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Nemko Canada Inc., 303 River Road, R.R. 5, Ottawa, Ontario, Canada, K1V 1H2

Report Number: 123766-2TRFEMC

Product Marketing Name: Paycheck 4 Thermal Ticket Printer

Test Specification:

EN 55024: 1998 + amendment A1: 2001 + amendment A2: 2003
Information technology equipment —
Immunity characteristics — Limits and methods of measurement

Reviewed by:

Signature
Daniel Hynes, Senior EMC Specialist

March 11, 2009
Date

Tested by: David Duchesne, Senior EMC Specialist

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Report No: 123766-2TRFEMC

Declaratory Statements

Product Marketing Name: Paycheck 4 Thermal Ticket Printer

Model #: 950020



Trademark:

Serial #: P353722

Applicant:
Nanoptix Inc
699 Champlain Street
Dieppe, NB, Canada
E1A1P6

Manufacturer:
Nanoptix Inc
699 Champlain Street
Dieppe, NB, Canada
E1A1P6

Product Background details

- | | |
|---|--|
| <input checked="" type="checkbox"/> New Product | <input type="checkbox"/> Engineering Changes |
| <input type="checkbox"/> Configuration Change | <input type="checkbox"/> Product Audit |
| <input type="checkbox"/> Other | |

Test Specification:

EN 55024: 1998 + amendment A1: 2001 + amendment A2: 2003

Test Location: 303 River Road, R.R. 5, Ottawa, Ontario, Canada, K1V 1H2

Limits of Responsibility:

The results included in this test report apply only to the equipment listed within this report as being the Equipment Under Test (EUT). Equipment listed as support equipment is not considered to be part of the EUT. In some instances, the EUT may consist of multiple devices, and will be so indicated in the report.

Statement of Compliance

EN 55024: 1998 + amendment A1: 2001 + amendment A2: 2003

Immunity, Enclosure Port

| Environmental Phenomenon | Test Specification | Basic Standard | TEST RESULT PASS/FAIL/NA |
|---|--|----------------|-----------------------------|
| Power-frequency magnetic Field | 50 Hz 1 A/m | IEC 61000-4-8 | N/A |
| Radio-frequency electromagnetic field Amplitude modulated | 80-1000 MHz 3 V/m 80 % AM (1 kHz) | IEC 61000-4-3 | PASS |
| Electrostatic discharge | 4 kV (Contact discharge) 8 kV (Air discharge) | IEC 61000-4-2 | PASS |

Immunity, Signal Ports and Telecommunication Ports

| Environmental Phenomenon | Test Specification | Basic Standard | TEST RESULT PASS/FAIL/NA |
|--------------------------------------|---|----------------|-----------------------------|
| Radio-frequency continuous conducted | 0.15-80 MHz 3 Vrms 80 % AM (1 kHz) | IEC 61000-4-6 | Not Requested |
| Surge | 1 kV Line To Earth 1.2/50 (8/20) Tr/Th μ s | IEC 61000-4-5 | N/A |
| Fast transients | 0.5 kV 5/50 Tr/Th ns 5 kHz | IEC 61000-4-4 | Not Requested |

Immunity, Input DC Power Port (excluding equipment marketed with an a.c/d.c, power converter)

| Environmental Phenomenon | Test Specification | Basic Standard | TEST RESULT PASS/FAIL/NA |
|--------------------------------------|---|----------------|-----------------------------|
| Radio-frequency continuous conducted | 0.15-80 MHz 3 Vrms 80 % AM (1 kHz) | IEC 61000-4-6 | N/A |
| Surge | 0.5 kV Line To Earth 1.2/50 (8/20) Tr/Th μ s | IEC 61000-4-5 | N/A |
| Fast transients | 0.5 kV 5/50 Tr/Th ns 5 kHz | IEC 61000-4-4 | N/A |

Notes

- System Power: 230 VAC / 50 Hz

Statement of Compliance, continued

EN 55024: 1998 + amendment A1: 2001 + amendment A2: 2003

Immunity, Input AC Power Ports (including equipment marketed with a separate a.c./d.c power converter)

| Environmental Phenomenon | Test Specification | Basic Standard | TEST RESULT PASS/FAIL/NA |
|--------------------------------------|--|----------------|-----------------------------|
| Radio-frequency continuous conducted | 0.15-80 MHz 3 Vrms 80 % AM (1 kHz) | IEC 61000-4-6 | Not Requested |
| Surge | 1.2/50 (8/20) Tr/Th μ s 1 kV Line to Line 2 kV Line To Earth | IEC 61000-4-5 | Not Requested |
| Fast transients | 1 kV 5/50 Tr/Th ns 5 kHz | IEC 61000-4-4 | Not Requested |
| Voltage dips | >95 % Reduction 0.5 Period 30 % Reduction 25 Period | IEC 61000-4-11 | Not Requested |
| Voltage interruptions | >95 % Reduction 250 Period | IEC 61000-4-11 | Not Requested |

Notes

- System Power: 230 VAC / 50 Hz



Lab Environmental Conditions

Ambient Temperature: 15 °C to 35 °C,
Relative Humidity: 30 % to 60 %,
Atmospheric Pressure: 86 kPa (860 mbar) to 106 kPa (1 060 mbar)

Engineering Considerations

Product Modification Required for Compliance

None

Justification

- A limited subset of tests were performed as per customer test plan.
- Product variant Paycheck 3 Thermal Ticket Printer was previously assessed. (See Nemko report 6R67940-2) Paycheck 4 is the same printer engine as paycheck 3, but has a plastic drawer, instead of metal.

Deviations from Standard Test Procedure

None

Test Report Revision History

| Revision # | Details of changes made to test report |
|------------|--|
| - | Original Report Issued |
| N/A | N/A |

General Information Regarding the Equipment Under Test (EUT)

Date Received In Laboratory: March 2, 2009

Nemko Identification Number: Item # 7

Description & Theory of Operation:
The EUT is a thermal printer for ticket application.

EUT Clock and Operational Frequencies:
12MHz, 200MHz

Exercise/Monitoring method:
Continuous print state. Tickets were visually inspected to ensure no corruption.

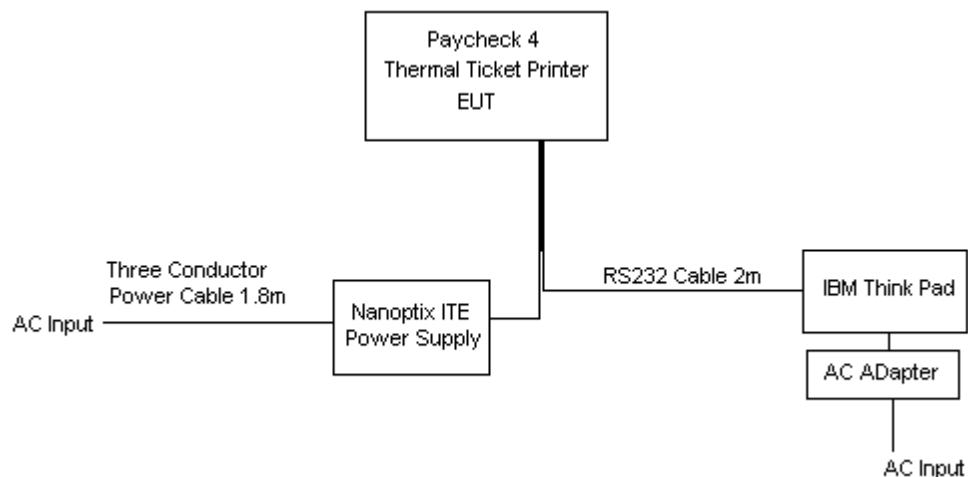
Firmware Version:
2.91V (Testing – Continuous Print)

Equipment Configuration

Equipment Configuration List

| Description | Identification: (MN#, SN#, PN#, Rev.) |
|-----------------------------------|---------------------------------------|
| Paycheck 4 Thermal Ticket Printer | MN# 950020, SN# P353722 |
| Nanoptix ITE Power Supply | PN# GS-1110, SN# 11270010209 |
| IBM Think Pad | FA001922 |
| IIBM AC Adapter | FA001922 |

Configuration of the Equipment Under Test (EUT)





Performance Criteria

| | |
|--------------------------------|---|
| Performance Criterion A | The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended. |
| Performance Criterion B | After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended. |
| Performance Criterion C | Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost. |



Electrostatic Discharge

Test Date: March 9, 2009

Engineer's Name: David Duchesne

Configuration: Table Top

Investigation Data

Contact Discharge

| Discharge Point | Number at +/- | Test Voltage (kV) | Result |
|--|---------------|-------------------|----------------|
| Please refer to "Electrostatic Discharge Test Location Points" | 25 | 2, 4 | No Degradation |

Indirect Discharge

| Discharge Point | Number at +/- | Test Voltage (kV) | Result |
|-----------------|---------------|-------------------|----------------|
| HCP (All Sides) | 25 | 2, 4 | No Degradation |

Air Discharge

| Discharge Point | Number at +/- | Test Voltage (kV) | Result |
|--|---------------|-------------------|----------------|
| Please refer to "Electrostatic Discharge Test Location Points" | 10 | 2, 4, 8 | No Degradation |

Notes

Repetition rate of discharge was applied at 1 pulse per second.

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Test Equipment Used

| Equipment | Manufacturer | Model No. | Asset/Serial No. | Next Cal. |
|-----------|--------------|-----------|------------------|------------|
| ESD Gun | KeyTek | MZ-15/EC | FA001983 | Jan. 24/11 |

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

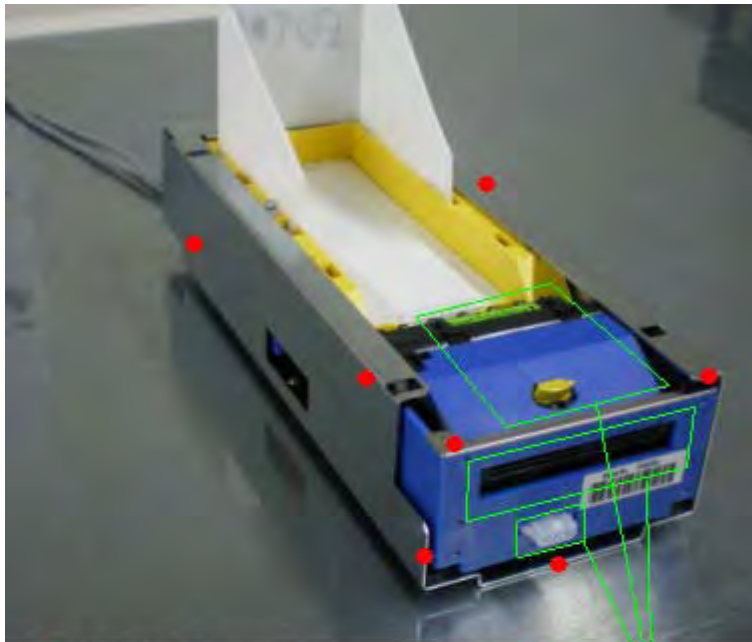
Electrostatic Discharge, continued

Setup Photos



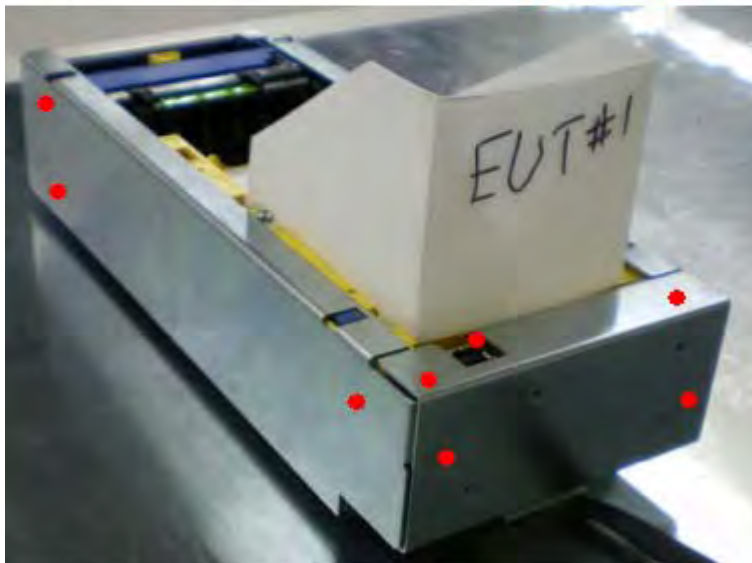
Electrostatic Discharge, continued

Electrostatic Discharge Test Location Points



● Contact Discharge

Air Discharge





Nemko Canada Inc.,
303 River Road, R.R. 5, Ottawa, Ontario, Canada, K1V 1H2

Report No: 123766-2TRFEMC

Radio-Frequency Electromagnetic Field Amplitude Modulated

Test Date: March 9, 2009

Engineer's Name: David Duchesne

Configuration: Table Top

Enclosure Investigation Data

Swept Frequency Test

| Start Freq. (MHz) | Stop Freq. (MHz) | Step Size (%) | Dwell Time (s) | Level (Volts/Meter) |
|-------------------|------------------|---------------|----------------|---------------------|
| 80 | 1000 | 1 | 3 | 3 |

Modulation Details

Modulation Type: AM Freq. Mod (kHz): 1 % Modulation: 80

Additional Spot Frequencies investigated

EUT Frequencies (MHz): 200 Dwell Time (s): 60

Annex A of EN 55024 spot frequencies (MHz): 80, 120, 160, 230, 434, 460, 600, 863 and 900 Dwell Time (s): 60

Enclosure Investigated

Facility: 3m Chamber

Result: No Degradation

Polarization Assessed: Vertical Horizontal

Sides Assessed: Front Side Rear Side
 Left Side Right Side

Notes

None

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Test Equipment Used

| Equipment | Manufacturer | Model No. | Asset/Serial No. | Next Cal. |
|--------------------------------------|-----------------|-----------|------------------|-------------|
| Signal Generator | Rhode & Schwarz | SML-03 | FA002046 | Dec. 18/09 |
| Amplifier | AR | 250W1000A | FA002038 | NCR |
| Bilog | Sunol | JB3 | FA002108 | Jan. 27/10 |
| Power Meter | Rhode & Schwarz | NRP | FA002076 | Aug. 12/09 |
| Power Sensor | Rhode & Schwarz | NRP-Z91 | FA002075 | Aug. 12/09 |
| Starprobe | AR | FL7006 | FA002054 | Oct. 08/09 |
| 50 Coax cable | HUBER + SUHNER | None | FA002015 | Sept. 23/09 |
| Directional Coupler 80MHz to 1000MHz | AR | DC6180 | FA001659 | Aug. 05/09 |

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

Radio-Frequency Electromagnetic Field Amplitude Modulated, continued

Setup Photos

