer (B501)	Murata Mfg. Co., Ltd.	QJ003	Class A	-	Evaluated together with unit	
High Voltage Unit – Fuse (F1) for L.P.S	Littelfuse Inc.	491	125V, 1.5A	UL248-1	UL(E10480)	
High Voltage Unit - Alternate Fuse (F1) for L.P.S	Bussmann Div Copper (UK) Ltd. or Cooper Bussmann Inc. or Cooper Bussmann L L C	MCRF	125V, 1.5A	UL248-1	UL(E19180)	

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1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Fan Motor, Motor, Clutch, Solenoid						
LVU Fan Motor - Optional	Nidec	D06R-24TH XX (AX) (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.09A, 0.50m³/min., Class E (Class A for UL)	-	Evaluated together with unit	
LSU Fan Motor	Minebea Motor Manufacturing Corporation	2410RL-05W- S60	24V dc, 0.12A, 0.75m³/min., Class E (Class A for UL)	-	Evaluated together with unit	
DLP Fan Motor	Nidec	D08K-24TU XX(AX) (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.13Arms, 1.19m³/min., Class E (Class A for UL)	-	Evaluated together with unit	
Center Fan Motor - Optional, Rear Fan Motor - Optional	Nidec	D05F-24PH XX (EX) (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.10Arms, 0.11m³/min., Class F (Class A for UL)	-	Evaluated together with unit	
Alternate Center Fan Motor - Optional, Alternate Rear Fan Motor - Optional	Minebea Motor Manufacturing Corporation	BM5115-05W- B40-XXX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.10Arms, 0.08 m³ / min., Class E (Class A for UL)	-	Evaluated together with unit	
Main Motor, Drum Motor - Optional	Nidec	48M069FXXX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 2.2A, Class A	-	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Polygon Motor	Minebea Motor Manufacturing Corporation	MASQ6EF3LKX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.6Arms, Class E (Class A for UL)	-	Evaluated together with unit	
Alternate Polygon Motor	Minebea Motor Manufacturing Corporation	MASQ6NF10LK X (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.65Arms, Class E (Class A for UL)	-	Evaluated together with unit	
Alternate Polygon Motor	Minebea Motor Manufacturing Corporation	MASQ6NF8LKX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.65Arms, Class E (Class A for UL)	-	Evaluated together with unit	
Toner Motor	Mabuchi Motor Co., Ltd.	RK-370CA- 11670	24V dc, 130mA, Class A	-	Evaluated together with unit	
FD Motor	Minebea Motor Manufacturing Corporation	PM42M-048- XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	Stepper Type, 24V dc, 400mA, Class E (Class A for UL)	-	Evaluated together with unit	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Lift Motor - Optional, Envelop Motor - Optional	Standard Motor Co., Ltd.	RC370-KT- 081000	24V dc, 110mA, Class A	-	Evaluated together with unit	
Alternate Lift Motor - Optional, Envelop Motor – Optional	Mabuchi Motor Co., Ltd.	RK-370CA- 081050	24Vdc, 110mA, CLASS A	-	Evaluated together with unit	
DLP Clutch, Mid Clutch - Optional, Feed Clutch, DU Clutch - Optional	Tenryu Marusawa Co., Ltd.	TMC-2T-XX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 0.083A, Class E (Class A for UL)	-	Evaluated together with unit	
Reg Clutch	Daiken	MCA-50T	24V dc, 0.104A, Class E (Class A for UL)	-	Evaluated together with unit	
Face U/D Solenoid - Optional	TDS	TDS-KN07A-XX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 1A, Class E (Class A for UL)	-	Evaluated together with unit	
MPF Solenoid	TDS	TDS-F06A-XX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 240mA, Class E (Class A for UL)	-	Evaluated together with unit	

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

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Laser Scanner Unit						
Laser Diode	Opnext Japan, Inc.	HL67040GNXX X (X may be any number from 0 to 9 or alphabetical number or blank)	Class 3B, Wavelength: 670nm, Output Power: 25mW	-	Evaluated together with unit	
Lid Scanner, Housing Scanner	Various	Various	Min. HB75	UL94	UL	
Fuses						
Fuse (YF7) for L.P.S (on Engine PWB) for 24V of PF-320, PF-315+ Paper Feeder Option Unit	Skygate Co., Ltd.	SCT	250V,T3.15A	IEC/EN 60127 UL248-1 UL248-14	SEMKO UL(E195833)	
Fuse (YF8) for L.P.S (on Engine PWB) for 3.3V of PF- 320,PF-315+ Paper Feeder Option Unit	Skygate Co., Ltd.	0603FT	32V, 2A	UL248-1	UL(E195833)	
Fuse (YF1) for L.P.S (on Engine PWB) for 24V of Polygon Motor and Connect-L PWB	Skygate Co., Ltd.	SCT	250V,T3.15A	IEC/EN 60127 UL248-1 UL248-14	SEMKO UL(E195833)	
Fuse (YF5) for L.P.S (on Engine PWB) for 5V of APC PWB and Panel PWB	Skygate Co., Ltd.	0603FT	32V, 2A	UL248-1	UL(E195833)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Fuse (YF6) for L.P.S (on Engine PWB) for 3.3V of Connect L PWB, Panel PWB, APC PWB and High Voltage Unit	Skygate Co., Ltd.	0603FT	32V, 2A	UL248-1	UL(E195833)	
Fuse (YF2) for L.P.S (on Engine PWB) for 24V of LSU Fan Motor and TH Connect PWB, Panel PWB	Skygate Co., Ltd.	SCT	250V,T3.15A	IEC/EN 60127 UL248-1 UL248-14	SEMKO UL(E195833)	
Fuse (F1) for L.P.S (on Main PWB) for 5V of USB	Skygate Co., Ltd.	1206FT	32V, 4A	UL248-1	UL(E195833)	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ^{1.}	
Enclosure						
Cover Top, Cover Left, Cover Rear	Ineos ABS (Thailand) Co., Ltd. or Styrolution (Thailand) Co., Ltd. or Elix Polymers SL or Styrolution Koeln GMBH	P2H-AT	Min. HB75	UL94	UL (E256400) or UL(E350602) or UL(E326278)	
Cover Top, Cover Left, Cover Rear - Alternate	Styrolution GMBH	GP-22 or GP-35	Min. HB75	UL94	UL (E108538)	
Cover Top, Cover Left, Cover Rear - Alternate	Bayer Material Science	FR3006 HF	Min.HB	UL94	UL(E41613)	
Cover Top, Cover Left, Cover Rear - Alternate	Teijin Chemicals Ltd. Research & Development Div or Teijin Chemicals Plastic Compounds Shanghai Ltd.	TN-7900 or TN-7500 or TX-5700	Min. HB	UL94	UL(E98529) or UL(E244324)	
Cover Top, Cover Left, Cover Rear - Alternate	Techno Polymer Hong Kong Co., Ltd. or Techno Polymer Co., Ltd.	JPH-150A or 330	HB75	UL94	UL(E134768) or (E54297)	
Cover Right	Bayer Material Science AG	FR3006 HF	Min. V-1	UL94	UL(E41613)	
Frame Right, Frame Left	Metal	---	Min. 0.5mm	---	---	

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components – continued.					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹ .	
Paper Feeding Unit, Model PF-320 (Option)						
Trans Motor	Nidec Corporation	48M069FXXX (X may be any number from 0 to 9 or alphabetical number or blank)	24V dc, 1.6A, Class A	-	Evaluated together with unit	
Lift Motor	Standard Motor Co., Ltd.	RC370-KT- 081000	24V dc, 110mA, Class A	-	Evaluated together with unit	
Lift Motor - Alternate	Mabuchi Motor Co., Ltd.	RK-370CA- 081050	24Vdc, 110mA, CLASS A	-	Evaluated together with unit	
Feed Clutch, Trans Clutch	Daiken	MCA-50T	24V dc, 0.104A, Class E (Class A for UL)	-	Evaluated together with unit	
Frame Right, Frame Left, Frame Top	Various	Various	Min. HB75	UL94	UL	
Paper Feeding Unit, Model PF-315+ (Option)						
Trans Motor	Minebea- Matsushita Motor Corporation	PM55L-048- XXXX (X may be any number from 0 to 9 or alphabetical number or blank)	Stepper Type, 24V dc, 600mA, Class E (Class A for UL)	-	Evaluated together with unit	
Lift Motor	Tsukasa Electric Co., Ltd.	TG-38B-LG-44- A486	24V dc, 270mA, Class A	-	Evaluated together with unit	
Cover Side	Various	Various	Min. HB75	UL94	UL	
Supplementary information:						
¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: Opto Electronic Devices	P
Manufacturer : --		
Type..... : --		
Separately tested : --		
Bridging insulation : --		
External creepage distance..... : --		
Internal creepage distance..... : --		
Distance through insulation..... : --		
Tested under the following conditions..... : --		
Input..... : --		
Output..... : --		
supplementary information		
See appended table 1.5.1 for details		

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status	
99V/60Hz	9.8	--	960	F1/F51	1.5/8.7	M.N.L 1 / Print mode	
110V/60Hz	10.0	10.6	1080	F1/F51	1.5/9.0	M.N.L 1 / Print mode	
121V/60Hz	10.2	--	1220	F1/F51	1.5/9.2	M.N.L 1 / Print mode	
99V/60Hz	8.3	--	805	F1/F51	1.4/7.2	M.N.L 2 / Print mode	
110V/60Hz	8.5	9.1	920	F1/F51	1.4/7.5	M.N.L 2 / Print mode	
121V/60Hz	8.7	--	1040	F1/F51	1.4/7.7	M.N.L 2 / Print mode	
108V/60Hz	8.9	--	940	F1/F51	1.5/8.0	M.N.L 1 / Print mode	
120V/60Hz	9.2	9.7	1086	F1/F51	1.5/8.3	M.N.L 1 / Print mode	
132V/60Hz	9.5	--	1240	F1/F51	1.5/8.4	M.N.L 1 / Print mode	
108V/60Hz	7.3	--	777	F1/F51	1.4/6.4	M.N.L 2 / Print mode	
120V/60Hz	7.6	8.3	890	F1/F51	1.4/6.7	M.N.L 2 / Print mode	
132V/60Hz	7.8	--	1000	F1/F51	1.4/7.1	M.N.L 2 / Print mode	
198V/50Hz	4.6	--	900	F1/F51	1.1/4.0	M.N.L 1 / Print mode	
220V/50Hz	4.8	5.2	1040	F1/F51	1.1/4.2	M.N.L 1 / Print mode	
240V/50Hz	5.0	5.2	1185	F1/F51	1.1/4.4	M.N.L 1 / Print mode	
264V/50Hz	5.2	--	1355	F1/F51	1.1/4.6	M.N.L 1 / Print mode	
198V/60Hz	4.6	--	907	F1/F51	1.1/4.0	M.N.L 1 / Print mode	
220V/60Hz	4.8	5.2	1043	F1/F51	1.1/4.2	M.N.L 1 / Print mode	
240V/60Hz	5.0	5.2	1190	F1/F51	1.1/4.4	M.N.L 1 / Print mode	
264V/60Hz	5.2	--	1362	F1/F51	1.1/4.6	M.N.L 1 / Print mode	
198V/50Hz	3.8	--	735	F1/F51	1.0/3.3	M.N.L 2 / Print mode	
220V/50Hz	3.9	4.4	846	F1/F51	1.0/3.4	M.N.L 2 / Print mode	
240V/50Hz	4.0	4.4	946	F1/F51	1.0/3.6	M.N.L 2 / Print mode	
264V/50Hz	4.2	--	1080	F1/F51	1.0/3.8	M.N.L 2 / Print mode	
198V/60Hz	3.8	--	740	F1/F51	1.0/3.3	M.N.L 2 / Print mode	
220V/60Hz	3.9	4.4	850	F1/F51	1.0/3.4	M.N.L 2 / Print mode	
240V/60Hz	4.0	4.4	950	F1/F51	1.0/3.6	M.N.L 2 / Print mode	
264V/60Hz	4.2	--	1086	F1/F51	1.0/3.8	M.N.L 2 / Print mode	
Supplementary information: M.N.L 1: Model FS-4300DN with PF-320×4 M.N.L 2: Model FS-2100DN with PF-320×4							

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Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A or mA)	VA (max.) (VA)	
Input 240V Switching Power supply MPW3100 24V Output	--	23.8	8.55	189	
Input 240V Switching Power supply MPW3100L 24V Output	--	23.9	7.34	159	
Input 120V Switching Power supply MPW3099 24V Output	--	24.0	8.38	181	
Input 120V Switching Power supply MPW3099L 24V Output	--	23.8	7.29	158	
supplementary information:					
Supplementary information: --					

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

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Clause	Requirement + Test	Result - Remark	Verdict

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
240V, 50Hz				
Switching Power Supply Unit MPW3100				
T1	Pin 9 to Pin 16 (GND) shorted	61.3Vpk	--	
T1	D101-K to Pin 16 (GND) shorted	25.4Vpk	--	D101
Switching Power Supply Unit MPW3100L				
T1	Pin 9 to Pin 16 (GND) shorted	60.8Vpk	--	
T1	D101-K to Pin 16 (GND) shorted	25.8Vpk	--	D101
120V, 60Hz				
Switching Power Supply Unit MPW3099				
T1	Pin 9 to Pin 16 (GND) shorted	50.4Vpk	--	
T1	D101-K to Pin 16 (GND) shorted	25.8Vpk	--	D101
Switching Power Supply Unit MPW3099L				
T1	Pin 9 to Pin 16 (GND) shorted	49.6Vpk	--	
T1	D101-K to Pin 16 (GND) shorted	25.6Vpk	--	D101

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Clause	Requirement + Test	Result - Remark	Verdict

2.2	TABLE: evaluation of voltage limiting components in SELV circuits – continued.			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
High Voltage PWB , Model MPH7462A				
Output M B101	(Pin8 – GND)	1.07kV	--	--
Output M B101	(Pin11 – GND)	--	26.2V	B101
Output B B301	(Pin6 – GND)	1.34kV	--	--
Output B B301	(Pin11 – GND)	--	26.2V	B301
Output T B501	(Pin8 – GND)	--	-2.14kV	--
Output T B501	(Pin2 – GND)	--	26.2V	B501
Output S B451	(Pin8 – GND)	1.32kV	--	--
Output S B451	(Pin5 – GND)	--	26.2V	B451

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Clause	Requirement + Test	Result - Remark	Verdict

2.2	TABLE: evaluation of voltage limiting components in SELV circuits – continued.		P
Fault test performed on voltage limiting components		Voltage measured (V) in SELV circuits (V peak or V d.c.)	
264V, 50Hz			
Switching Power Supply Unit for MPW3100			
Cathode of D101 to GND (D101 shorted)		25.4Vpk (After 0.1 sec output shutdown)	
Switching Power Supply Unit for MPW3100L			
Cathode of D101 to GND (D101 shorted)		25.8Vpk (After 0.1 sec output shutdown)	
132V, 60Hz			
Switching Power Supply Unit for MPW3099			
Cathode of D101 to GND (D101 shorted)		25.8Vpk (After 0.1 sec output shutdown)	
Switching Power Supply Unit for MPW3099L			
Cathode of D101 to GND (D101 shorted)		25.6Vpk (After 0.1 sec output shutdown)	
High Voltage PWB , Model MPH7462A			
YC101 pin1 – YC101 pin17 (B101 input output short)		32.5Vpk (After 0.1 sec output shutdown)	
YC101 pin1 – YC101 pin17 (B101 input output short)		32.5Vpk (After 0.1 sec output shutdown)	
YC101 pin1 – YC101 pin17 (B101 input output short)		32.5Vpk (After 0.1 sec output shutdown)	
YC101 pin1 – YC101 pin17 (B101 input output short)		32.5Vpk (After 0.1 sec output shutdown)	
supplementary information:			
--			

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Clause	Requirement + Test	Result - Remark	Verdict

2.4.2	TABLE: Limited current circuit measurement – continued.					P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
Switching Power Supply Unit, Model MPW3100 (Input 240V)						
C50(Y1 Type)	360Vpk	0.16mA	--	0.7mA	Measured by Annex D	
Switching Power Supply Unit, Model MPW3100L (Input 240V)						
C50(Y1 Type)	350Vpk	0.06mA	--	0.7mA	Measured by Annex D	
Switching Power Supply Unit, Model MPW3099 (Input 120V)						
C50(Y1 Type)	164Vpk	0.14mA	--	0.7mA	Measured by Annex D	
Switching Power Supply Unit, Model MPW3099L (Input 120V)						
C50(Y1 Type)	160Vpk	0.12mA	--	0.7mA	Measured by Annex D	
High Voltage PWB , Model MPH7462A (Input 24Vdc)						
Output M (No fault)	1.07kVpk	0.28mA	--	0.7mA	Measured by Annex D	
Output M (D102 short)	--	0.20mA	--	0.7mA	Measured by Annex D	
Output B (No fault)	1.34kVpk	0.30mA	--	0.7mA	Measured by Annex D	
Output B (R313 short)	--	0.20mA	--	0.7mA	Measured by Annex D	
Output T (No fault)	-2.14kVdc	0.1mA	--	0.7mA	Measured by Annex D	
Output T (C507 short)	--	0.1mA	--	0.7mA	Measured by Annex D	
Output S (No fault)	1.32kVpk	0.02mA	--	0.7mA	Measured by Annex D	
Output S (R458 short)	--	0.02mA	--	0.7mA	Measured by Annex D	
Supplementary information: None						

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Clause	Requirement + Test	Result - Remark	Verdict

2.5	TABLE: limited power sources				P
24V output for Paper feeder option unit					
Measured Uoc (V) with all load circuits disconnected: --					
	I _{sc} (A)		VA		
	Meas.	Limit	Meas.	Limit	
protected by Fuse YF7 on Engine PWB, 3.15A, supply voltage:240V 50Hz					
According to Table 2C	8.93	41.67	199	250	

3.3V output for Paper feeder option unit				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF8 on Engine PWB, 2A, supply voltage:240V 50Hz				
According to Table 2C	1.31	303	5.8	250

24V output for Polygon motor and Connect-L PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF1 on Engine PWB, 3.15A, supply voltage:240V 50Hz				
According to Table 2C	8.86	41.67	193	250

5V output for APC PWB and PANEL PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF5 on Engine PWB, 2A, supply voltage:240V 50Hz				
According to Table 2C	3.67	200	11.9	250

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Clause	Requirement + Test	Result - Remark	Verdict

3.3V output for Connect L PWB,PANEL PWB, APC PWB and High voltage PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF6 on Engine PWB, 2A, supply voltage:240V 50Hz				
According to Table 2C	1.29	303	5.3	250

24V output for LSU fan motor and TH Connect PWB,PANEL PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF2 on Engine PWB, 3.15A, supply voltage:240V 50Hz				
According to Table 2C	8.43	41.67	186	250

5V output for USB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse F1 on Main PWB, 4A, supply voltage:240V 50Hz				
According to Table 2C	1.1	200	3.8	250

24V output for High voltage PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse F1 on High voltage PWB, 1.5A, supply voltage:240V 50Hz				
According to Table 2C	8.03	41.67	179	250

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Clause	Requirement + Test	Result - Remark		Verdict

24V output for Lift motor				
Measured Uoc (V) with all load circuits disconnected:		--		
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
supply voltage:240V 50Hz				
According to Table 2B (Normal)	0.16	8	3.82	100

24V output for Lift motor				
Measured Uoc (V) with all load circuits disconnected:		--		
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
supply voltage:240V 50Hz				
According to Table 2B (Q20 B-E Sc)	1.52	8	25.16	100

24V output for Paper feeder option unit				
Measured Uoc (V) with all load circuits disconnected:		--		
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF7 on Engine PWB, 3.15A, supply voltage: 120V 60Hz				
According to Table 2C	6.63	41.67	148	250

3.3V output for Paper feeder option unit				
Measured Uoc (V) with all load circuits disconnected:		--		
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF8 on Engine PWB, 2A, supply voltage: 120V 60Hz				
According to Table 2C	1.33	303	5.8	250

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Clause	Requirement + Test	Result - Remark	Verdict

24V output for Polygon motor and Connect-L PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF1 on Engine PWB, 3.15A, supply voltage: 120V 60Hz				
According to Table 2C	6.80	41.67	156	250

5V output for APC PWB and PANEL PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF5 on Engine PWB, 2A, supply voltage: 120V 60Hz				
According to Table 2C	3.70	200	12.5	250

3.3V output for Connect L PWB,PANEL PWB, APC PWB and High voltage PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF6 on Engine PWB, 2A, supply voltage: 120V 60Hz				
According to Table 2C	1.31	303	5.8	250

24V output for LSU fan motor and TH Connect PWB,PANEL PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse YF2 on Engine PWB, 3.15A, supply voltage: 120V 60Hz				
According to Table 2C	6.73	41.67	156	250

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Clause	Requirement + Test	Result - Remark	Verdict

5V output for USB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse F1 on Main PWB, 4A, supply voltage: 120V 60Hz				
According to Table 2C	1.2	200	4.1	250

24V output for High voltage PWB				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
protected by Fuse F1 on High voltage PWB, 1.5A, supply voltage: 120V 60Hz				
According to Table 2C	6.61	41.67	156	250

24V output for Lift motor				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
supply voltage: 120V 60Hz				
According to Table 2B (Normal)	0.17	8	3.88	100

24V output for Lift motor				
Measured Uoc (V) with all load circuits disconnected: --				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
supply voltage: 120V 60Hz				
According to Table 2B (Q20 B-E Sc)	1.71	8	27.3	100
supplementary information:				
Sc=Short circuit, Oc=Open circuit				

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

2.6.3.4	TABLE: Resistance of earthing measurement		P
Location		Resistance measured (mΩ)	Comments
Inlet earth to metal of rear side		12	--
Supplementary information: Tested current 40A for 120 sec.			

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

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
Supply voltage: 240, 50Hz				
Switching Power Supply Unit for model MPW3100				
T1 P16– P1	206	360	4.26 kHz	
T1 P16– P2	207	380	0.12 kHz	
T1 P16– P3	223	390	50.6 kHz	
T1 P16– P5	254	580	50.1 kHz	
T1 P16– P6	254	580	50.1 kHz	
T1 P16– P7	333	750	50.1 kHz	
T1 P9– P1	205	355	4.25 kHz	
T1 P9– P2	189	377	0.12 kHz	
T1 P9– P3	212	380	50.6 kHz	
T1 P9– P5	249	565	50.3 kHz	
T1 P9– P6	249	565	50.3 kHz	
T1 P9– P7	320	641	50.3 kHz	
Switching Power Supply Unit for model MPW3100L				
T1 P16– P1	199	345	0.11 kHz	
T1 P16– P2	199	376	0.11 kHz	
T1 P16– P3	223	385	0.05 kHz	
T1 P16– P5	289	480	4.84 kHz	
T1 P16– P6	315	690	33.3 kHz	
T1 P16– P7	315	690	33.3 kHz	
T1 P9– P1	188	343	4.39 kHz	
T1 P9– P2	183	360	4.46 kHz	
T1 P9– P3	220	370	0.05 kHz	
T1 P9– P5	280	465	4.84 kHz	
T1 P9– P6	301	675	33.3 kHz	
T1 P9– P7	301	675	33.3 kHz	

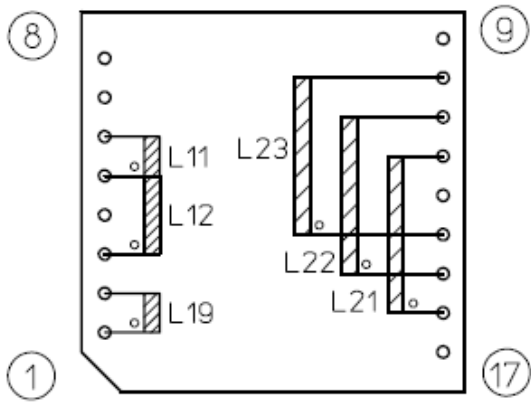
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.2	Table: working voltage measurement – continued.			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
Supply voltage: 120, 60Hz				
Switching Power Supply Unit for model MPW3099				
T1 P16– P1	90.6	164	4.21 kHz	
T1 P16– P2	93.6	208	4.28 kHz	
T1 P16– P3	120	196	0.06 kHz	
T1 P16– P5	13.2	31.6	0.06 kHz	
T1 P16– P6	25.4	57.6	60.7 kHz	
T1 P16– P7	216	416	60.7 kHz	
T1 P9– P1	96.9	169	4.23 kHz	
T1 P9– P2	96.1	213	4.23 kHz	
T1 P9– P3	120	191	0.06 kHz	
T1 P9– P5	12.8	30.8	0.06 kHz	
T1 P9– P6	25.6	59.9	60.8 kHz	
T1 P9– P7	209	406	60.8 kHz	
Switching Power Supply Unit for model MPW3099L				
T1 P16– P1	91.0	160	4.19 kHz	
T1 P16– P2	93.8	192	4.11 kHz	
T1 P16– P3	122	200	0.06 kHz	
T1 P16– P5	180	284	0.06 kHz	
T1 P16– P6	214	404	60.7 kHz	
T1 P16– P7	214	404	60.7 kHz	
T1 P9– P1	98.9	166	4.21 kHz	
T1 P9– P2	98.3	198	4.21 kHz	
T1 P9– P3	120	211	0.06 kHz	
T1 P9– P5	179	279	0.06 kHz	
T1 P9– P6	210	399	60.8 kHz	
T1 P9– P7	210	399	60.8 kHz	
supplementary information:				
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Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
SWPS-MPW3100L (pri, gnd, sec)							
Functional:							
Pri - pri (before fuse)	< 420	< 250	1.9	4.5	2.5	4.5	
Basic / supplementary:							
Pri – gnd (traces)	< 420	< 250	2.5	4.8	2.5	5.0	
Pri – gnd (chassis)	< 420	< 250	2.5	4.0	2.5	4.0	
Reinforced:							
Pri – sec (traces at T1)	690	315	6.3	7.0	6.3	7.0	
Pri – sec (traces at PC1)	< 420	< 250	4.9	7.5	5.0	7.5	
Pri – sec (traces at PC3, PC4, PC5)	< 420	< 250	4.9	7.0	5.0	7.0	
Pri – sec (traces at RL1)	< 420	< 250	4.9	6.8	5.0	6.8	
Pri – sec (traces at C50)	< 420	< 250	4.9	7.5	5.0	7.5	
Pri – sec (traces at C4)	< 420	< 250	4.9	5.2	5.0	5.2	

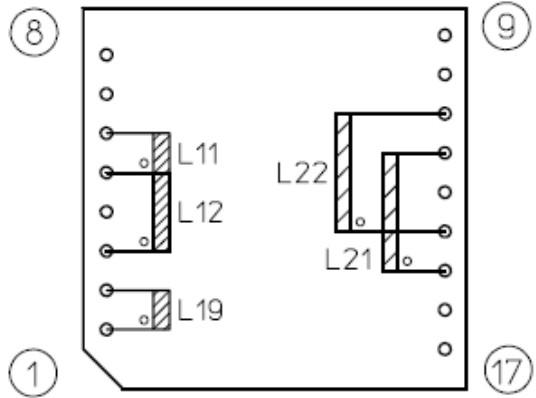
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Transformer T1 type 68Q1							
Basic / supplementary:							
Pri – core (external)	-- ¹⁾	--	--	3.5	--	3.5	
Pri – core (internal)	--	--	--	6.4	--	6.4	
Sec – core (external)	--	--	--	3.2	--	3.2	
Sec – core (internal)	--	--	--	6.4	--	6.4	
Reinforced:							
Pri-core –sec (external)	690	315	6.3	6.7	6.3	6.7	
Pri-sec (internal)	690	315	6.3	12.8	6.3	12.8	
<p>Construction details of Transformer T1: ¹⁾ core is floating; no electric potential defined. Concentric pri windings and sec windings on a bobbin. Winding ends are internally fixed with tapes, they are soldered on pins. End tape (3 layers) above outer sec winding. Bobbin: Type PM-9820; Sumitomo Bakelite Co., Ltd.; Phenole, V-0, min. 0.4mm thick</p>  <p>Distances from core to any pri- component: dcl: min. 6.6mm, dcr: min. 14.0mm Distances from core to any sec- component: dcl: min. 9.1mm, dcr: min. 20.6mm</p>							

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

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
SWPS-MPW3099L (pri, gnd, sec)							
Functional:							
Pri - pri (before fuse)	< 210	< 125	0.7	4.5	1.5	4.5	
Basic / supplementary:							
Pri – gnd (traces)	404	214	1.6	4.8	2.2	5.0	
Pri – gnd (chassis)	404	214	1.6	4.0	2.2	4.0	
Reinforced:							
Pri – sec (traces at T1)	404	214	3.2	7.0	4.3	7.0	
Pri – sec (traces at PC1)	404	214	3.2	7.5	4.3	7.5	
Pri – sec (traces at PC3, PC4, PC5)	404	214	3.2	7.0	4.3	7.0	
Pri – sec (traces at RL1)	404	214	3.2	6.8	4.3	6.8	
Pri – sec (traces at C50)	404	214	3.2	7.5	4.3	7.5	
Pri – sec (traces at C4)	404	214	3.2	5.2	4.3	5.2	

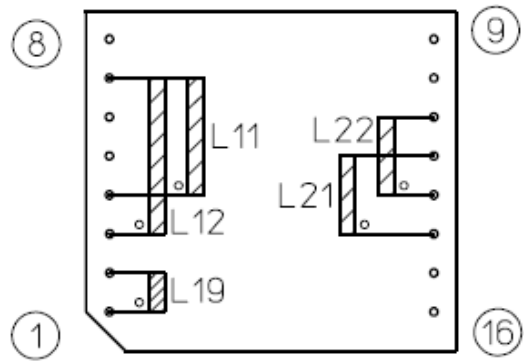
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Transformer T1 type 67Q1						
Basic / supplementary:						
Pri – core (external)	-- ¹⁾	--	--	2.7	--	2.7
Pri – core (internal)	--	--	--	3.2	--	3.2
Sec – core (external)	--	--	--	4.6	--	7.0
Sec – core (internal)	--	--	--	3.2	--	3.2
Reinforced:						
Pri – sec (internal)	404	214	3.2	6.4	4.3	6.4
Pri – sec (external)	404	214	3.2	7.3	4.3	9.7
<p>Construction details of Transformer T1:</p> <p>¹⁾ core is floating; no electric potential defined.</p> <p>Concentric pri windings and sec windings on a bobbin.</p> <p>Winding ends are internally fixed with tapes, they are soldered on pins.</p> <p>End tape (3 layers) above outer sec winding.</p> <p>Bobbin: Type PM-9820; Sumitomo Bakelite Co., Ltd.; Phenole, V-0, min. 0.4mm thick</p>  <p>Distances from core to any pri- component: dcl: min. 6.6mm, dcr: min. 15.6mm</p> <p>Distances from core to any sec- component: dcl: min. 8.6mm, dcr: min. 20.4mm</p>						

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

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
SWPS-MPW3099 (pri, gnd, sec)							
Functional:							
Pri - pri (before fuse)	416	216	0.9	2.5	2.2	2.5	
Basic / supplementary:							
Pri – gnd (traces)	416	216	1.6	4.8	2.5	5.0	
Pri – gnd (chassis)	416	216	1.6	4.0	2.5	4.0	
Reinforced:							
Pri – sec (traces at T1)	416	216	3.2	7.0	4.4	7.0	
Pri – sec (traces at PC1)	416	216	3.2	7.5	4.4	7.5	
Pri – sec (traces at PC3, PC4, PC5)	416	216	3.2	7.0	4.4	7.0	
Pri – sec (traces at RL1)	416	216	3.2	6.8	4.4	6.8	
Pri – sec (traces at C50)	416	216	3.2	7.5	4.4	7.5	
Pri – sec (traces at C4)	416	216	3.2	5.2	4.4	5.2	

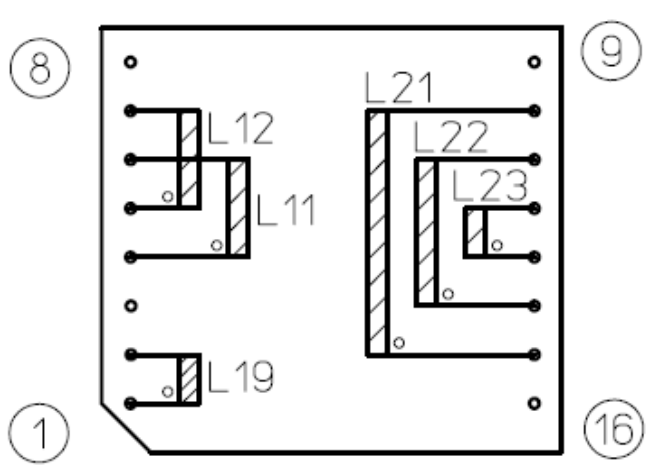
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued..						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Transformer T1 type 2Q107							
Basic / supplementary:							
Pri – core ¹⁾ (external)	-- ¹⁾	--	--	3.5	--	3.5	
Pri – core ¹⁾ (internal)	--	--	--	5.0	--	5.0	
Sec – core ¹⁾ (external)	--	--	--	4.5	--	6.2	
Sec – core ¹⁾ (internal)	--	--	--	5.0	--	5.0	
Reinforced:							
Pri – core – sec	416	216	3.2	8.0	4.4	9.7	
Pri – sec (internal)	416	216	3.2	10.0	4.4	10.0	
<p>Construction details of Transformer T1: ¹⁾ core is floating; no electric potential defined. Concentric pri windings and sec windings on a bobbin. Winding ends are internally fixed with tapes, they are soldered on pins. End tape (3 layers) above outer sec winding. Bobbin: Type PM-9820; Sumitomo Bakelite Co., Ltd.; Phenole, V-0, min. 0.4mm thick</p>  <p>Distances from core to any pri- component: dcl: min. 6.6 mm, dcr: min. 15.5 mm Distances from core to any sec- component: dcl: min. 8.8 mm, dcr: min. 20.4mm</p>							

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

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
SWPS-MPW3100 (pri, gnd, sec)							
Functional:							
Pri - pri (before fuse)	< 420	< 250	1.9	2.5	2.5	2.5	
Basic / supplementary:							
Pri – gnd (traces)	< 420	< 250	2.5	4.8	2.5	5.0	
Pri – gnd (chassis)	< 420	< 250	2.5	4.0	2.5	4.0	
Reinforced:							
Pri – sec (traces at T1)	690	315	6.1	7.0	6.7	7.0	
Pri – sec (traces at PC1)	< 420	< 250	4.9	7.5	5.0	7.5	
Pri – sec (traces at PC3, PC4, PC5)	< 420	< 250	4.9	7.0	5.0	7.0	
Pri – sec (traces at RL1)	< 420	< 250	4.9	6.8	5.0	6.8	
Pri – sec (traces at C50)	< 420	< 250	4.9	7.5	5.0	7.5	
Pri – sec (traces at C4)	< 420	< 250	4.9	5.2	5.0	5.2	

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Transformer T1 type 2Q106							
Basic / supplementary:							
Pri – core (external)	-- ¹⁾	--	--	4.0	--	4.0	
Pri – core (internal)	--	--	--	6.4	--	6.4	
Sec – core (external)	--	--	--	4.3	--	4.3	
Sec – core (internal)	--	--	--	6.4	--	6.4	
Reinforced:							
Pri – core – sec	750	333	6.1	8.3	6.7	8.3	
Pri – sec (internal)	750	333	6.1	12.8	6.7	12.8	
<p>Construction details of Transformer T1: ¹⁾ core is floating; no electric potential defined. Concentric pri windings and sec windings on a bobbin. Winding ends are internally fixed with tapes, they are soldered on pins. End tape (3 layers) above outer sec winding. Bobbin: Type PM-9820; Sumitomo Bakelite Co., Ltd.; Phenole, V-0, min. 0.4mm thick</p>  <p>Distances from core to any pri- component: dcl: min. 6.6mm, dcr: min. 15.5mm Distances from core to any sec- component: dcl: min. 8.6mm, dcr: min. 18.0mm</p>							

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

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements – continued.						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Interlock system (PCB traces)							
Basic:							
Before interlock switch – after interlock switch	DC 24	DC 24	1.0 *	1.0 ***	1.0 **	1.0 ***	
	* Annex G used. ** Required creepage was 0.5mm, however, 1.0mm was taken from required clearance. *** Measured three times.						
Fuser Unit							
Basic:							
Pri – gnd	< 420	< 250	2.5	5.4	2.5	5.4	
Reinforced:							
Pri – sec	< 420	< 250	4.9	5.4	5.0	5.4	
Supplementary information: Each required clearance has been multiplied by the altitude correction factor 1.215 for 3500m.							

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Clause	Requirement + Test	Result - Remark	Verdict

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:		U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Transformer T1 of MPW3100		750	333	AC 3000V for 1 layer	2 layers	2 layers
Transformer T1 of MPW3100L		690	315	AC 3000V for 1 layer	2 layers	2 layers
Transformer T1 of MPW3099		416	216	AC 3000V for 1 layer	2 layers	2 layers
Transformer T1 of MPW3099L		404	214	AC 3000V for 1 layer	2 layers	2 layers
Supplementary information: None						

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Clause	Requirement + Test					Result - Remark			Verdict
4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position?									N/A
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									Verdict
- Chemical leaks									N/A
- Explosion of the battery									N/A
- Emission of flame or expulsion of molten metal									N/A
- Electric strength tests of equipment after completion of tests									N/A
Supplementary information: None									

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.8	TABLE: Batteries	N/A
Battery category : (Lithium, NiMh, NiCad, Lithium Ion ...)		
Manufacturer :		
Type / model..... :		
Voltage :		
Capacity : mAh		
Tested and Certified by (incl. Ref. No.)..... :		
Circuit protection diagram:		
MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)		
Location of replaceable battery		
Language(s):		
Close to the battery:		
In the servicing instructions:		
In the operating instructions:		

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements				P	
Temperatures were measured according cl. 1.4.5. Test in condition A and B at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		A: 99V, 60Hz, printing		B: 121V, 60Hz, printing		
t _{amb1} (°C):	A: -- B: --	t _{amb2} (°C):		A: 25 B: 25		
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		A T (°C)	B T (°C)	A T (°C)	B T (°C)	
SWPS, T1 coil		52	52	62	62	110
SWPS, T1 core		51	51	61	61	110
SWPS L1 coil		65	64	75	74	90
SWPS, L2 coil		75	73	85	83	90
SWPS, L51 coil		78	73	88	83	90
SWPS, D1 body		86	80	96	90	130
SWPS, D101 body		79	78	89	88	130
SWPS, RLY1 body		56	55	66	65	130
SWPS, Q1 body		66	64	76	74	130
SWPS, Q2 body		69	68	79	78	130
SWPS, C7 body		60	60	70	70	105
SWPS, PC1 body		40	40	50	50	130
SWPS, PC3 body		68	64	78	74	130
SWPS, Z1 body		51	50	61	60	130
SWPS, TRA31 body		101	95	111	105	130
SWPS, YC1 body		50	49	60	59	80
SWPS, YC2 body		58	57	68	67	80
High Voltage PWB, B101 coil		27	27	37	37	90
High Voltage PWB, B200 coil		29	29	39	39	90
High Voltage PWB, B301 coil		27	27	37	37	90
High Voltage PWB, B451 coil		29	29	39	39	90
High Voltage PWB, B501 coil		33	33	43	43	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	A T (°C)	B T (°C)	A T (°C)	B T (°C)	
High Voltage PWB, B51 coil	36	36	46	46	90
Main Motor	62	61	72	71	100
Drum Motor	59	59	69	69	100
Lift Motor	40	40	50	50	100
Polygon Motor	49	49	59	59	100
Toner Motor	32	31	42	41	100
FD Motor	57	57	67	67	100
Envelop Motor	30	30	40	40	100
LVU Fan Motor	43	43	53	53	100
LSU Fan Motor	34	34	44	44	100
DLP Fan Motor	30	30	40	40	100
Rear Fan Motor	67	67	77	77	100
Center Fan Motor	67	67	77	77	100
DLP Clutch	36	36	46	46	90
Feed Clutch	44	44	54	54	90
Reg Clutch	67	67	77	77	90
Mid Clutch	38	37	48	47	90
DU Clutch	41	41	51	51	90
Face U/D Solenoid	48	48	58	58	90
MPF solenoid	38	38	48	48	90
Fuser unit, case	114	115	124	125	---
Fuser Unit, Primary Wire	102	101	112	111	150
Fuser Unit, Secondary Wire	97	96	107	106	150
Fuser unit, Connector	56	55	66	65	---
Lid Scanner	49	49	59	59	---
Housing Scanner	49	49	59	59	---

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	A T (°C)	B T (°C)	A T (°C)	B T (°C)	
Plastic Enclosure, Cover Top	51	51	61	61	95
Plastic Enclosure, Cover Rear	52	52	62	62	95
Trans Motor(PF-320)	62	62	72	72	100
Lift Motor(PF-320)	43	44	53	54	100
Trans Clutch(PF-320)	75	77	85	87	90
Feed Clutch(PF-320)	71	72	81	82	90
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition C and D at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		C: 99V, 60Hz, printing		D: 121V, 60Hz, printing		
t _{amb1} (°C):	C: -- D: --	t _{amb2} (°C):		C: 25 D: 25		
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		C T (°C)	D T (°C)	C T (°C)	D T (°C)	
SWPS, T1 coil		42	44	52	54	110
SWPS, T1 core		38	38	48	48	110
SWPS L1 coil		39	38	49	48	90
SWPS, L2 coil		42	41	52	51	90
SWPS, L51 coil		54	55	64	65	90
SWPS, D1 body		50	49	60	59	130
SWPS, D101 body		56	57	66	67	130
SWPS, RLY1 body		42	40	52	50	130
SWPS, Q1 body		49	47	59	57	130
SWPS, C7 body		41	40	51	50	105
SWPS, PC1 body		31	31	41	41	130
SWPS, PC3 body		45	42	55	52	130
SWPS, Z1 body		36	35	46	45	130
SWPS, TRA31 body		91	86	101	96	130
SWPS, YC1 body		37	36	47	46	80
SWPS, YC2 body		39	39	49	49	80
High Voltage PWB, B101 coil		27	27	37	37	90
High Voltage PWB, B200 coil		29	29	39	39	90
High Voltage PWB, B301 coil		27	27	37	37	90
High Voltage PWB, B451 coil		29	29	39	39	90
High Voltage PWB, B501 coil		33	33	43	43	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	C T (°C)	D T (°C)	C T (°C)	D T (°C)	
High Voltage PWB, B51 coil	36	36	46	46	90
Main Motor	62	61	72	71	100
Drum Motor	59	59	69	69	100
Lift Motor	40	40	50	50	100
Polygon Motor	49	49	59	59	100
Toner Motor	32	31	42	41	100
FD Motor	57	57	67	67	100
Envelop Motor	30	30	40	40	100
LVU Fan Motor	43	43	53	53	100
LSU Fan Motor	34	34	44	44	100
DLP Fan Motor	30	30	40	40	100
Rear Fan Motor	67	67	77	77	100
Center Fan Motor	67	67	77	77	100
DLP Clutch	36	36	46	46	90
Feed Clutch	44	44	54	54	90
Reg Clutch	67	67	77	77	90
Mid Clutch	38	37	48	47	90
DU Clutch	41	41	51	51	90
Face U/D Solenoid	48	48	58	58	90
MPF solenoid	38	38	48	48	90
Fuser unit, case	114	115	124	125	---
Fuser Unit, Primary Wire	102	101	112	111	150
Fuser Unit, Secondary Wire	97	96	107	106	150
Fuser unit, Connector	56	55	66	65	---
Lid Scanner	49	49	59	59	---
Housing Scanner	49	49	59	59	---

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

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	C T (°C)	D T (°C)	C T (°C)	D T (°C)	
Plastic Enclosure, Cover Top	51	51	61	61	95
Plastic Enclosure, Cover Rear	52	52	62	62	95
Trans Motor(PF-320)	62	62	72	72	100
Lift Motor(PF-320)	43	44	53	54	100
Trans Clutch(PF-320)	75	77	85	87	90
Feed Clutch(PF-320)	71	72	81	82	90
Supplementary information: Measured on Model FS-2100DN with PF-320 × 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.					P
Temperatures were measured according cl. 1.4.5. Test in condition E and F at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35°C (T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		E: 108V, 60Hz, printing		F: 132V, 60Hz, printing		
t _{amb1} (°C):	E: -- F: --		t _{amb2} (°C):		E: 25 F: 25	
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		E T (°C)	F T (°C)	E T (°C)	F T (°C)	
SWPS, T1 coil		52	53	62	63	110
SWPS, T1 core		51	51	61	61	110
SWPS L1 coil		64	61	74	71	90
SWPS, L2 coil		73	69	83	79	90
SWPS, L51 coil		76	73	86	83	90
SWPS, D1 body		83	77	93	87	130
SWPS, D101 body		80	79	90	89	130
SWPS, RLY1 body		56	55	66	65	130
SWPS, Q1 body		67	63	77	73	130
SWPS, Q2 body		70	66	80	76	130
SWPS, C7 body		60	58	70	68	105
SWPS, PC1 body		40	40	50	50	130
SWPS, PC3 body		67	62	77	72	130
SWPS, Z1 body		51	49	61	59	130
SWPS, TRA31 body		100	92	110	102	130
SWPS, YC1 body		50	48	60	58	80
SWPS, YC2 body		58	56	68	66	80
High Voltage PWB, B101 coil		28	27	38	37	90
High Voltage PWB, B200 coil		30	29	40	39	90
High Voltage PWB, B301 coil		27	27	37	37	90
High Voltage PWB, B451 coil		30	29	40	39	90
High Voltage PWB, B501 coil		34	33	44	43	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
	E T (°C)	F T (°C)	E T (°C)	F T (°C)	
High Voltage PWB, B51 coil	38	36	48	46	90
Main Motor	60	61	70	71	100
Drum Motor	58	59	68	69	100
Lift Motor	38	40	48	50	100
Polygon Motor	49	49	59	59	100
Toner Motor	30	32	40	42	100
FD Motor	56	57	66	67	100
Envelop Motor	29	30	39	40	100
LVU Fan Motor	43	43	53	53	100
LSU Fan Motor	34	34	44	44	100
DLP Fan Motor	30	30	40	40	100
Rear Fan Motor	67	67	77	77	100
Center Fan Motor	67	67	77	77	100
DLP Clutch	36	36	46	46	90
Feed Clutch	43	45	53	55	90
Reg Clutch	66	67	76	77	90
Mid Clutch	37	37	47	47	90
DU Clutch	41	41	51	51	90
Face U/D Solenoid	48	48	58	58	90
MPF solenoid	38	38	48	48	90
Fuser unit, case	116	115	126	125	---
Fuser Unit, Primary Wire	101	101	111	111	150
Fuser Unit, Secondary Wire	97	96	107	106	150
Fuser unit, Connector	54	54	64	64	---
Lid Scanner	50	50	60	60	---
Housing Scanner	50	50	60	60	---

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

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	E T (°C)	F T (°C)	E T (°C)	F T (°C)	
Plastic Enclosure, Cover Top	53	51	63	61	95
Plastic Enclosure, Cover Rear	52	52	62	62	95
Trans Motor(PF-320)	59	61	69	71	100
Lift Motor(PF-320)	41	43	51	53	100
Trans Clutch(PF-320)	74	74	84	84	90
Feed Clutch(PF-320)	68	70	78	80	90
Supplementary information: Measured on Model FS-4300DN with PF-320 x 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition G and H at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		G: 108V, 60Hz, printing		H: 132V, 60Hz, printing		
t _{amb1} (°C):	G: -- H: --	t _{amb2} (°C):		G: 25 H: 25		
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		G T (°C)	H T (°C)	G T (°C)	H T (°C)	
SWPS, T1 coil		45	45	55	55	110
SWPS, T1 core		39	40	49	50	110
SWPS L1 coil		40	39	50	49	90
SWPS, L2 coil		43	41	53	51	90
SWPS, L51 coil		55	55	65	65	90
SWPS, D1 body		50	47	60	57	130
SWPS, D101 body		53	54	63	64	130
SWPS, RLY1 body		40	40	50	50	130
SWPS, Q1 body		51	48	61	58	130
SWPS, C7 body		41	41	51	51	105
SWPS, PC1 body		32	32	42	42	130
SWPS, PC3 body		46	44	56	54	130
SWPS, Z1 body		36	36	46	46	130
SWPS, TRA31 body		93	87	103	97	130
SWPS, YC1 body		37	37	47	47	80
SWPS, YC2 body		38	38	48	48	80
High Voltage PWB, B101 coil		27	27	37	37	90
High Voltage PWB, B200 coil		29	29	39	39	90
High Voltage PWB, B301 coil		27	27	37	37	90
High Voltage PWB, B451 coil		29	29	39	39	90
High Voltage PWB, B501 coil		33	33	43	43	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	G T (°C)	H T (°C)	G T (°C)	H T (°C)	
High Voltage PWB, B51 coil	36	36	46	46	90
Main Motor	62	61	72	71	100
Drum Motor	59	59	69	69	100
Lift Motor	40	40	50	50	100
Polygon Motor	49	49	59	59	100
Toner Motor	32	31	42	41	100
FD Motor	57	57	67	67	100
Envelop Motor	30	30	40	40	100
LVU Fan Motor	43	43	53	53	100
LSU Fan Motor	34	34	44	44	100
DLP Fan Motor	30	30	40	40	100
Rear Fan Motor	67	67	77	77	100
Center Fan Motor	67	67	77	77	100
DLP Clutch	36	36	46	46	90
Feed Clutch	44	44	54	54	90
Reg Clutch	67	67	77	77	90
Mid Clutch	38	37	48	47	90
DU Clutch	41	41	51	51	90
Face U/D Solenoid	48	48	58	58	90
MPF solenoid	38	38	48	48	90
Fuser unit, case	114	115	124	125	---
Fuser Unit, Primary Wire	102	101	112	111	150
Fuser Unit, Secondary Wire	97	96	107	106	150
Fuser unit, Connector	56	55	66	65	---
Lid Scanner	49	49	59	59	---
Housing Scanner	49	49	59	59	---

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	G T (°C)	H T (°C)	G T (°C)	H T (°C)	
Plastic Enclosure, Cover Top	51	51	61	61	95
Plastic Enclosure, Cover Rear	52	52	62	62	95
Trans Motor(PF-320)	62	62	72	72	100
Lift Motor(PF-320)	43	44	53	54	100
Trans Clutch(PF-320)	75	77	85	87	90
Feed Clutch(PF-320)	71	72	81	82	90
Supplementary information: Measured on Model FS-2100DN with PF-320 x 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition I and J at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		I: 198V, 60Hz, printing		J: 242V, 50Hz, printing		
t _{amb1} (°C):	I: -- J: --	t _{amb2} (°C):		I: 23 J: 23		
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		I T (°C)	J T (°C)	I T (°C)	J T (°C)	
SWPS, T1 coil		62	64	74	76	110
SWPS, T1 core		48	50	60	62	110
SWPS L1 coil		49	50	61	62	90
SWPS, L2 coil		70	70	82	82	90
SWPS, L51 coil		61	60	73	72	90
SWPS, D1 body		65	65	77	77	130
SWPS, D101 body		71	74	83	86	130
SWPS, RLY1 body		47	48	59	60	130
SWPS, Q1 body		67	82	79	94	130
SWPS, Q2 body		65	78	77	90	130
SWPS, C7 body		54	58	66	70	105
SWPS, PC1 body		39	41	51	53	130
SWPS, PC3 body		55	55	67	67	130
SWPS, Z1 body		42	43	54	55	130
SWPS, TRA31 body		70	67	82	79	130
SWPS, YC1 body		41	43	53	55	80
SWPS, YC2 body		44	45	56	57	80
High Voltage PWB, B101 coil		25	25	37	37	90
High Voltage PWB, B200 coil		26	26	38	38	90
High Voltage PWB, B301 coil		26	26	38	38	90
High Voltage PWB, B451 coil		26	27	38	39	90
High Voltage PWB, B501 coil		33	33	45	45	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	I T (°C)	J T (°C)	I T (°C)	J T (°C)	
High Voltage PWB, B51 coil	33	34	45	46	90
Main Motor	56	57	68	69	100
Drum Motor	57	58	69	70	100
Lift Motor	37	38	49	50	100
Polygon Motor	47	47	59	59	100
Toner Motor	29	30	41	42	100
FD Motor	53	52	65	64	100
Envelop Motor	27	28	39	40	100
LVU Fan Motor	42	44	54	56	100
LSU Fan Motor	33	33	45	45	100
DLP Fan Motor	28	28	40	40	100
Rear Fan Motor	65	65	77	77	100
Center Fan Motor	65	65	77	77	100
DLP Clutch	61	61	73	73	90
Feed Clutch	42	43	54	55	90
Reg Clutch	67	67	79	79	90
Mid Clutch	66	65	78	77	90
DU Clutch	38	39	50	51	90
Face U/D Solenoid	45	46	57	58	90
MPF solenoid	35	36	47	48	90
Fuser unit, case	90	88	102	100	---
Fuser Unit, Primary Wire	90	87	102	99	150
Fuser Unit, Secondary Wire	98	94	110	106	150
Fuser unit, Connector	46	47	58	59	---
Lid Scanner	52	53	64	65	---
Housing Scanner	52	53	64	65	---

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

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	I T (°C)	J T (°C)	I T (°C)	J T (°C)	
Plastic Enclosure, Cover Top	44	45	56	57	95
Plastic Enclosure, Cover Rear	50	51	62	63	95
Trans Motor(PF-320)	52	53	64	65	100
Lift Motor(PF-320)	39	40	51	52	100
Trans Clutch(PF-320)	72	73	84	85	90
Feed Clutch(PF-320)	65	65	77	77	90
Supplementary information: Measured on Model FS-4300DN with PF-320 x 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.					P
Temperatures were measured according cl. 1.4.5. Test in condition K and L at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35°C (T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		K: 264V, 50Hz, printing		L: 198V, 60Hz, printing		
t _{amb1} (°C):	K: -- L: --		t _{amb2} (°C):		K: 23 L: 26	
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		K T (°C)	L T (°C)	K T (°C)	L T (°C)	
SWPS, T1 coil		69	67	81	76	110
SWPS, T1 core		55	71	67	80	110
SWPS L1 coil		50	71	62	80	90
SWPS, L2 coil		63	68	75	77	90
SWPS, L51 coil		60	77	72	86	90
SWPS, D1 body		60	71	72	80	130
SWPS, D101 body		78	98	90	107	130
SWPS, RLY1 body		50	71	62	80	130
SWPS, Q1 body		85	114	97	123	130
SWPS, Q2 body		78	---	90	---	130
SWPS, C7 body		55	65	67	74	105
SWPS, PC1 body		42	49	54	58	130
SWPS, PC3 body		55	72	67	81	130
SWPS, Z1 body		44	53	56	62	130
SWPS, TRA31 body		67	95	79	104	130
SWPS, YC1 body		44	53	56	62	80
SWPS, YC2 body		46	55	58	64	80
High Voltage PWB, B101 coil		27	28	39	37	90
High Voltage PWB, B200 coil		29	29	41	38	90
High Voltage PWB, B301 coil		27	29	39	38	90
High Voltage PWB, B451 coil		31	29	43	38	90
High Voltage PWB, B501 coil		33	36	45	45	90

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

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	K T (°C)	L T (°C)	K T (°C)	L T (°C)	
High Voltage PWB, B51 coil	34	36	46	45	90
Main Motor	59	59	71	68	100
Drum Motor	59	60	71	69	100
Lift Motor	40	40	52	49	100
Polygon Motor	49	50	61	59	100
Toner Motor	31	32	43	41	100
FD Motor	54	56	66	65	100
Envelop Motor	29	30	41	39	100
LVU Fan Motor	44	45	56	54	100
LSU Fan Motor	35	36	47	45	100
DLP Fan Motor	29	31	41	40	100
Rear Fan Motor	65	68	77	77	100
Center Fan Motor	65	68	77	77	100
DLP Clutch	60	64	72	73	90
Feed Clutch	42	45	54	54	90
Reg Clutch	66	70	78	79	90
Mid Clutch	61	69	73	78	90
DU Clutch	41	41	53	50	90
Face U/D Solenoid	47	48	59	57	90
MPF solenoid	37	38	49	47	90
Fuser unit, case	92	93	104	102	---
Fuser Unit, Primary Wire	90	93	102	102	150
Fuser Unit, Secondary Wire	98	101	110	110	150
Fuser unit, Connector	47	49	59	58	---
Lid Scanner	54	55	66	64	---
Housing Scanner	54	55	66	64	---

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

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	K T (°C)	L T (°C)	K T (°C)	L T (°C)	
Plastic Enclosure, Cover Top	47	47	59	56	95
Plastic Enclosure, Cover Rear	51	53	63	62	95
Trans Motor(PF-320)	54	55	66	64	100
Lift Motor(PF-320)	40	42	52	51	100
Trans Clutch(PF-320)	74	75	86	84	90
Feed Clutch(PF-320)	65	68	77	77	90
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4 for K Measured on Model FS-2100DN with PF-320 × 4 for L Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition M and N at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		M: 242V, 50Hz, printing		N: 264V, 50Hz, printing		
t _{amb1} (°C):		M: -- N: --		t _{amb2} (°C):		
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		M T (°C)	N T (°C)	M T (°C)	N T (°C)	
SWPS, T1 coil		69	69	78	78	110
SWPS, T1 core		73	73	82	82	110
SWPS L1 coil		67	64	76	73	90
SWPS, L2 coil		64	62	73	71	90
SWPS, L51 coil		78	80	87	89	90
SWPS, D1 body		68	66	77	75	130
SWPS, D101 body		98	99	107	108	130
SWPS, RLY1 body		71	71	80	80	130
SWPS, Q1 body		105	95	114	104	130
SWPS, C7 body		64	62	73	71	105
SWPS, PC1 body		49	49	58	58	130
SWPS, PC3 body		67	67	76	76	130
SWPS, Z1 body		53	53	62	62	130
SWPS, TRA31 body		90	89	99	98	130
SWPS, YC1 body		53	53	62	62	80
SWPS, YC2 body		55	55	64	64	80
High Voltage PWB, B101 coil		28	30	37	39	90
High Voltage PWB, B200 coil		29	32	38	41	90
High Voltage PWB, B301 coil		29	30	38	39	90
High Voltage PWB, B451 coil		30	34	39	43	90
High Voltage PWB, B501 coil		36	36	45	45	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
	M T (°C)	N T (°C)	M T (°C)	N T (°C)	
High Voltage PWB, B51 coil	37	37	46	46	90
Main Motor	60	62	69	71	100
Drum Motor	61	62	70	71	100
Lift Motor	41	43	50	52	100
Polygon Motor	50	52	59	61	100
Toner Motor	33	34	42	43	100
FD Motor	55	57	64	66	100
Envelop Motor	31	32	40	41	100
LVU Fan Motor	47	47	56	56	100
LSU Fan Motor	36	38	45	47	100
DLP Fan Motor	31	32	40	41	100
Rear Fan Motor	68	68	77	77	100
Center Fan Motor	68	68	77	77	100
DLP Clutch	64	63	73	72	90
Feed Clutch	46	45	55	54	90
Reg Clutch	70	69	79	78	90
Mid Clutch	68	64	77	73	90
DU Clutch	42	44	51	53	90
Face U/D Solenoid	49	50	58	59	90
MPF solenoid	39	40	48	49	90
Fuser unit, case	91	95	100	104	---
Fuser Unit, Primary Wire	90	93	99	102	150
Fuser Unit, Secondary Wire	97	101	106	110	150
Fuser unit, Connector	50	50	59	59	---
Lid Scanner	56	57	65	66	---
Housing Scanner	56	57	65	66	---

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	M T (°C)	N T (°C)	M T (°C)	N T (°C)	
Plastic Enclosure, Cover Top	48	50	57	59	95
Plastic Enclosure, Cover Rear	54	54	63	63	95
Trans Motor(PF-320)	56	57	65	66	100
Lift Motor(PF-320)	43	43	52	52	100
Trans Clutch(PF-320)	76	77	85	86	90
Feed Clutch(PF-320)	68	68	77	77	90
Supplementary information: Measured on Model FS-2100DN with PF-320 × 4 Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperatures were measured according cl. 1.4.5. Test in condition O at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of <u>35</u> °C(T _{ma}), as specified by the manufacturer.					
test voltage(s) (V):		O: 240V, 60Hz, printing			
t _{amb1} (°C):	O: --	t _{amb2} (°C):		O: 26	
Temperature of part/at: (measured with thermocouples)	Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
	O T (°C)	--	O T (°C)	--	
SWPS, T1 coil	64	--	73	--	110
SWPS, T1 core	50	--	59	--	110
SWPS L1 coil	50	--	59	--	90
SWPS, L2 coil	70	--	79	--	90
SWPS, L51 coil	60	--	69	--	90
SWPS, D1 body	65	--	74	--	130
SWPS, D101 body	74	--	83	--	130
SWPS, RLY1 body	48	--	57	--	130
SWPS, Q1 body	82	--	91	--	130
SWPS, Q2 body	78	--	87	--	130
SWPS, C7 body	58	--	67	--	105
SWPS, PC1 body	41	--	50	--	130
SWPS, PC3 body	55	--	64	--	130
SWPS, Z1 body	43	--	52	--	130
SWPS, TRA31 body	67	--	76	--	130
SWPS, YC1 body	43	--	52	--	80
SWPS, YC2 body	45	--	54	--	80
High Voltage PWB, B101 coil	25	--	34	--	90
High Voltage PWB, B200 coil	26	--	35	--	90
High Voltage PWB, B301 coil	26	--	35	--	90
High Voltage PWB, B451 coil	27	--	36	--	90
High Voltage PWB, B501 coil	33	--	42	--	90

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
	O T (°C)	--	O T (°C)	--	
High Voltage PWB, B51 coil	34	--	43	--	90
Main Motor	57	--	66	--	100
Drum Motor	58	--	67	--	100
Lift Motor	38	--	47	--	100
Polygon Motor	47	--	56	--	100
Toner Motor	30	--	39	--	100
FD Motor	52	--	61	--	100
Envelop Motor	28	--	37	--	100
LVU Fan Motor	44	--	53	--	100
LSU Fan Motor	33	--	42	--	100
DLP Fan Motor	28	--	37	--	100
Rear Fan Motor	65	--	74	--	100
Center Fan Motor	65	--	74	--	100
DLP Clutch	61	--	70	--	90
Feed Clutch	43	--	52	--	90
Reg Clutch	67	--	76	--	90
Mid Clutch	65	--	74	--	90
DU Clutch	39	--	48	--	90
Face U/D Solenoid	46	--	55	--	90
MPF solenoid	36	--	45	--	90
Fuser unit, case	88	--	97	--	---
Fuser Unit, Primary Wire	87	--	96	--	150
Fuser Unit, Secondary Wire	94	--	103	--	150
Fuser unit, Connector	47	--	56	--	---
Lid Scanner	53	--	62	--	---
Housing Scanner	53	--	62	--	---

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P
Temperature of part/at: (measured with thermocouples)	Measured temperature at T_{amb}		Calculated temperature at T_{ma}		Allowed T_{max} (°C)
	O T (°C)	--	O T (°C)	--	
Plastic Enclosure, Cover Top	45	--	54	--	95
Plastic Enclosure, Cover Rear	51	--	60	--	95
Trans Motor(PF-315+)	46	--	55	--	100
Lift Motor(PF-315+)	33	--	42	--	100
Supplementary information: Measured on Model FS-4300DN with PF-315+ Re-calculated by Max specified ambient temperature 35°C considered.					
Temperatures measured with winding resistance method: Not used.					

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.					P	
Temperatures were measured according cl. 1.4.5. Test in condition P and Q at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of <u>35</u> °C(T _{ma}), as specified by the manufacturer.							
test voltage(s) (V):			P: 99V, 60Hz, printing		Q: 121V, 60Hz, printing		
t _{amb1} (°C):		P: -- Q: --		t _{amb2} (°C):		P: 24 Q: 24	
Temperature of part/at: (measured with thermocouples)			Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
			P T (°C)	Q T (°C)	P T (°C)	Q T (°C)	
Alternate Rear Fan Motor			42	42	53	53	100
Alternate Center Fan Motor			56	56	67	67	100
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4							
Temperatures measured with winding resistance method: Not used.							

4.5	TABLE: Temperature rise measurements – continued.					P	
Temperatures were measured according cl. 1.4.5. Test in condition R and S at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of <u>35</u> °C(T _{ma}), as specified by the manufacturer.							
test voltage(s) (V):			R: 99V, 60Hz, printing		S: 121V, 60Hz, printing		
t _{amb1} (°C):		R: -- S: --		t _{amb2} (°C):		R: 24 S: 24	
Temperature of part/at: (measured with thermocouples)			Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
			R T (°C)	S T (°C)	R T (°C)	S T (°C)	
Alternate Rear Fan Motor			42	41	53	52	100
Alternate Center Fan Motor			56	56	67	67	100
Supplementary information: Measured on Model FS-2100DN with PF-320 × 4							
Temperatures measured with winding resistance method: Not used.							

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.					P	
Temperatures were measured according cl. 1.4.5. Test in condition T and U at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35°C (T _{ma}), as specified by the manufacturer.							
test voltage(s) (V):			T: 108V, 60Hz, printing		U: 132V, 60Hz, printing		
t _{amb1} (°C):		T: -- U: --		t _{amb2} (°C):		T: 24 U: 24	
Temperature of part/at: (measured with thermocouples)			Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
			T T (°C)	U T (°C)	T T (°C)	U T (°C)	
Alternate Rear Fan Motor			40	42	51	53	100
Alternate Center Fan Motor			52	56	63	67	100
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4							
Temperatures measured with winding resistance method: Not used.							

4.5	TABLE: Temperature rise measurements – continued.					P	
Temperatures were measured according cl. 1.4.5. Test in condition V and W at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of <u>35</u> °C(T _{ma}), as specified by the manufacturer.							
test voltage(s) (V):			V: 108V, 60Hz, printing		W: 132V, 60Hz, printing		
t _{amb1} (°C):		V: -- W: --		t _{amb2} (°C):		V: 24 W: 24	
Temperature of part/at: (measured with thermocouples)			Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
			V T (°C)	W T (°C)	V T (°C)	W T (°C)	
Alternate Rear Fan Motor			41	42	52	53	100
Alternate Center Fan Motor			56	56	67	67	100
Supplementary information: Measured on Model FS-2100DN with PF-320 × 4							
Temperatures measured with winding resistance method: Not used.							

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition X and Y at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		X: 198V, 60Hz, printing		Y: 242V, 50Hz, printing		
t _{amb1} (°C):	X: -- Y: --		t _{amb2} (°C):		X: 24 Y: 24	
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		X T (°C)	Y T (°C)	X T (°C)	Y T (°C)	
Alternate Rear Fan Motor		30	32	41	43	100
Alternate Center Fan Motor		47	53	58	64	100
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4						
Temperatures measured with winding resistance method: Not used.						

4.5	TABLE: Temperature rise measurements – continued.				P	
Temperatures were measured according cl. 1.4.5. Test in condition Z and AA at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35°C (T _{ma}), as specified by the manufacturer.						
test voltage(s) (V):		Z: 264V, 50Hz, printing		AA: 198V, 60Hz, printing		
t _{amb1} (°C):	Z: -- AA: --	t _{amb2} (°C):		Z: 24	AA: 24	
Temperature of part/at: (measured with thermocouples)		Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
		Z T (°C)	AA T (°C)	Z T (°C)	AA T (°C)	
Alternate Rear Fan Motor		34	32	45	43	100
Alternate Center Fan Motor		58	51	69	62	100
Supplementary information: Measured on Model FS-4300DN with PF-320 × 4 for Z Measured on Model FS-2100DN with PF-320 × 4 for AA						
Temperatures measured with winding resistance method: Not used.						

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: Temperature rise measurements – continued.					P	
Temperatures were measured according cl. 1.4.5. Test in condition AB and AC at continuous normal operation as for power input measurements of table 1.6 resulted in highest temperature values. Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 35 °C(T _{ma}), as specified by the manufacturer.							
test voltage(s) (V):			AB: 264V, 50Hz, printing		AC: 198V, 60Hz, printing		
t _{amb1} (°C):		AB: -- AC: --		t _{amb2} (°C):		AB: 24 AC: 24	
Temperature of part/at: (measured with thermocouples)			Measured temperature at T _{amb}		Calculated temperature at T _{ma}		Allowed T _{max} (°C)
			AB T (°C)	AC T (°C)	AB T (°C)	AC T (°C)	
Alternate Rear Fan Motor			42	42	53	53	100
Alternate Center Fan Motor			56	56	67	67	100
Supplementary information: Measured on Model FS-2100DN with PF-320 × 4							
Temperatures measured with winding resistance method: Not used.							

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Clause	Requirement + Test	Result - Remark	Verdict

4.5.5	TABLE: Ball pressure test of thermoplastic parts		P
	Allowed impression diameter (mm)	≤ 2 mm	—
Part	Test temperature (°C)	Impression diameter (mm)	
SWPS, Bobbin of L1,L2 for 3099 / PBT	125	1.5	
SWPS, Bobbin of L1,L2 for 3099L / PBT	125	1.5	
SWPS, Bobbin of L2 for 3100,3100L / PBT	125	1.3	
SWPS, Bobbin of L1 for 3100L / PBT	125	1.3	
SWPS, Bobbin of L1 for 3100 / PBT	125	1.5	
supplementary information:			
--			

4.7	Table: Resistance to fire					P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
--	--	--	--	--	--	--
supplementary information:						
See appended table 1.5.1 for details						

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Clause	Requirement + Test	Result - Remark	Verdict

5.1	TABLE: touch current measurement					P
	Test voltage (V) : (see Comments)					—
Measurement location (Terminal A connected to...)	Polarity (normal) [mA]		Polarity (reverse) [mA]		Limit (mA)	Comments
	Switch: ON	Switch: OFF	Switch: ON	Switch: OFF		
Earth terminal ("e" = open)	0.26	0.46	0.26	0.01	3.5	AC 132V, 60Hz
LAN Connector ("e" = close)	0.0	0.0	0.0	0.0	0.25	AC 132V, 60Hz
Earth terminal ("e" = open)	0.36	0.57	0.36	0.02	3.5	AC 264V, 60Hz
LAN Connector ("e" = close)	0.0	0.0	0.0	0.0	0.25	AC 264V, 60Hz
Supplementary information: None.						

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:				
--		--	--	--
Basic/supplementary:				
Transformer T1 for Switching Power Supply Unit:MPW3100, (primary – Core)		AC	2100	No
Transformer T1 for Switching Power Supply Unit:MPW3100, (Secondary – Core)		AC	2100	No
Transformer T1 for Switching Power Supply Unit:MPW3100L, (primary – Core)		AC	2020	No
Transformer T1 for Switching Power Supply Unit:MPW3100L, (Secondary – Core)		AC	2020	No
Transformer T1 for Switching Power Supply Unit:MPW3099, (primary – Core)		AC	1500	No
Transformer T1 for Switching Power Supply Unit:MPW3099, (Secondary – Core)		AC	1500	No
Transformer T1 for Switching Power Supply Unit:MPW3099L, (primary – Core)		AC	1500	No
Transformer T1 for Switching Power Supply Unit:MPW3099L, (Secondary – Core)		AC	1500	No
Switching Power Supply Unit:MPW3100, (primary - PE)		AC	2100	No
Switching Power Supply Unit:MPW3100L, (primary - PE)		AC	2020	No
Switching Power Supply Unit:MPW3099, (primary - PE)		AC	1500	No
Switching Power Supply Unit:MPW3099L, (primary - PE)		AC	1500	No

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests – continued.			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Reinforced:				
Switching Power Supply Unit:MPW3100, (primary - secondary)		AC	3000	No
Switching Power Supply Unit:MPW3100L, (primary - secondary)		AC	3000	No
Switching Power Supply Unit:MPW3099, (primary - secondary)		AC	3000	No
Switching Power Supply Unit:MPW3099L, (primary - secondary)		AC	3000	No
Transformer T1 for Switching Power Supply Unit:MPW3100, (primary - secondary)		AC	3000	No
Transformer T1 for Switching Power Supply Unit:MPW3100L, (primary - secondary))		AC	3000	No
Transformer T1 for Switching Power Supply Unit:MPW3099, (primary - secondary)		AC	3000	No
Transformer T1 for Switching Power Supply Unit:MPW3099L, (primary - secondary)		AC	3000	No
Photo Coupler (PC1, PC3, PC4, PC5) for Switching Power Supply Unit: MPW3100, MPW3100L, MPW3099, MPW3099L (primary - secondary)		AC	3000	No
Alternate Photo Coupler (PC1, PC3, PC4, PC5) for Switching Power Supply Unit: MPW3100, MPW3100L, MPW3099, MPW3099L (primary - secondary)		AC	3000	No
Supplementary information: None				

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)				24 if not stated in each Observation	—
	Power source for EUT: Manufacturer, model/type, output rating				--	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit, MPW3099 T1	24V output overload	120V/ 60Hz	2.3h	--	--	Temp. of T1: 149.2°C Ambient temp.: 29°C. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3099 D1 AC input	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3099 C7	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3099 Q1 D-S	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. D7 was broken. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3099PC 1 pin1-pin2 Sec	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3099 IC101 A-K	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit,MPW3099 PC1 Pin3-Pin4 Pri	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099PC 1 Pin4 Pri	Open	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099D3 Pri	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099 D101	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L T1	24V output overload	120V/ 60Hz	1.9h	--	--	Temp. of T1: 138.9°C Ambient temp.: 27°C. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L D1 AC input	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L C7	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit,MPW3099L Q1 D-S	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. F1 was opened. D7 was broken. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099LP C1 pin1-pin2 Sec	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L IC101 A-K	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L PC1 Pin3-Pin4 Pri	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099LP C1 Pin4 Pri	Open	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099LD 3 Pri	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3099L D101	Short	120V/ 60Hz	--	F1	6.3A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit,MPW3100 T1	24V output overload	240V/ 50Hz	2.6h	--	--	Temp. of T1: 136°C Ambient temp.: 27°C. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100 D1 AC input	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100 C7	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100 Q1 D-S	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. D7 was broken. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100PC 1 pin1-pin2 Sec	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100 IC101 A-K	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100 PC1 Pin3-Pin4 Pri	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit, MPW3100PC 1 Pin4 Pri	Open	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100D3 Pri	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100 D101	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100L T1	24V output overload	240V/ 50Hz	1.5h	--	--	Temp. of T1: 129°C Ambient temp.: 29°C. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100L D1 AC input	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100L C7	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit, MPW3100L Q1 D-S	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. F1 was opened. D7 was broken. No hazard. HV test: 3000Vac, Pass

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Switching Power Supply Unit,MPW3100LP C1 pin1-pin2 Sec	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100L IC101 A-K	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100L PC1 Pin3-Pin4 Pri	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100LP C1 Pin4 Pri	Open	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100LD 3 Pri	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Switching Power Supply Unit,MPW3100L D101	Short	240V/ 50Hz	--	F1	4.0A	24V Output was shutdown immediately. No hazard. HV test: 3000Vac, Pass
Model FS-4300DN, FS-4200DN, FS-4100DN Fuser Unit thermal control.	Disable	120V/ 60Hz	10min	--	--	Thermal cutoff was opened after 2min. Ambient temp.: 23°C. No hazard. HV test: 3000Vac, Pass

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Model FS-4300DN, FS-4200DN, FS-4100DN Fuser Unit thermal control.	Disable	240V/ 50Hz	10min	--	--	Thermal cutoff was opened after 2min. Ambient temp.: 23°C. No hazard. HV test: 3000Vac, Pass
Model FS-2100DN, FS-2100D Fuser Unit thermal control.	Disable	120V/ 60Hz	10min	--	--	Thermal cutoff was opened after 2min. Ambient temp.: 23°C. No hazard. HV test: 3000Vac, Pass
Model FS-2100DN, FS-2100D Fuser Unit thermal control.	Disable	240V/ 50Hz	10min	--	--	Thermal cutoff was opened after 2min. Ambient temp.: 23°C. No hazard. HV test: 3000Vac, Pass
Model FS-4300DN, FS-4200DN, FS-4100DN LVU Fan Motor, LSU Fan Motor, DLP Fan Motor, Rear Fan Motor, Center Fan Motor	Stalled fans	120V/ 60Hz	1.5h	--	--	Temperature was stabilized. Max temp. of SWPS T1 coil: 78°C. Ambient temp.: 25°C No hazard. HV test: 3000Vac, Pass
Model FS-4300DN, FS-4200DN, FS-4100DN LVU Fan Motor, LSU Fan Motor, DLP Fan Motor, Rear Fan Motor, Center Fan Motor	Stalled fans	240V/ 50Hz	1.0h	--	--	Temperature was stabilized. Max temp. of SWPS T1 coil: 100°C. Ambient temp.: 23°C No hazard. HV test: 3000Vac, Pass

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Model FS-2100DN, FS-2100D LVU Fan Motor, LSU Fan Motor, DLP Fan Motor, Rear Fan Motor, Center Fan Motor	Stalled fans	120V/ 60Hz	1.0h	--	--	Temperature was stabilized. Max temp. of SWPS T1 coil: 70°C. Ambient temp.: 25°C No hazard. HV test: 3000Vac, Pass
Model FS-2100DN, FS-2100D LVU Fan Motor, LSU Fan Motor, DLP Fan Motor, Rear Fan Motor, Center Fan Motor	Stalled fans	240V/ 50Hz	0.5h	--	--	Temperature was stabilized. Max temp. of SWPS T1 coil: 69°C. Ambient temp.: 25°C No hazard. HV test: 3000Vac, Pass
High Voltage PWB , Model MPH7462A C111	Short	24Vdc	--	--	--	Output M was shutdown immediately. No hazard.
High Voltage PWB , Model MPH7462A R103	Open	24Vdc	10min	--	--	Operated normally. No hazard.
High Voltage PWB , Model MPH7462A C303	Short	24Vdc	--	F1	1.5A	F1 was opened immediately. Output B was shutdown. Tested three times. No hazard.
High Voltage PWB , Model MPH7462A R335	Short	24Vdc	10min	--	--	Operated normally. No hazard.
High Voltage PWB , Model MPH7462A R511	Short	24Vdc	10min	--	--	Operated normally. No hazard.

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
High Voltage PWB , Model MPH7462A C505	Open	24Vdc	--	--	--	Output T was shutdown immediately. No hazard.
High Voltage PWB , Model MPH7462A R457	Short	24Vdc	--	--	--	Output S was shutdown immediately. No hazard.
FD Motor Type PM42M-048-MIJ1	CE	24Vdc	10min	--	--	Temp.: 156°C, Motor winding was opened. Ambient temp.: 23°C No hazard.
Trans Motor(PF-315+) Type PM55L-048-MIJ9	CE	24Vdc	10min	--	--	Temp.: 51°C, Motor winding was opened. Ambient temp.: 26°C No hazard.
DLP Clutch, Feed Clutch, Mid Clutch, DU Clutch Type TMC-2T-06	CE	24Vdc	7h	--	--	Temp.: 85°C, Temperature stabilized. Ambient temp.: 25°C No hazard.
Reg Clutch, Feed Clutch(PF-320), Trans Clutch(PF-320) Type MCA-50T	CE	24Vdc	2.5h	--	--	Temp.: 90°C, Temperature stabilized. Ambient temp.: 23°C No hazard.

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

5.3	TABLE: Fault condition tests – continued.					P
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Face U/D Solenoid Type TDS-KN07A	Plunger locked and CE	24Vdc	7h	--	--	Max Temp.: 55°C, Ambient temp.: 25°C No hazard.
MPF solenoid Type TDS-F06A	Plunger locked and CE	24Vdc	7h	--	--	Max Temp.: 115°C, Ambient temp.: 26°C No hazard.
Ventilation openings closed	--	120V/ 60Hz	1.0h	--	--	Printing. Temperature stabilized. Max. temp.: 78°C at T1. Ambient temp.: 25°C No hazards.
Ventilation openings closed	--	240V/ 50Hz	1.5h	--	--	Printing.. Temperature stabilized. Max. temp.: 100°C at T1. Ambient temp.: 23°C No hazards.
Supplementary information: During the tests no fire or other hazard occurred. The insulation system could withstand the dielectric strength test after fault conditions.						

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

C.2	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
supplementary information:								
Refer to the table 2.10.3 and 2.10.4								

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

List of test equipment used: at TMP

2012-03-05 to 2012-03-29

Management No.	Test Instrument Name	Type	Mechanical No.	Manufacturing	Calibration Date - Last	Calibration Date - Due
G14-C076	Temperature Recorder	4177	41YPO126	Yokogawa	2011-07-08	2012-07-07
G14-C077	Temperature Recorder	4179	4179JA141	Yokogawa	2011-07-08	2012-07-07
G14-C078	Temperature Recorder	4179	4179JA142	Yokogawa	2012-01-27	2013-01-26
G14-C094	Leakage current tester	228	348	Simpson	2011-06-17	2012-06-16
G14-C096	High Voltage probe	P6015A	B051259	Tektronix	2012-02-01	2013-01-31
G14-C097	Portable DC Ammeters & Voltmeters	201200	85AA1194	Yokogawa	2011-06-17	2012-06-16
G14-C099	Digital Multi Meter	(Fluke) 189	89410662	FLUKE	2011-08-18	2012-08-17
G14-C101	Temperature Recorder	437124	S5F703898	Yokogawa	2011-08-22	2012-08-21
G14-C103	Steel Ball	TB-500	G14-C103	EXCEL	2011-09-14	2012-09-13
G14-C112	Scale Lupe	Scale Lupe 10x	G14-C112	PEAK	2011-05-16	2012-05-15
G14-C113	Steel Ruler 2m	No. 102H04J	G14-C113	Shinwa	2011-05-12	2012-05-11
G14-C114	Temp. and Humidity Meter	NT3-D	50173024	Rotronic	2011-03-22	2012-03-21
G14-C117	Digital Force Gauge	Z2-500N	202869	IMADA	2011-10-21	2012-10-20
G14-C118	Stop Watch	SVAE101	756428	SEIKO S-YARD	2011-10-24	2012-10-23
G14-C122	Power Meter	253401	2534FA042	Yokogawa	2011-03-15	2012-03-14
G14-C123	Protractor	DS	---	Niigata Seiki	2011-05-16	2012-05-15
G14-C125	Dielectric Tester	TOS5051	BA002985	Kikusui	2011-07-04	2012-07-03
G14-C129	Digital Power Meter	760101	91K53574	Yokogawa	2011-06-23	2012-06-22
G14-C131	Vernier Caliper	CD-20B	10369	Mitsutoyo	2011-08-16	2012-08-15
G14-D001	Digital Oscilloscope	TDS3054B	B011872	Sony Tektronix	2011-05-18	2012-05-17
TS-48	Compressor	TMC-5-120	D-670	Japan T.M.C	2011-09-15	2012-09-14
TS-50	Humidity Chamber	PLZ 150W	30093413	Kikusui Electronics Corp.	---(*1)	---(*1)

(*1): TS-50 was monitored with Instrument No. G14-C114.

2012-07-09

Management No.	Test Instrument Name	Type	Mechanical No.	Manufacturing	Calibration Date - Last	Calibration Date - Due
G14-C078	Temperature Recorder	4179	4179JA142	Yokogawa	2012-01-27	2013-01-26
G14-C099	Digital Multi Meter	(Fluke) 189	89410662	FLUKE	2011-08-18	2012-08-17
G14-C118	Stop Watch	SVAE101	756428	SEIKO S-YARD	2011-10-24	2012-10-23

2012-07-25

Management No.	Test Instrument Name	Type	Mechanical No.	Manufacturing	Calibration Date - Last	Calibration Date - Due
G14-C078	Temperature Recorder	4179	4179JA142	Yokogawa	2012-01-27	2013-01-26
G14-C103	Steel Ball	TB-500	G14-C103	EXCEL	2011-09-14	2012-09-13
G14-C113	Steel Ruler 2m	No. 102H04J	G14-C113	Shinwa	2012-05-15	2013-05-14
G14-C114	Temp. and Humidity Meter	NT3-D	50173024	Rotronic	2012-03-19	2013-03-18
G14-C117	Digital Force Gauge	Z2-500N	202869	IMADA	2011-10-21	2012-10-20
G14-C118	Stop Watch	SVAE101	756428	SEIKO S-YARD	2011-10-24	2012-10-23
G14-C125	Dielectric Tester	TOS5051	BA002985	Kikusui	2012-07-18	2013-07-17
TS-50	Humidity Chamber	PLZ 150W	30093413	Kikusui Electronics Corp.	---(*1)	---(*1)

(*1): TS-50 was monitored with Instrument No. G14-C114.

2012-08-20 to 2012-08-25

Management No.	Test Instrument Name	Type	Mechanical No.	Manufacturing	Calibration Date - Last	Calibration Date - Due
G14-C078	Temperature Recorder	4179	4179JA142	Yokogawa	2012-01-27	2013-01-26
G14-C099	Digital Multi Meter	(Fluke) 189	89410662	FLUKE	2012-08-08	2013-08-07
G14-C103	Steel Ball	TB-500	G14-C103	EXCEL	2011-09-14	2012-09-13
G14-C113	Steel Ruler 2m	No. 102H04J	G14-C113	Shinwa	2012-05-15	2013-05-14
G14-C114	Temp. and Humidity Meter	NT3-D	50173024	Rotronic	2012-03-19	2013-03-18
G14-C117	Digital Force Gauge	Z2-500N	202869	IMADA	2011-10-21	2012-10-20
G14-C118	Stop Watch	SVAE101	756428	SEIKO S-YARD	2011-10-24	2012-10-23
G14-C125	Dielectric Tester	TOS5051	BA002985	Kikusui	2012-07-18	2013-07-17
TS-50	Humidity Chamber	PLZ 150W	30093413	Kikusui Electronics Corp.	---(*1)	---(*1)

(*1): TS-50 was monitored with Instrument No. G14-C114.

ATTACHMENT Measurement Section			
Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.7	TABLE: Discharge test			P
Condition	τ calculated (s)	τ measured (s)	t u→ 0V (s)	Comments
264V, 50Hz				
Appliance inlet terminals Main SW OFF	---	28ms	---	Initial Voltage (peak) V_0 : 382V After 1sec (14) V
Appliance inlet terminals Main SW ON	---	456ms	---	Initial Voltage (peak) V_0 : 386V After 1sec (56) V
132V, 60Hz				
Appliance inlet terminals Main SW OFF	---	32ms	---	Initial Voltage (peak) V_0 : 185V After 1sec (1) V
Appliance inlet terminals Main SW ON	---	768ms	---	Initial Voltage (peak) V_0 : 182V After 1sec (50) V
Supplementary information: None				

4.6.1, 4.6.2	Table: Enclosure opening measurements		P
Location	Size (mm)	Comments	
Cover Top	27.9 x 1.9 slot	Covering an area of 57.9mm W x 21.9mm H	
	24.5 x 2.0 slot	Covering an area of 24.5mm W x 22.0mm H	
Right Front Cover	21.5 x 3.0 slot	Covering an area of 21.5mm W x 55.0mm H	
Right High Cover	20.5 x 3.0 slot	Covering an area of 20.5mm W x 55.0mm H	
	27.5 max x 3.0 slot	Covering an area of 80.0mmW x 55.0mm H	
	24.5 x 2.0 slot	Covering an area of 50.0mm W x 34.0mm H	
	24.5 x 2.0 slot	Covering an area of 50.0mm W x 34.0mm H	
Right Low Cover	26.0 max x 3.0 slot	Covering an area of 60.0mm W x 16.0mm H	
	22.0 x 3.0 slot	Covering an area of 22.0mm W x 36.0mm H	
Left High Cover	28.0 x 3.0 slot	Covering an area of 57.0mm W x 29.0mm H	
	36.5 x 2.6 slot	Covering an area of 73.2mm W x 41.6mm H	
Left Low Cover	36.3 max x 2.5 slot	Covering an area of 66.0mm W x 22.0mm H	
Supplementary information: None			

ATTACHMENT Measurement Section			
Clause	Requirement + Test	Result - Remark	Verdict

B	TABLE: MOTOR TESTS UNDER ABNORMAL CONDITIONS		P
B.7	Locked-rotor overload test for DC motor in secondary circuits		--
B.7.3	Test time (h):	7h (or see Comments)	--
Motor type / No.	Max. Temp. (°C)	Comments	
Main Motor, Drum Motor Type 48M069F180	--	Sensing circuits provided with motor disconnected power to the motor in 0.8 sec. after locking. Test terminated in 10 min. No hazard.	
Lift Motor, Envelop Motor, Lift Motor(PF-320) Type RC370-KT-081000	123	Amb. Temp.: 25°C. Cheesecloth did not ignite. No hazard.	
Lift Motor-Alternate, Envelop Motor-Alternate, Lift Motor(PF-320) Type RK-370CA081050	120	Amb. Temp.: 24°C. Cheesecloth did not ignite. No hazard.	
Polygon Motor Type MASQ6NF10LK	--	Sensing circuits provided with motor disconnected power to the motor in 0.5 sec. after locking. Test terminated in 10 min. No hazard.	
Polygon Motor Type MASQ6NF8LK	--	Sensing circuits provided with motor disconnected power to the motor in 0.5 sec. after locking. Test terminated in 10 min. No hazard.	
Polygon Motor Type MASQ6EF3LK	--	Sensing circuits provided with motor disconnected power to the motor in 0.5 sec. after locking. Test terminated in 10 min. No hazard.	
Toner Motor Type RK-370CA-11670	148	Amb. Temp.: 25°C. Cheesecloth did not ignite. No hazard.	
LVU Fan Motor Type D06R-24	48	Amb. Temp.: 24°C. Cheesecloth did not ignite. No hazard.	
LSU Fan Motor Type 2410RL-05W-S60	46	Amb. Temp.: 24°C. Cheesecloth did not ignite. No hazard.	
DLP Fan Motor Type D08K-24TU	43	Amb. Temp.: 24°C. Cheesecloth did not ignite. No hazard.	
Center Fan Motor, Rear Fan Motor Type D05F-24PH	71	Amb. Temp.: 25°C. Cheesecloth did not ignite. No hazard.	
Trans Motor(PF-320) Type 48M069F261	--	Sensing circuits provided with motor disconnected power to the motor in 1.1 sec. after locking. Test terminated in 10 min. No hazard.	

ATTACHMENT		Measurement Section	
Clause	Requirement + Test	Result - Remark	Verdict

B	TABLE: MOTOR TESTS UNDER ABNORMAL CONDITIONS		P
B.7	Locked-rotor overload test for DC motor in secondary circuits		--
B.7.3	Test time (h):	7h (or see Comments)	--
Motor type / No.		Max. Temp. (°C)	Comments
Lift Motor(PF-315+) Type TG-38B-LG-44-A486		64	Amb. Temp.: 26°C. Cheesecloth did not ignite. No hazard.
Rear Fan Motor, Center Fan Motor Type BM5115-05W-B40-T06		59	Amb. Temp.: 25°C. Cheesecloth did not ignite. No hazard.
Supplementary information: None			

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	Delete all the “country” notes in the reference document according to the following list: <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">1.4.8 Note 2</div> <div style="width: 50%;">1.5.1 Note 2 & 3</div> <div style="width: 50%;">1.5.7.1 Note</div> <div style="width: 50%;">1.5.8 Note 2</div> <div style="width: 50%;">1.5.9.4 Note</div> <div style="width: 50%;">1.7.2.1 Note 4, 5 & 6</div> <div style="width: 50%;">2.2.3 Note</div> <div style="width: 50%;">2.2.4 Note</div> <div style="width: 50%;">2.3.2 Note</div> <div style="width: 50%;">2.3.2.1 Note 2</div> <div style="width: 50%;">2.3.4 Note 2</div> <div style="width: 50%;">2.6.3.3 Note 2 & 3</div> <div style="width: 50%;">2.7.1 Note</div> <div style="width: 50%;">2.10.3.2 Note 2</div> <div style="width: 50%;">2.10.5.13 Note 3</div> <div style="width: 50%;">3.2.1.1 Note</div> <div style="width: 50%;">3.2.4 Note 3.</div> <div style="width: 50%;">2.5.1 Note 2</div> <div style="width: 50%;">4.3.6 Note 1 & 2</div> <div style="width: 50%;">4.7 Note 4</div> <div style="width: 50%;">4.7.2.2 Note</div> <div style="width: 50%;">4.7.3.1 Note 2</div> <div style="width: 50%;">5.1.7.1 Note 3 & 4</div> <div style="width: 50%;">5.3.7 Note 1</div> <div style="width: 50%;">6 Note 2 & 5</div> <div style="width: 50%;">6.1.2.1 Note 2</div> <div style="width: 50%;">6.1.2.2 Note</div> <div style="width: 50%;">6.2.2 Note 6.</div> <div style="width: 50%;">2.2.1 Note 2</div> <div style="width: 50%;">6.2.2.2 Note</div> <div style="width: 50%;">7.1 Note 3</div> <div style="width: 50%;">7.2 Note</div> <div style="width: 50%;">7.3 Note 1 & 2</div> <div style="width: 50%;">G.2.1 Note 2</div> <div style="width: 50%;">Annex H Note 2</div> </div>		P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss		N/A

EN 60950-1												
Clause	Requirement + Test	Result - Remark	Verdict									
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P									
2.7.2	This subclause has been declared 'void'.		N/A									
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A									
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td> Up to and including 6</td><td> 0,75 ^{a)}</td><td> </td></tr><tr><td> Over 6 up to and including 10</td><td> (0,75) ^{b)}</td><td> 1,0</td></tr><tr><td> Over 10 up to and including 16</td><td> (1,0) ^{c)}</td><td> 1,5</td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 ^{a)}		Over 6 up to and including 10	(0,75) ^{b)}	1,0	Over 10 up to and including 16	(1,0) ^{c)}	1,5		P
Up to and including 6	0,75 ^{a)}											
Over 6 up to and including 10	(0,75) ^{b)}	1,0										
Over 10 up to and including 16	(1,0) ^{c)}	1,5										
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td> Over 10 up to and including 16</td><td> 1,5 to 2,5</td><td> 1,5 to 4</td><td> </td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4			N/A					
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4										

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.6	Add the following NOTE: NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Add the EN standards. Add the notes for the standards indicated:		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
ZB	SPECIAL NATIONAL CONDITIONS		P
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Considered.	P
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
1.7.5	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	No such construction.	N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Not direct plug-in	N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Switzerland, supply cords of portable electrical appliances having a rated current not exceeding 10 A shall be provided with a plug complying with IEC 60884-1(3.ed.) + am1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 6533-2:2009 Plug type 11, L + N, 250V 10A - SEV 6534-2:2009 Plug type 12, L + N + PE, 250V 10A - SEV 6532-2:2009 Plug type 15, 3L + N + PE, 250/400V 10A <p>Supply cords of portable electrical appliances having a rated current not exceeding 16 A shall be provided with a plug complying with IEC 60884-1(3.ed.) + am1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 5933-2:2009 Plug type 21 L + N, 250 V, 16A - SEV 5934-2:2009 Plug type 23 L + N + PE, 250 V, 16A - SEV 5932-2:2009 Plug type 25 3L + N + PE, 250/400V 16A <p>NOTE 16 A plugs are not often used in Swiss domestic installation system.</p>		N/A
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
3.2.1.1	<p>In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	<p>In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:</p> <ul style="list-style-type: none"> • 1,25 mm² to 1,5 mm² nominal cross-sectional area. 		N/A
4.3.6	<p>In the United Kingdom, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	Not direct plug-in.	N/A
4.3.6	<p>In Ireland, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.</p>	Not direct plug-in.	N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none">• STATIONARY PLUGGABLE EQUIPMENT TYPE A that<ul style="list-style-type: none">- is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and- has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and- is provided with instructions for the installation of that conductor by a SERVICE PERSON;• STATIONARY PLUGGABLE EQUIPMENT TYPE B;• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		N/A
6.1.2.2	<p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.2	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	In Norway and Sweden , there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.		N/A

ZC	A-DEVIATIONS (informative)		P
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.	(deleted by A11:2009 of EN 60950-1:2006)	N/A
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury) Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2.1	Denmark (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: <div style="text-align: center;"> Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  </div> 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 installationsvejledning."	(deleted by A11:2009 of EN 60950-1:2006)	N/A

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>		P
1.7.5	<p>Denmark</p> <p>(Heavy Current Regulations)</p> <p>With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.</p>	(deleted by A11:2009 of EN 60950-1:2006)	N/A
1.7.13	<p>Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)</p> <p>Annex 2.15 of SR 814.81 applies for batteries containing cadmium and mercury.</p> <p>Note: Ordinance relating to environmentally hazardous substances, SR 814.013 of 1986-06-09 is not longer in force and superseded by SR 814.81 of 2009-02-01 (ChemRRV).</p>		N/A
5.1.7.1	<p>Denmark</p> <p>(Heavy Current Regulations, Chapter 707, clause 707.4)</p> <p>TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.</p>	(deleted by A11:2009 of EN 60950-1:2006)	N/A

A11 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

A11 of EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS			
ZA	Normative references to international publications with their corresponding European publications		P

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	No cable distribution systems	N/A
1.5.7.1	Replace the existing SNC by the following: In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	No such resistor	N/A
1.7.2.1	Add as new SNC: In Norway and Sweden , the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).” NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk	No cable distribution systems	N/A

A11 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		
1.7.5	<p>Add the following paragraph to the existing SNC for Denmark:</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		N/A
7.3	<p>Delete the existing SNC for Norway and Sweden (based on NOTE 1 of IEC 60950-1:2005 + corr. 1).</p> <p>Add as new SNC (based on future NOTE 3 of IEC 60950-1:200X):</p> <p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>	No cable distribution systems	N/A

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

A1 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
A1 of EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS			
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (none)		P
General	Delete all the “country” notes in the reference document according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 Annex EE Note		P
1.1.1	Replaced the text of NOTE 3 by the following: NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.	No such construction.	N/A
1.2.3	Add the following definition 1.2.3.Z1 PORTABLE SOUND SYSTEM Small battery powered audio equipment: - whose prime purpose is to listen to recorded or broadcasted sound; and - that uses headphones or earphones that can be worn in or on or around the ears; and - that allows the users to walk around NOTE Examples are mini-disk or CD players; MP3 audio players or similar equipment	No such construction.	N/A
1.7.2.1	Delete Note Z1 Add the following paragraph at the end of the subclause In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphone and headphone can cause hearing loss.	No such construction.	N/A
4.3.13.6	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to : 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation). Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC		N/A

A1 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	Add the notes for the standards indicated:		—
ZA	Normative references to international publications with their corresponding European publications		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
1.5.7.1	In Finland, Norway and Sweden No changes needed – Correction of SNC already Part of A11		N/A

A1 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N/A

A12 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

A12 of EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS
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Z1	ANNEX Z1, SPECIAL NATIONAL CONDITIONS (EN)		N/A
1.3	Delete the addition of 1.3.Z1	(added by EN 60950-1:2006)	N/A
1.2.3	Delete the definition 1.2.3.Z1	(added by A1:2010 of EN 60950-1:2006)	N/A
1.7.2.1	Delete NOTE Z1 and the addition for Portable Sound System	(added by EN60950-1:2006 and A1:2010 of EN 60950-1:2006)	N/A

Zx	Protection against excessive sound pressure from personal music players		N/A
Zx.1	<p>General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> - is designed to allow the user to listen to recorded or broadcast sound or video: and - primarily uses headphones or earphones that can be worn in or on or around the ears: and - allows the user to walk around while in use. <p>Note 1 Examples are hand-held or body-worn portable CD players, MP3 audio players mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. 		N/A

A12 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Note 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> - hearing aid equipment and professional equipment; Note 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. - analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. <p>Note 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		
Zx.2	<p>Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> - equipment provided as a package (personal music player with its listening device), where the acoustic output L is $\leq 85\text{dBA}$ measured while playing the fixed "programme simulation noise" as described in EN 50322-1; and - a personal music player provided with an analogue electrical output socket for listening device, where the electrical output is $\leq 27\text{mV}$ measured as described in EN 50322-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. <p>Note 1 Wherever the term acoustic output is used in this clause, the 30s A weighted equivalent sound pressure level L is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ol style="list-style-type: none"> Protect the user from unintentional acoustic outputs exceeding those mentioned above; and have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and 		N/A

A12 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20h of cumulative listening time; and</p> <p>Note 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>Note 3 The 20h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-1.</p> <p>For music where the average sound pressure measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>Note 4 Classical music typically has an average sound pressure (long term L) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		
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A12 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Zx.3	<p>Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> -the symbol of Figure 1 with a minimum height of 5mm: and -the following wording, or similar: <p style="border: 1px solid black; padding: 2px; display: inline-block;">To prevent possible hearing damage, do not listen at high volume levels for long periods.</p> <div style="text-align: center;">  <p>Figure 1 – Warning label (IEC 60417-6044)</p> </div> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N/A
Zx.4	Requirements for listening devices (headphones and earphones)		N/A
Zx.4.1	<p>Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output L the input voltage of fixed "programme simulation noise" described in EN 5033-2 shall be $\geq 75\text{mV}$.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>Note The values of 94 dBA – 75 mV correspond with 85dBA - 27mV and 100 dBA - 150mV.</p>		N/A
Zx.4.2	<p>Wired listening devices with digital input</p> <p>With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output L of the listening device shall be $\leq 100\text{dBA}$.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>Note An example of a wired listening device with digital input is a USB headphone.</p>		N/A

A12 of EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Zx.4.3	<p>Wireless listening devices</p> <p>In wireless mode:</p> <ul style="list-style-type: none"> -with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and -respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and -with volume and sound setting in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above-mentioned programme simulation noise. <p>the acoustic output L of the listening device shall be $\leq 100\text{dBA}$.</p> <p>Note An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
Zx.5	<p>Measurement methods</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>Note Test method for wireless equipment provided without listening device should be defined.</p> <p>Note Test method for wireless equipment provided without listening device should be defined.</p>		N/A
Zx	Significance of $L_{Aeq,T}$ in EN 50332-1 and additional information		—

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center">ATTACHMENT TO TEST REPORT IEC 60950-1 CANADA NATIONAL DIFFERENCES Information technology equipment – Safety – PART 1: GENERAL REQUIREMENTS</p>			
Differences according to: CAN/CSA-C22.2 NO. 60950-1A-07			
Attachment Form No: CA_ND_IEC60950_1C			
Attachment Originator: TÜV SÜD Product Service GmbH			
Master Attachment: Date (2012-08)			
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	Special national conditions		P
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.		P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the CEC/NEC.	Less than 3.0 m	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	Single phase equipment.	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and		N/A
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions."		N/A
	A voltage rating is not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent.	No such terminals.	N/A
	- Marking is located adjacent to the terminals.		N/A

Canadian differences

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- Marking is visible during wiring.		N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable.	Not accessible and interchangeable fuses used for LPS.	P
2.6.3.3	Modify first column on Table 2D to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Modified.	P
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection.	No such transformers.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC.	Approved appliance inlet used.	P
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment.	Rating of Plug: 15A Rated current: max. 9.7A	P
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 comply with special earthing, wiring, marking and installation instruction requirements.	Not connected to DC mains.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.	Length of power supply cord: 2.5 m.	P
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement.	(see above)	P
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	Type: SJT	P
3.2.9	Permanently connected equipment have a suitable wiring compartment and wire bending space.	Appliance inlet used.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0.	Appliance inlet used.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- rated 125 percent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7).		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Revised.	P
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,	No such motors.	N/A
	- or if the motor has a nominal voltage rating greater than 120 V,		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position.	No such switches or breakers.	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No such battery.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquid.	N/A
4.3.13.5	Equipment with lasers meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.		P
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	No such systems.	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less.	No such enclosures.	N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionizing radiation comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	No ionizing radiation source.	N/A
	Other National Differences		P
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements.	(see appended table 1.5.1)	P

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.	No connection to DC mains.	N/A
	This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	No such constructions.	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT.	No CRTs.	N/A
4.3.2	Equipment with handles complies 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.	No TNV circuits	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded.	No such connectors.	N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary	Considered.	P
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuits.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger.	Not shredders.	N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits.	N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements.	No TNV circuits.	N/A

K 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Korean National Differences		—
	Corresponding National Standard: K 60950-1		—
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	The power supply cord not evaluated in this application. (Shall be checked during approval for the respective countries.)	N/A
8	Addition: EMC The apparatus shall comply with the relevant CISPR standards.		N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center">ATTACHMENT TO TEST REPORT IEC 60950-1 US NATIONAL DIFFERENCES Information technology equipment – Safety – PART 1: GENERAL REQUIREMENTS</p>			
Differences according to: UL 60950-1-07			
Attachment Form No.: US_ND_IEC60950_1C			
Attachment Originator: TÜV SÜD Product Service GmbH			
Master Attachment: Date (2012-08)			
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	Special national conditions		P
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2.		P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the CEC/NEC.	Less than 3.0 m	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	Single phase conductor.	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and		N/A
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions."		N/A
	A voltage rating is not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent.	No such terminals.	N/A
	- Marking is located adjacent to the terminals.		N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- Marking is visible during wiring.		N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable.	Not accessible and interchangeable fuses used for LPS.	P
2.6.3.3	Modify first column on Table 2D to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Modified.	P
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets.	N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection.	No such transformers.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC.	Approved appliance inlet used.	P
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment.	Rating of Plug: 15A Rated current: max. 9.7A	P
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 comply with special earthing, wiring, marking and installation instruction requirements.	Not connected to DC mains.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.	Length of power supply cord: 2.5 m.	P
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement.	(see above)	P
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	Type: SJT	P
3.2.9	Permanently connected equipment have a suitable wiring compartment and wire bending space.	Appliance inlet used.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0.	Appliance inlet used.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- rated 125 percent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7).		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."	Revised.	P
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,	No such motors.	N/A
	- or if the motor has a nominal voltage rating greater than 120 V,		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position.	No such switches or breakers.	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No such battery.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquid.	N/A
4.3.13.5	Equipment with lasers meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.		P
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	No such systems.	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less.	No such enclosures.	N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionizing radiation comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	No ionizing radiation source.	N/A
	Other National Differences		P
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements.	(see appended table 1.5.1)	P

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.	No connection to DC mains.	N/A
	This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	No such constructions.	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT.	No CRTs.	N/A
4.3.2	Equipment with handles complies 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.	No TNV circuits	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded.	No such connectors.	N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary	Considered.	P
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuits.	N/A
Annex EE	Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger.	Not shredders.	N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits.	N/A

IEC 60950_1C ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements.	No TNV circuits.	N/A

TEST REPORT IEC 60825-1, 2nd Edition Part 1: Equipment classification and requirements	
Report Reference No.: 12311166 001 Date of issue: (see cover page) Total number of pages: --	
CB Testing Laboratory: TÜV Rheinland Japan Ltd., Osaka Laboratory Address: Wakasugi Center Bldg., Honkan 16F, 2-9-1 Higashi Tenma , Kita-ku, 530-0044 Osaka, JAPAN	
Applicant's name: KYOCERA Document Solutions Inc. Address: 1-2-28, Tamatsukuri, Chuo-ku, Osaka-shi, Osaka, 540-8585 Japan	
Test specification: Standard: IEC 60825-1 : 2007 (2nd Edition) Test procedure: CB / CCA Non-standard test method: N/A	
Test Report Form No.: IEC60825_1D Test Report Form(s) Originator: Intertek Semko AB Master TRF: Dated 2007-06 Copyright © 2007 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed. This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
Test item description: See IEC/EN 60950-1 test report.	
Trade Mark: See IEC/EN 60950-1 test report.	
Manufacturer: See IEC/EN 60950-1 test report.	
Model/Type reference: See IEC/EN 60950-1 test report.	
Ratings: See IEC/EN 60950-1 test report.	

Copy of marking plate

See IEC/EN 60950-1 test report.

Summary of testing:

Tested and evaluated in accordance with IEC/EN 60825-1 except for subclause 4.14.1 Non-optical hazards. For the subclause, compliance will be checked in the end equipment.
For measuring laser radiations from Laser Scan Unit, the Unit was controlled a testing jig supplied by the manufacturer.

Tests performed (name of test and test clause):

Clause 9
Measurements of accessible emission level

Testing location:

(IEC/EN 60950-1 test report)

Additionally evaluated Test specifications.

EN 60825-1:2007

(see below)

Summary of compliance with National Differences:

Only Annex ZA of EN 60825-1 exists and was evaluated. No additional requirements.
See Appendix EU Group Differences (EN 60825-1:2007).

Test item particulars:

Classification of installation and use: See IEC/EN 60950-1 test report.

Supply Connection: See IEC/EN 60950-1 test report.

Possible test case verdicts:

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

- test object does meet the requirement: P (Pass)

- test object does not meet the requirement: F (Fail)

Testing

Date of receipt of test item: See IEC/EN 60950-1 test report.

Date (s) of performance of tests: See IEC/EN 60950-1 test report.

General remarks:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

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

"(see appended table)" refers to a table appended to the report.

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

General product information:

See IEC/EN 60950-1 test report for products.

The Unit has two laser diodes, one polygon motor and mirror, one laser aperture.

The length of laser pass between the polygon mirror and aperture is 141mm.

The polygon motor runs on 24V dc and laser diode run on 3.3V dc.

Number of facets on the polygon mirror: 6

Polygon motor speeds: maximum (customer request condition)

Laser aperture dimensions: 12.2mm x 8mm

Laser scan angles for each laser aperture:

- Long sides of laser aperture: +38.2.1/-37.2 degrees

- Short sides of laser aperture: 52 degrees

These Printers (FS-2100D, FS-2100DN, FS-4100DN, FS-4200DN and FS-4300DN) can provide following two type LSUs.

1) LSU1

	Manufacturer	Type
Laser Diode	Opnext Japan, Inc.	HL67040GN01
Polygon Motor	Minebea Motor	MASQ6EF3LK

2) LSU2

	Manufacturer	Type
Laser Diode	Opnext Japan, Inc.	HL67040GN01
Polygon Motor	Minebea Motor	MASQ6NF10LK

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Clause	Requirement - Test	Results - Remark	Verdict
4	ENGINEERING SPECIFICATIONS		P
4.1	General remarks		P
	Modification	Not modified product.	N/A
4.2	Protective housing		P
4.2.1	General		P
4.2.2	Service		P
4.2.3	Removable laser system	Not removable.	N/A
4.3	Access panels and safety interlocks		N/A
4.3.1	Access panels of protective housing	No access panels intended.	N/A
	Product Class	Class 1 laser product.	—
	Accessible emission during removal of access panel	--	N/A
	The removal of the panel gives access to laser radiation levels designated by "X" in the table		N/A
	Accessible emissions after removal	--	—
4.3.2	Deliberate override mechanism	No such mechanisms.	N/A
4.4	Remote interlock connector	Class 1 laser product.	N/A
4.5	Manual reset	Class 1 laser product.	N/A
4.6	Key control	Class 1 laser product.	N/A
4.7	Laser radiation emission warning		N/A
4.7.1	Class 3R ($\lambda < 400$ nm; $\lambda > 700$ nm), 3B and 4	Class 1 laser product.	N/A
4.7.2	Audible or visible warning	Class 1 laser product.	N/A
4.7.3	Operational control and laser aperture		N/A
4.7.4	Laser emission distributed through more than one output		N/A
4.8	Beam stop or attenuation	Class 1 laser product.	N/A
4.9	Controls	Class 1 laser product.	N/A

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Clause	Requirement - Test	Results - Remark	Verdict
4.10	Viewing optics	Not provided.	N/A
	a) Human access to laser radiation in excess of Class 1M prevented when the shutter is opened or attenuation varied		N/A
	b) Opening of the shutter or variation of the attenuation prevented when exposure to laser radiation in excess of Class 1M is possible		N/A
4.11	Scanning safeguard	Not considered.	N/A
4.12	Walk-in access		N/A
	a) Means provided so that any person inside the housing can prevent activation of a Class 3B or 4 laser hazard	No Walk-in access provided.	N/A
	b) A warning device provides adequate warning of emission to any person within the housing		N/A
	c) Where "walk-in" access during operation is intended or reasonably foreseeable, emission of laser radiation that is equivalent to Class 3B or Class 4 while someone is present inside the enclosure of Class 1, Class 2 or Class 3R product shall be prevented by engineering means		N/A
4.13	Environmental conditions		P
	- climatic conditions		P
	- vibration and shock		P
4.14	Protection against other hazards		P
4.14.1	Non-optical hazards (product safety standard)	(see IEC/EN 60950-1 test report)	P
	- electrical hazards;		P
	- excessive temperature;		P
	- spread of fire from the equipment;		P
	- sound and ultrasonic;		N/A
	- harmful substances;		P
	- explosion;		N/A
4.14.2	Collateral radiation	No such concerns expected.	N/A

EN 60825-1			
Clause	Requirement - Test	Results - Remark	Verdict
5	LABELLING		P
5.1	General		P
	LASER PRODUCT CLASS	Class 1 laser product.	—
	Labelling location (Product / User instruction / Package)	On product and instructions.	P
	Warning label – Hazard symbol (Figure 1)		P
	Explanatory label (Figure 2)		P
5.2-5.6	Text on explanatory label	CLASS 1 LASER PRODUCT	P
5.7	Aperture label		N/A
5.8	Radiation output and standards information	For Class 1.	P
	Max output of laser radiation	--	—
	Pulse duration	--	—
	Emitted wavelength(s)	--	—
	The name and publication date of the standard.....	In instructions.	P
5.9	Labels for access panels		P
5.9.1 a) – f)	Warning wording used	Class 1 laser product. (3B was taking account of the maximum value in the specification of manufacturer and the following label was affixed anyway. DANGER CLASS 3B LASER WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.)	P
5.9.2	Labels for safety interlocked panels		N/A
	Warning wording used	Class 1 laser product.	N/A
5.10	Warning for invisible laser radiation	(see 5.9.1 a) – f))	P
5.11	Warning for visible laser radiation	No such radiation expected.	P

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Clause	Requirement - Test	Results - Remark	Verdict
6	OTHER INFORMATIONAL REQUIREMENTS		P
6.1	Information for the user	Provided in the instructions of this product.	P
	a) adequate instructions for proper assembly, maintenance and safe use and description of the classification limitations, if appropriate	Provided.	P
	b) warning for Class 1M and 2M	Class 1 laser product.	N/A
	c) laser beam parameters for radiation above the AEL of Class 1	Class 1 laser product.	N/A
	• Wavelength	--	N/A
	• Beam divergence	--	N/A
	• Pulse duration	--	N/A
	• Maximum power or energy output	--	N/A
	d) embedded laser products and other incorporated laser products	No exposure to user expected.	N/A
	e) MPE and NOHD for Class 3B and Class 4 laser products For collimated beam Class 1M and 2M lasers the extended NOHD (ENOH)D	Class 1 laser product.	N/A
	f) information for the selection of eye protection		N/A
	g) reproduction of labels	Legible reproductions provided.	P
	h) location of laser apertures		N/A
	i) listing of controls, adjustment of procedures and warning statement		N/A
	j) information about laser energy source if not incorporated in the manual	Incorporated.	N/A
6.2	Purchasing and service information		P
	a) safety classification of each laser product stated in descriptive material	Stated.	P
	b) adequate instructions for servicing available	Provided in service instructions.	P

EN 60825-1			
Clause	Requirement - Test	Results - Remark	Verdict
7	ADDITIONAL REQUIREMENTS FOR SPECIFIC LASER PRODUCTS		P
7.1	Applicable other parts of the standard series IEC/EN 60825		P
	IEC 60825-2 (Safety of optical communication systems)		N/A
	IEC 60825-4 (Laser guards)		N/A
	IEC 60825-12 (Safety of free space optical communication systems used for transmission of information)		N/A
	Further information may be found in:		P
	IEC/TR 60825-3 (Guidance for laser displays and shows)	Not referred.	—
	IEC/TR 60825-5 (Manufacturer's checklist for IEC 60825-1)	Referred.	—
	IEC/TR 60825-8 (Guidelines for the safe use of laser beams on humans)	Not referred.	—
	IEC/TR 60825-9 (Compilation of maximum permissible exposure to incoherent optical radiation)	Referred.	—
	IEC/TR 60825-10 (Application guidelines and explanatory notes to IEC 60825-1)	Referred.	—
	IEC/TR 60825-13 (Measurements for classification of laser products)	Not referred.	—
	IEC/TR 60825-14 (A user's guide)	Referred.	—
	IEC 62471 (CIE S 009) (Photobiological safety of lamps and lamp system)	Not referred.	—
7.2	Medical laser products	Not such products.	N/A
	Class 3B and Class 4 medical laser products comply with IEC 60601-2-22		N/A
7.3	Laser processing machines	Not such products.	N/A
	Comply with IEC/ISO 11553-1		N/A
7.4	Electric toys	Not such products.	N/A
	Comply with IEC 62115		N/A
7.5	Consumer electronic products	IT equipment.	P
	Complying with IEC 60950 or IEC 60065	(see IEC/EN 60950-1 test report)	P

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Clause	Requirement - Test	Results - Remark	Verdict

8	CLASSIFICATION		P
8.2	Classification responsibilities		P
8.3	Classification rules		P
8.3a	Radiation of a single wavelength		P
8.3b	Radiation of multiple wavelengths	No such radiation.	N/A
	1) Laser product emission two or more wavelengths in spectral regions shown as additive in Table 2.....:	--	N/A
	2) Laser product emission two or more wavelengths in spectral regions not shown as additive in Table 2	--	N/A
8.3c	Radiation from extended sources	No such sources radiating from Laser Scanner Unit considered.	N/A
	Value of angular subtense α (mrad)	--	N/A
8.3d	Non-uniform retinal image radiance profile, non-circular and multiple sources	No such sources considered.	N/A
8.3e	Time basis		P
	1) 0.25s		N/A
	2) 100s		P
	3) 30000s		N/A
8.3f	Repetitively pulsed or modulated lasers	Radiation from Laser Scanner Unit was considered as continuous output (CW) under the system configured.	N/A
	1) Exposure from any single pulse not exceeding the AEL for a single pulse		N/A
	2) Average power for a pulse train		N/A
	3a) Constant pulse energy and pulse duration		N/A
	3b) Varying pulse widths or varying pulse durations		N/A

9	DETERMINATION OF ACCESSIBLE EMISSION LEVELS		P
9.1	Tests		P
	Single fault eliminated		N/A
	Housing material withstanding degradation		N/A
	Fault detection		N/A

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Clause	Requirement - Test	Results - Remark	Verdict
9.2	Measurement conditions	See 9.3.2.	P
	Measured laser radiation	See table "Measured laser radiation, calculations and comparison with AEL limits"	P
9.3	Measurement geometry		P
9.3.1	General, evaluation scheme		—
	a) Simplified (default) method		P
	b) Increased AEL by parameter C_6		N/A
9.3.2	Default (simplified) evaluation		P
	Condition applied	3	P
	Aperture stop diameter (mm)	7	P
	Measurement distance (mm)	At the closest point on the outside of the aperture of Laser Scanner Unit and main unit.	P
9.3.3	Extended sources	No such sources considered.	N/A
	C_6	--	N/A
9.3.3a	Aperture diameters		N/A
	Condition applied	--	N/A
	Aperture stop diameter (mm)	--	N/A
	Angular subtense of the apparent source α	--	N/A
9.3.3b	Angle of acceptance		N/A
	Condition applied	--	N/A
	1) Photochemical retinal limits	--	N/A
	Angle of acceptance	--	N/A
	2) All other retinal limits	--	N/A
	Angle of acceptance	--	N/A

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Clause	Requirement - Test	Results - Remark	Verdict

Measured laser radiation, calculations and comparison with AEL limits:

1. Classification, Laser Class:

- 1 for end product
- 3B for laser diode from the specification

2. Calculation of AEL

Angular subtense: $\alpha = 0$ mrad assumed

Accessible emission limit (AEL)

- Class 1: 0.39mW
- Class 3B: 0.5 W

3. Measurement results of Laser Scan Units

3.1 Normal condition

- 1) LSU1: 35.1 μ W
- 2) LSU2: 40.4 μ W

3.2 Fault conditions

3.2.1 Polygon Motor locked:

- 1) LSU1: 1.754mW
- 2) LSU2: 2.093mW

3.2.2 VR1 and VR2 for laser diode adjusted to maximum power:

- 1) LSU1: 108.5 μ W
- 2) LSU2: 111.1 μ W

3.3.3 Polygon Motor locked and VR1, VR2 for laser diode adjusted to maximum power:

- 1) LSU1: 5.66mW
- 2) LSU2: 5.73mW

4. Measurement results of end product, FS-2100DN (used to LSU2)

4.1 Normal condition - outside of end product, all covers closed: 0.09nW

4.2 Normal condition - area of Drum Unit, Top cover opened and Drum Unit removed: 17.6nW

4.3 Fault condition – area of Drum Unit, Top Cover opened and Drum Unit removed and interlocking by the mechanical shutter defeated: 77.8 μ W

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Clause	Requirement - Test	Results - Remark	Verdict

Appendix	EU Group Differences (EN 60825-1:2007)	--								
Annex ZA	<p>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</p> <p>The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.</p> <p>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.</p> <table><tr><td>--</td><td>IEC 60050-845: 1987</td></tr><tr><td>EN 60601-2-22: 1996 ²⁾</td><td>IEC 60601-2-22 ¹⁾</td></tr><tr><td>EN 61010-1: 2001 ³⁾</td><td>IEC 61010-1 ¹⁾</td></tr><tr><td>+ corr. June: 2002</td><td></td></tr></table>	--	IEC 60050-845: 1987	EN 60601-2-22: 1996 ²⁾	IEC 60601-2-22 ¹⁾	EN 61010-1: 2001 ³⁾	IEC 61010-1 ¹⁾	+ corr. June: 2002		P
--	IEC 60050-845: 1987									
EN 60601-2-22: 1996 ²⁾	IEC 60601-2-22 ¹⁾									
EN 61010-1: 2001 ³⁾	IEC 61010-1 ¹⁾									
+ corr. June: 2002										
	<p>1) Undated reference.</p> <p>2) Valid edition at date of issue. EN 60601-2-22:1996 will be superseded by EN 60601-1-2-22: 200X, which is based on IEC 60601-2-22:2007.</p> <p>3) Valid edition at date of issue.</p>									

EN 60825-1			
Clause	Requirement - Test	Results - Remark	Verdict

Appended table	EQUIPMENT MANUFACTURE INFORMATION (DATA SHEET) ABOUT THE CONTAINING LASER COMPONENT/S		--
	Manufacturer	Opnext Japan, Inc.	—
	Type designation	HL67040GN01	—
	Structure	AlGaInP	—
	Wavelength	670nm	—
	Output power (min. and max.)	25mW max.	—
	Radiation is		—
	Continuous	Continuous.	—
	Pulsed	--	—
	Pulse time	--	—
	Pulse repetition frequency	--	—
	Others	--	—

	PIC UP UNIT		--
	Manufacturer	--	—
	Type designation	--	—
	Others	--	—

	TRANSMITTER/TRANSCIEVER UNIT		--
	Manufacturer	--	—
	Type designation	--	—
	Others	--	—