QPS Evaluation Services Inc.

Testing, Certification, and Field Evaluation Body
Accredited in Canada, the USA and Internationally

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TESTING - CERTIFICATION - FIELD EVALUATION
Energy Efficiency Verification - CB Scheme - IECEx Scheme
CE Marking - ATEX

81 Kelfield St., Unit 7/8/9, Toronto, Ontario, M9W 5A3, CANADA
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Test Report issued under the responsibility of:

QPS Evaluation Services Inc.

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number ..... :	**CB1123-2R3**
Date of issue ..... :	2021-07-19 Amendment No. 1: 2022-01-28 (Modification 1) Amendment No. 2: 2023-01-27 (Modification 2)
Total number of pages ..... :	26
Name of Testing Laboratory preparing the Report ..... :	QPS Evaluation Services Inc.
Applicant's name ..... :	**Nanoptix Inc.**
Address ..... :	699 Champlain Street, Dieppe, New Brunswick, E1A 1P6, Canada
Test specification:	
Standard ..... :	IEC 62368-1:2014
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62368_1D
Test Report Form(s) Originator .. :	UL(US)
Master TRF ..... :	Dated 2022-04-14

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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.

General disclaimer:

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description ..... :	Thermal Printer – Component & Desktop	
Trade Mark(s) ..... :	NANOPTIX	
Manufacturer..... :	Nanoptix Inc.	
Model/Type reference ..... :	950011, 950020, 950021, 103665, 950005, 950050,950051, 950100, 100769, 950023, 950024, 950026, 950028, 950029, 950054 and 950055.	
Ratings ..... :	24VDC, 2.4A, Class III	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**		
Testing location/ address.....:	QPS Evaluation Services Inc. 81 Kelfield St, Unit 8, Toronto, Ontario, M9W 5A3 Canada	
Tested by (name, function, signature) .....:	Reynaldo Ibanez	
Approved by (name, function, signature).....:	Paul Morton	Paul Morton
☐ **Testing procedure: CTF Stage 1:**		
Testing location/ address..... :		
Tested by (name, function, signature) .....:		
Approved by (name, function, signature).....:		
☐ **Testing procedure: CTF Stage 2:**		
Testing location/ address.....:		
Tested by (name, function, signature) .....:		
Witnessed by (name, function, signature).....:		
Approved by (name, function, signature).....:		
☐ **Testing procedure: CTF Stage 3 :**		
☐ **Testing procedure: CTF Stage 4:**		
Testing location/ address.....:		
Tested by (name, function, signature) .....:		
Witnessed by (name, function, signature).....:		
Approved by (name, function, signature).....:		
Supervised by (name, function, signature) .....:		

List of Attachments (including a total number of pages in each attachment):

Document No.	Documents included / attached to this report (description)	Page No.
1	National Deviations	28
2	Photos	22
3	Schematic	5

Summary of testing:

Tests performed (name of test and test clause):

CB1123-2 (Original Report):

Test Clause	Name of Test
B.2.5	Input Test
6.3, 9.2	Heating Test
B.3	Simulated Abnormal Operating Conditions
B.4	Single Fault Condition
F.3.10	Permanence of Marking
6.2.2	PS Measurement For Classification

CB1123-2R1:

Test Clause	Name of Test
B.2.5	Input Test
6.3, 9.2	Heating Test

CB1123-2R2:

Test Clause	Name of Test
N/A	N/A

CB1123-2R3:

Test Clause	Name of Test
B.2.5	Input Test
5.4.1.4, 6.3.2, 9.0, B.2.6	Heating Test

Testing location:

QPS Evaluation Services Inc.
81 Kelfield St., Unit 8
Toronto, Ontario M9W 5A3

Summary of compliance with National Differences (List of countries addressed):

EU A-Deviations, EU Group Differences, EU Special National Conditions, Australia/New Zealand, Canada, and USA

☒ **The product fulfils the requirements of** EN 62368-1:2014+A11:2017

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Spill-Proof™
Model No. 100769
Serial No. SP01193

IPX3

Manufactured By
NANOPTIX
Made in Canada

Tested To Comply with FCC Standards
CAN ICES-3(B)/NMB-3(B)

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24VDC @ 2.4Amps

PayCheck® **Slim**
Model No. 103665
Serial No. PS00006

Manufactured By
NANOPTIX
Made in Canada

This device complies to part 15, Class A 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 interference received, including interference that may cause undesired operation.

CAN ICES-3(A) / NMB-3(A)

24 VDC @ 2.4Amps Continuous

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

PayCheck® **Slim**
Model No. 950005
Serial No. PS00006

Manufactured By
NANOPTIX
Made in Canada

This device complies to part 15, Class A 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 interference received, including interference that may cause undesired operation.

CAN ICES-3(A) / NMB-3(A)

24 VDC @ 2.4Amps Continuous

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

PayCheck®
H/S Couponing
Model No. 950011
Serial No. XXXXXXX

Manufactured By
NANOPTIX
Made in Canada

This device complies to part 15, Class A 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 interference received, including interference that may cause undesired operation.

CAN ICES-3(A) / NMB-3(A)

24 VDC @ 2.4Amps Continuous

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

PayCheck® 4 PRINTER
Model No. 950020
Serial No. XXXXXXX

Manufactured By
NANOPTIX
Made in Canada

Tested to comply with FCC standards for home or office use.

CAN ICES-3(B) / NMB-3(B)

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24 VDC @ 2.4Amps Continuous

Spill-Proof™
Model No. 950023
Serial No. SP01193

IPX3

Manufactured By
NANOPTIX
Made in Canada

Tested To Comply with FCC Standards
CAN ICES-3(B)/NMB-3(B)

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24VDC @ 2.4Amps

HSVL PLUS™
Model No. 950024
Serial No. HP01542

Tested to comply with FCC standards for home or office use.
CAN ICES-3(B) / NMB-3(B)
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

Manufactured By
NANOPTIX
Made in Canada

24 VDC @ 2.4Amps Continuous

HSVL Plus FS
Model No. 950026
Serial No. HF XXXXX

Manufactured By
NANOPTIX
Made in Canada

Tested to comply with FCC standards for home or office use.
CAN ICES-3 (B) / NMB-3(B)
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24 VDC @ 2.4Amps Continuous

HSVL Advanced
Model No. 950028
Serial No. HC00591

Manufactured By
NANOPTIX
Made in Canada

Tested To Comply with FCC Standards
for home or office use
CAN ICES-3(B)/NMB-3(B)

24VDC @ 2.4A

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

HSVL Plus L
Model No. 950029
Serial No. HL00111

Manufactured By:
NANOPTIX
Made in Canada

Tested To Comply with FCC Standards for HOME OR OFFICE USE
CAN ICES-3(B)/NMB-3(B)
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24 VDC @ 2.4A

NextGen™ PayCheck®
Model No. 950050
Serial No. XXXXXXX

Manufactured By
NANOPTIX
Made in Canada

This device complies to part 15, Class A 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 interference received, including interference that may cause undesired operation.
CAN ICES-3(A) / NMB-3(A)

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

24 VDC @ 2.4Amps Continuous

PayCheck® Desktop 2™
Model No. 950051
Serial No. ND00761

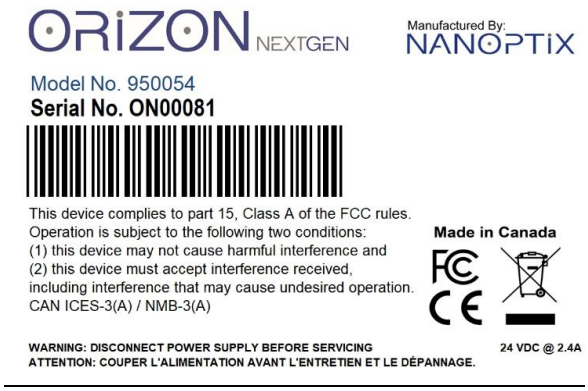
Manufactured By:
NANOPTIX

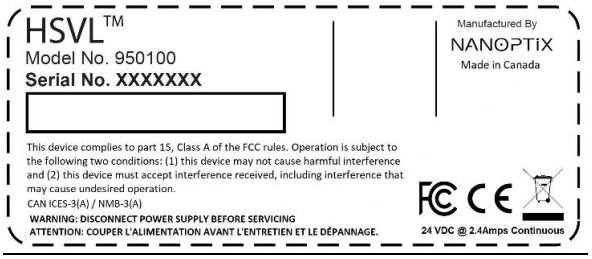
This device complies to part 15, Class A of the FCC rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference and
(2) this device must accept interference received, including interference that may cause undesired operation.
CAN ICES-3 (A)/NMB-3(A)

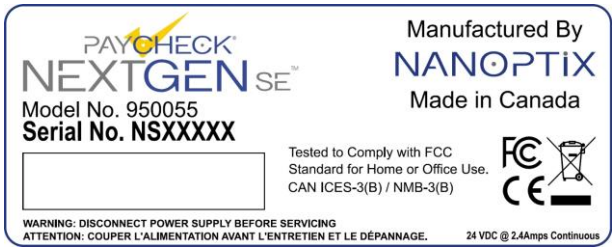
Made in Canada

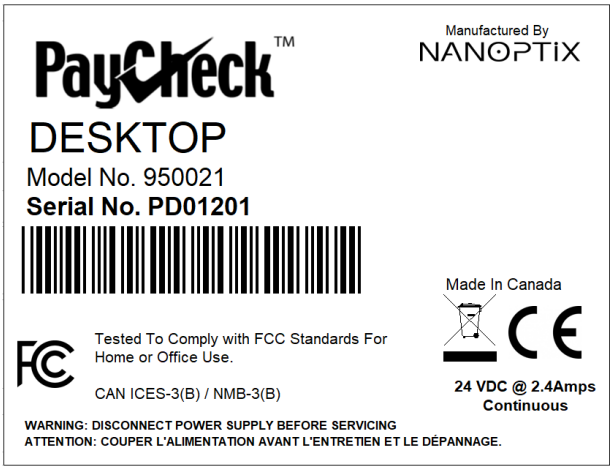
24 VDC @ 2.4Amps Continuous

WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.


ORiZON NEXTGEN
Manufactured By:
NANOPTiX
Model No. 950054
Serial No. ON00081
This device complies to part 15, Class A 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 interference received,
including interference that may cause undesired operation.
CAN ICES-3(A) / NMB-3(A)
Made in Canada
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.
24 VDC @ 2.4A


HSVL™
Model No. 950100
Serial No. XXXXXXX
Manufactured By
NANOPTiX
Made in Canada
This device complies to part 15, Class A 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 interference received, including interference that may cause undesired operation.
CAN ICES-3(A) / NMB-3(A)
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.
24 VDC @ 2.4Amps Continuous


PAYCHECK
NEXTGEN SE™
Model No. 950055
Serial No. NSXXXXX
Manufactured By
NANOPTiX
Made in Canada
Tested to Comply with FCC
Standard for Home or Office Use.
CAN ICES-3(B) / NMB-3(B)
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.
24 VDC @ 2.4Amps Continuous


PayCheck™
Manufactured By
NANOPTiX
DESKTOP
Model No. 950021
Serial No. PD01201
Made In Canada
Tested To Comply with FCC Standards For
Home or Office Use.
CAN ICES-3(B) / NMB-3(B)
24 VDC @ 2.4Amps
Continuous
WARNING: DISCONNECT POWER SUPPLY BEFORE SERVICING
ATTENTION: COUPER L'ALIMENTATION AVANT L'ENTRETIEN ET LE DÉPANNAGE.

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☒ Ordinary person ☒ Instructed person ☐ Skilled person ☐ Children likely to be present
Supply Connection ..... :	☐ AC Mains ☐ DC Mains ☒ External Circuit - not Mains connected - ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☐ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☒ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☒ mating connector ☐ other:_____
Considered current rating of protective device as part of building or equipment installation ..... :	~~_____ A;~~ ~~Installation location: ☐ building; ☐ equipment~~ N/A
Equipment mobility ..... :	☒ movable (For P/N 100769 only) ☐ hand-held ☐ transportable ☐ stationary ☒ for building-in (for all models except P/N 100769) ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II (external power adapter only) ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III ☐ Class II with functional earthing ☐ Not classifed
Access location ..... :	☐ restricted access area ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient ..... :	50°C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☐ TN ☐ TT ☐ IT - ____ V $_{L-L;}$ ☐ dc mains ☒ N/A
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) ..... :	☐ 2000 m or less ☒ _173_ m

Mass of equipment (kg) ..... :	☒ See Model differences for details.
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 ..... :	**For CB1123-2:** 2020-08-07, 2020-09-18, 2020-10-05. **For CB1123-2R1:** 2021-06-08 **For CB1123-2R3:** 2023-01-12
Date (s) of performance of tests ..... :	**For CB1123-2:** 2020-08-07, 2020-08-28, 2020-09-21, 2020-09-25, 2020-10-07, 2020-10-08. **For CB1123-2R1:** 2021-07-16 **For CB1123-2R3:** 2023-01-24 to 2023-01-25
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
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)..... :	Same as applicant
General product information and other remarks:	
This report is only valid and shall always be read in conjunction with CB Report CB1123-2R1, dated 2021-07-19 and CB1123-2R2, dated 2022-01-28. **Original Report (CB1123-2), dated 2020-11-24:** Initial CB Report and Certificate. **Reissued Report (CB1123-2R1), dated 2021-07-19:** This test report includes all data and remarks from report CB1123-2, and documents updates to include evaluation of the following. - Added a new test table (B.2.5 & 6.3). - Added alternate Printer Assembly component (MHTAS010) for the following models (P/N): P/N	

950020, 103665, 950005, 950023, 100769.

- Give interchangeable option for Enclosure, shell & cover material of the following models (P/N): 950023, 100769, 950024, 950026, 950028, 950029, 950054.
- Updated flame class for Plastic Enclosure of model 950051 from V-0 to HB. Changing flame class in PS2 circuit does not affect the safety or compromise safeguard and based on original evaluation fire enclosure is not required. In addition, the printer inside of this polymeric enclosure already has a metal plate underneath the PCB and print mechanism. HB flame class rated plastic enclosure is accepted.

Amendment 1 Report (CB1123-2R2), dated 2022-01-28:

Test Report CB1123-2R1, dated 2021-07-19, was amended only to add new P/N 950055 (derived from P/N 950050, as noted below) and reinstate P/N 950021 (similar to P/N 950051); hence, no additional testing is deemed necessary to be conducted and only these revised (11) pages + Attachment 2 (Photos; 19 pages) are hereby being issued.

Amendment 2 Report (CB1123-2R3), dated 2022-12-09:

Test Report CB1123-2R2, dated 2022-01-28, was amended to include alternate printer assembly for models 950020, 103665, 950005, 950050, 950055, 950051, 950021, 950023, 100769. In addition, changed the rated ambient of all models to 50°C.

Product Description –

Powered by an approved external Limited Power Source (LPS) Power Supply - (cULus file number E190414) ITE Power Adaptor, Model FSP060-RTAAN2, by FSP Group Inc. or equivalent power supply marked “LPS”,

- P/N 950011, 950020, 103665, 950005, 950050, 950100, 950024, 950026, 950028, 950029, 950054 are component-type Thermal Printers to be used in an application where end product enclosure is provided
- P/N 100769, 950023, 950051, 950021 are provided with an enclosure can be used in the end application with or without an enclosure.
- P/N 950055: Derived from P/N 950050, deleting HDMI output, Ethernet interface, 2USB ports and Netplex serial Communication interface features (along with the corresponding parts in the PWB).

Model Differences –

All thermal printers have similar electrical design with a printer mechanism and control circuit board, moreover,

- P/N 950020, 103665, 950005 has same printer mechanism and control circuit board but with different mechanical arrangement.
- P/N 950011 is similar to P/N 103665 except printer mechanism, chassis and additional enclosure.
- P/N 950050 is similar to P/N 950020 in mechanical design but with different printer mechanism
- P/N 950051, 950021 are identical to P/N 950050, except with an enclosure.
- P/N 950024, 950026, 950028, 950029, use same printer mechanism and control circuit board but with different mechanical arrangement
- P/N 950054 use same printer mechanism but a different control circuit board as in P/N 950024, 950026, 950028, 950029.
- P/N 103665 is identical to P/N 950005, the only difference is the P/N for marketing purpose only
- P/N 100769 is identical to P/N 950023, the only difference is the P/N for marketing purpose only
- P/N 950055 is derived from P/N 950050, deleting HDMI output, Ethernet interface, 2USB ports and Netplex serial Communication interface features (along with the corresponding parts, in the PWB).

Duty Cycle:

Models 950020, 103665, 950005, 950050, 950055, 950051, 950021, 950023, 100769 will have the following duty cycles:

1.3 Duty Cycle limit

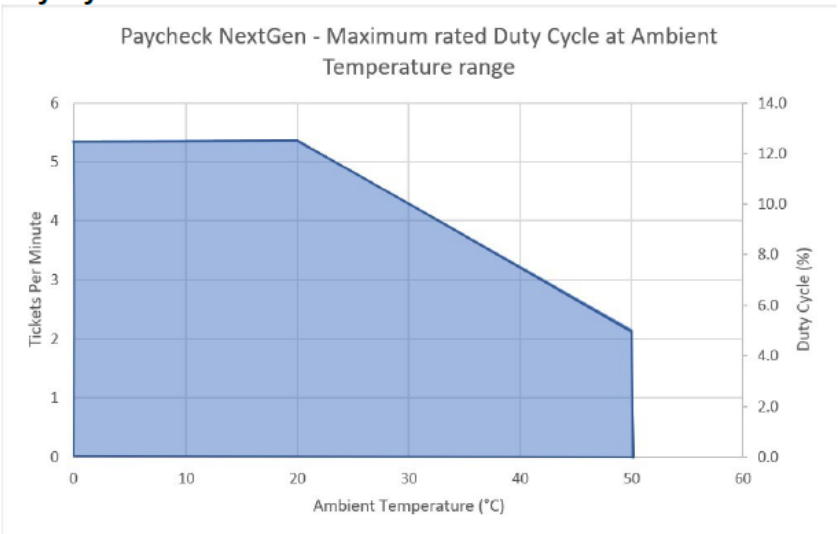


Figure 2: Duty Cycle Limit

For all other models, duty cycle is 14% (printing 1 ticket every 10 seconds).

Weight of Printers

P/N:	Weight (kg)
103665 / 950005	1.215
950020	1.5
950021	3.09
950011	5.5
950050	0.67
950051	1.35
950100	0.59
100769 / 950023	0.55
950024	2.06
950026	1.90
950028	0.985
950029	1.85
950054	1.111
950055	0.67

Additional application considerations – (Considerations used to test a component or sub-assembly) –

Conditions of Acceptability:

1. The thermal printers have been evaluated to be supplied by a Limited Power Source (LPS). Further investigation may be required if to be supplied by other than LPS.
2. Component-type thermal printers intended for building-in shall be provided with a suitable enclosure in the end product.
3. Information with regard to safety shall be given in a language acceptable to the country where the

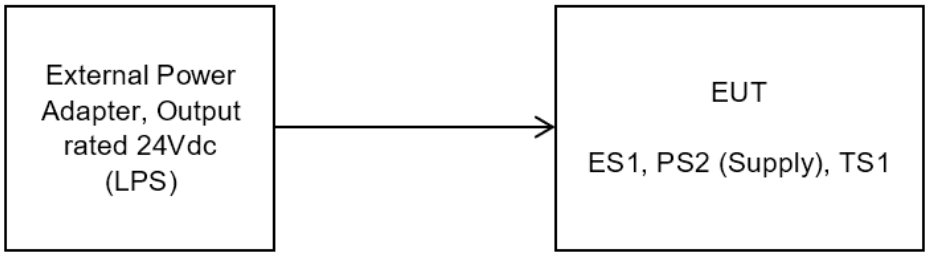
apparatus is intended to be used.

4. The final acceptance of these component-type Thermal Printers shall be verified along with the end-use product as part of its national approval procedure.
5. Suitable approved cord set for external power adapter to be provided for each destination country.
6. Licenses for critical components to be provided by applicant upon request.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Input supply 24Vdc	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
Supply provided by external power adapter with output rated LPS	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Component type	N/A
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Enclosure	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ **ES** ☒ **PS** ☐ **MS** ☒ **TS** ☐ **RS**



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary Person	ES1: 24Vdc Circuit			
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials inside of the unit	PS2(source)	Temperature cannot cause ignition	Single fault test V-0 rated PCB material	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
N/A	N/A	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	TS1	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CASUED INJURY**		P
5.4.1.4	Maximum operating temperature for insulating materials .....:	(See appended table 5.4.1.4)	P
6	**ELECTRICALLY- CAUSED FIRE**		P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.5	Internal and external wiring		P
6.5.1	Requirements	UL approved VW-1 internal wiring	P
6.5.2	Cross-sectional area (mm^2) .....:	AWG26, AWG28, AWG30	—
6.5.3	Requirements for interconnection to building wiring ..... :	Considered. Supplied by LPS power source.	P
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	TS1	P
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....:		N/A
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	Not an Audio Amplifier	N/A
B.2.3	Supply voltage and tolerances	Supplied by external certified power adapter output 24VDC	N/A
B.2.5	Input test..... :	(See appended table B.2.5)	P

4.1.2	TABLE: List of critical components				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1]**
P/N 950011					
Printer Assembly	Fujitsu	FTP-639MCL354	DC 24 V	--	Tested with the equipment
PCB	Interchangeable	--	V-0, 105°C	UL 796	UR
P/N 950020, 103665, 950005					
Printer Assembly	Axiohm	MHTAGS24/C	DC 24 V	--	Tested with the equipment
Printer Assembly - Alternate component	Axiohm	MHTAS010	DC 24V	--	Tested with the equipment
Printer Assembly - Alternate component	Nanoptix	375007	DC 24V	IEC 62368-1	Tested with the equipment.
- Stepper Motor	*Mineba Mitsumi Inc.*	*PM25L-024-UDH1*	*DC 24V* *0.600A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Stepper Motor (Alternate)	*Shanghai Moons' Electric Co., Ltd*	*25PM024L6-00807*	*DC 24V* *0.485A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Plastic Enclosure	*Ravago Manufacturing Americas L L C*	*Hylex P1010G10FR MA*	*94V-0* *80°C*	*UL94*	*UL (E157012)*
- Plastic Enclosure (Alternate)	*Trinseo L L C*	*Emerge PC 8701-15*	*94V-0* *80°C*	*UL94*	*UL (E54680)*
- Plastic Enclosure (Alternate)	*Covestro*	*Makrolon 9415*	*94V-0* *125°C*	*UL94*	*UL (E41613)*
- Plastic Enclosure (Alternate)	*Interchangeable*	*Interchangeable*	*Min. 94V-0* *Min. 80°C*	*UL94*	*UL*
- Internal Wiring	*Interchangeable*	*UL 1061*	*AWG#28* *Min. VW-1* *Min. 80°C*	*UL758*	*UL*
- Thermal Head	*Rohm Co. Ltd.*	*KD2003-D7FWAAB*	*Heat element matrix consist of 640 dots*	*IEC62368-1*	*Tested with the equipment.*
PCB	Interchangeable	--	V-0, 105°C	UL 796	UR

Polymeric Drawer	Interchangeable	--	V-0	UL 746	cURus
P/N 950050, 950055					
Printer	TXCOM	AXIOHM MHTNGD24	25mm motor, thermal print head Rated Voltage: 24Vdc	UL 60950-1:2007 R12.11 CAN/CSA-C22.2 No.60950-1-07+A1:2011	TUV (CU72141773)
Printer Assembly - Alternate component	Nanoptix	375007	DC 24V	IEC 62368-1	Tested with the equipment.
- Stepper Motor	*Mineba Mitsumi Inc.*	*PM25L-024-UDH1*	*DC 24V* *0.600A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Stepper Motor (Alternate)	*Shanghai Moons' Electric Co., Ltd*	*25PM024L6-00807*	*DC 24V* *0.485A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Plastic Enclosure	*Ravago Manufacturing Americas L L C*	*Hylex P1010G10FR MA*	*94V-0* *80°C*	*UL94*	*UL (E157012)*
- Plastic Enclosure (Alternate)	*Trinseo L L C*	*Emerge PC 8701-15*	*94V-0* *80°C*	*UL94*	*UL (E54680)*
- Plastic Enclosure (Alternate)	*Covestro*	*Makrolon 9415*	*94V-0* *125°C*	*UL94*	*UL (E41613)*
- Plastic Enclosure (Alternate)	*Interchangeable*	*Interchangeable*	*Min. 94V-0* *Min. 80°C*	*UL94*	*UL*
- Internal Wiring	*Interchangeable*	*UL 1061*	*AWG#28* *Min. VW-1* *Min. 80°C*	*UL758*	*UL*
- Thermal Head	*Rohm Co. Ltd.*	*KD2003-D7FWAAB*	*Heat element matrix consist of 640 dots*	*IEC62368-1*	*Tested with the equipment.*
P/N 950051, 950021					
Printer Assembly	TXCOM	AXIOHM MHTNGD24	25mm motor, thermal print head	UL 60950-1:2007 R12.11 CAN/CSA-C22.2 No.60950-1-07+A1:2011	TUV (CU72141773)
Printer Assembly - Alternate component	Nanoptix	375007	DC 24V	IEC 62368-1	Tested with the equipment.

- Stepper Motor	*Mineba Mitsumi Inc.*	*PM25L-024-UDH1*	*DC 24V* *0.600A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Stepper Motor (Alternate)	*Shanghai Moons' Electric Co., Ltd*	*25PM024L6-00807*	*DC 24V* *0.485A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Plastic Enclosure	*Ravago Manufacturing Americas L L C*	*Hylex P1010G10FR MA*	*94V-0* *80°C*	*UL94*	*UL (E157012)*
- Plastic Enclosure (Alternate)	*Trinseo L L C*	*Emerge PC 8701-15*	*94V-0* *80°C*	*UL94*	*UL (E54680)*
- Plastic Enclosure (Alternate)	*Covestro*	*Makrolon 9415*	*94V-0* *125°C*	*UL94*	*UL (E41613)*
- Plastic Enclosure (Alternate)	*Interchangeable*	*Interchangeabl e*	*Min. 94V-0* *Min. 80°C*	*UL94*	*UL*
- Internal Wiring	*Interchangeable*	*UL 1061*	*AWG#28* *Min. VW-1* *Min. 80°C*	*UL758*	*UL*
- Thermal Head	*Rohm Co. Ltd.*	*KD2003-D7FWAAB*	*Heat element matrix consist of 640 dots*	*IEC62368-1*	*Tested with the equipment.*
Plastic enclosure for model 950051	Polymer Technology & Services LLC	ABS- FR3800-V	Acrylonitrile Butadiene Styrene (ABS), HB	CSA-C22.2 No. 0.17 UL 746C	cURus (E155285)
Plastic enclosure for model 950051	Interchangeable	--	Acrylonitrile Butadiene Styrene (ABS), HB	CSA-C22.2 No. 0.17 UL 746C	cURus
P/N 950100					
Printer Assembly	Seiko	CAP9347E-S640-E	24Vdc, 1.25A	IEC 60950-1	Tested with the equipment
DC Sepper Motor	Seiko	B420A	24Vdc, 0.50A	IE 60950-1	Tested with the equipment
P/N 950023, 100769					
Cover	Covestro Deutschland AG	Makrolon 2405+(z)	V-2	UL 746C	cURus (E41613)
Cover	Interchangeable	--	V-2	UL 746C	cURus
Shell (top, bottom)	Teijin Limited Resin and Plastic	TN-7500M(#)	V-1 minimum	UL 746C	cURus (E98529)
Shell (top, bottom)	Interchangeable	--	V-1 minimum	UL 746C	cURus

Printer Assembly	Axiohm	MHTPGS24H	DC 24 V	--	Tested with the equipment
Printer Assembly - Alternate component	Axiohm	MHTAS010	DC 24V	--	Tested with the equipment
Printer Assembly - Alternate component	Nanoptix	375007	DC 24V	IEC 62368-1	Tested with the equipment.
- Stepper Motor	*Mineba Mitsumi Inc.*	*PM25L-024-UDH1*	*DC 24V* *0.600A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Stepper Motor (Alternate)	*Shanghai Moons' Electric Co., Ltd*	*25PM024L6-00807*	*DC 24V* *0.485A peak/phase* *2 phase, 8Ω/phase* *15° step angle* *Max. operating temp: 50°C*	*IEC 62368-1*	*Tested with the equipment.*
- Plastic Enclosure	*Ravago Manufacturing Americas L L C*	*Hylex P1010G10FR MA*	*94V-0* *80°C*	*UL94*	*UL (E157012)*
- Plastic Enclosure (Alternate)	*Trinseo L L C*	*Emerge PC 8701-15*	*94V-0* *80°C*	*UL94*	*UL (E54680)*
- Plastic Enclosure (Alternate)	*Covestro*	*Makrolon 9415*	*94V-0* *125°C*	*UL94*	*UL (E41613)*
- Plastic Enclosure (Alternate)	*Interchangeable*	*Interchangeable*	*Min. 94V-0* *Min. 80°C*	*UL94*	*UL*
- Internal Wiring	*Interchangeable*	*UL 1061*	*AWG#28* *Min. VW-1* *Min. 80°C*	*UL758*	*UL*
- Thermal Head	*Rohm Co. Ltd.*	*KD2003-D7FWAAB*	*Heat element matrix consist of 640 dots*	*IEC62368-1*	*Tested with the equipment.*
DC stepping motor (for use with Axiohm printer assembly)	Minebea Electronic Co Ltd. (NMB)	PM20L-020-AXH2	DC 24V, 100MΩ, 120°C	--	Tested with the equipment
PCB	Interchangeable	--	V-0, 105°C	UL796	UR
PN 950024, 950026, 950028, 950029					
Enclosure frame material for P/N 950028	E I DUPONT DE NEMOURS & CO INC	FR50	V-0	UL 746C	UR (E41938)
Enclosure frame material for P/N 950028	Interchangeable	--	V-0	UL 746C	UR

Cover, mount material for P/N 950028	TRINSEO (HONG KONG) LTD	Celec 5200HF	V-0	UL 746C	UR (E132010)
Cover, mount material for P/N 950028	Interchangeable	--	V-0	UL 746C	UR
Printer Assembly	Seiko	CAPM347	Thermal printer mechanism 24VDC, 4.9A(peak)/144 dots; 9.9A(peak)/288 dots; 21.9A(peak)/640 dots Print speed 300mm/s	--	Tested with the equipment
Thermal Head	--	--	*Heat element matrix consist of 640 dots*	--	*Tested with the equipment*
Paper feed motor	--	*J05F9ZY2BC*	*PM type stepper motor, 3.7Ω/phase, Vp:21.6-26.4V* *600mA/phase*	--	*Tested with the equipment*
Paper motor	--	*J09C9ZE2BC*	*PM type stepper motor, 8.5Ω/phase, Vp:21.6-26.4V* *820mA/phase(at 1 phase)*	--	*Tested with the equipment*
PCB (control board 209008)	Interchangeable	--	V-0, 105°C	UL796	UR
Internal Wiring	Interchangeable	--	VW-1, 105°C	UL 758	UR
PN 950054					
Plastic material for presenter	COVESTRO DEUTSCHLAND AG [PC RESINS]	FR3000	V-0	UL 746C	UR (E41613)
Plastic material for presenter	Interchangeable	--	V-0	UL 746C	UR
Enclosure for main frame	CHI MEI CORPORATION	PA-757	HB	UL 746C	UR (E56070)
Enclosure for main frame	Interchangeable	--	HB	UL 746C	UR

Printer Assembly	Seiko	CAPM347	Thermal printer mechanism 24VDC, 4.9A(peak)/144 dots; 9.9A(peak)/288 dots; 21.9A(peak)/640 dots Print speed 300mm/s	--	Tested with the equipment
PCB for control board 209014 and presenter	Interchangeable	--	V-0, 105°C	UL796	UR
Internal Wiring	Interchangeable	--	VW-1, 105°C	UL 758	UR
Power adaptor	FSP Group	FSP060-RTAAN2	Input 100-240V, 1.5A, 50-60Hz Output 24VDC, 2.5A	UL/CSA 60950-1	cULus (E190414)
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) ..... :	24.0	24.0	24.0	24.0	—
	Ambient T_{min} (°C) ..... :	23.4	See note 3	23.7	See note 4	—
	Ambient T_{max} (°C) ..... :	23.4	See note 3	23.7	See note 4	—
	Tma (°C) ..... :	--	25*	--	50**	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
Black plastic outer compartment of motor housing		48.8	50.2	42.5	68.8	80
On PCB, near motor feed connection		62.7	64.1	57.7	84	105
Black plastic, motor compartment		57.5	58.9	47.6	73.9	94
Green plastic, above the motor		40.7	42.1	39.6	65.9	94
Stepper Motor		76.2	77.6	56.1	82.4	90
Input Molex Connector		32.3	33.7	31.3	57.6	90
Near Printer Head		29.5	30.9	30.1	56.4	105
Ambient		23.6	25	23.7	50	--

Supplementary information:

Notes:

1. Tested on P/N 950055 (S/N: NS00050 – with Moons motor)
2. Continuously printing with below duty cycle, re-inserting the paper if jammed.
   * Tested with the following duty cycle: continuously printing 5 tickets per minute (every 12 seconds)
   ** Tested with the following duty cycle: continuously printing 2 tickets per minute (every 30 seconds)
3. Measurements were normalized to 25°C.
4. Measurements were normalized to 50°C.

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

Supplementary information:

Supplementary information:

Note 1: Tma should be considered as directed by appliable requirement

Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) ..... :	24.0	24.0	24.0	24.0	—
	Ambient T_{min} (°C) ..... :	23.3	See note 3	23.4	See note 4	—
	Ambient T_{max} (°C) ..... :	23.3	See note 3	23.4	See note 4	—
	Tma (°C) ..... :	--	25*	--	50**	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
On PCB, near motor feed connection		63.6	65.3	56.3	82.9	105
Black plastic, motor compartment		54.9	56.6	44.6	71.2	80
Stepper Motor		79	80.7	55.8	82.4	90
Green plastic, above motor		39.3	41	36.6	63.2	94
Black plastic outer compartment of motor housing		50.5	52.2	42.5	69.1	94
Input Molex Connector		32.2	33.9	30.8	57.4	90
Printer Head		29.5	31.2	29	55.6	105
Ambient		23.3	25	23.4	50	N/A

Supplementary information:

Notes:

1. Tested on P/N 950055 (S/N: NS00049 – with MNB motor)
2. Continuously printing with below duty cycle, re-inserting the paper if jammed.
   * Tested with the following duty cycle: continuously printing 5 tickets per minute (every 12 seconds)
   ** Tested with the following duty cycle: continuously printing 2 tickets per minute (every 30 seconds)
3. Measurements were normalized to 25°C.
4. Measurements were normalized to 50°C.

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

Supplementary information:

Supplementary information:

Note 1: Tma should be considered as directed by appliable requirement

Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
24	DC	1.13	2.4	27.6	--	--	--	Thermal printer, 950055 (using MNB motor) powered by power adapter model FSP060-RAAK3. Measured current is the peak current only in printing mode.
23.8	DC	1.106	2.4	26.3	--	--	--	Thermal printer, 950055 (using Moons motor) powered by power adapter model FSP060-RAAN3. Measured current is the peak current only in printing mode.
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								