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

Report Number: 98632-2R1TRFEMC

Product Marketing Name: EZ-Load "Standard"

Test Specification:

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

Information technology equipment —

Immunity characteristics — Limits and methods of measurement

Reviewed by: 
David Duchesne, EMC Specialist

April 10, 2008
Date

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Report No: 98632-2R1TRFEMC

Declaratory Statements

Product Marketing Name: EZ-Load "Standard"

Model #: 102317

Model Variants #: EZ-Load "Stretch" (950009), HD-Kiosk "Thin Cutter" (950013), HD-Kiosk "Thick Cutter" (950012)



Trademark:

Serial #: EZL1131 -Test Model

Applicant:

Nanoptix Inc.
699 Champlain Street
Dieppe, New Brunswick
Canada
E1A 1P6

Manufacturer:

Nanoptix Inc.
699 Champlain Street
Dieppe, New Brunswick
Canada
E1A 1P6

Product Background details

- New Product
- Engineering Changes
- Configuration Change
- Product Audit
- 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 3V/m 80 % AM (1 kHz)	IEC 61000-4-3	PASS
Electrostatic discharge	4kV (Contact discharge) 8kV (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 3Vrms 80% AM (1 kHz)	IEC 61000-4-6	Not Tested
Surge	1kV Line To Earth 1.2/50 (8/20) Tr/Th μ s	IEC 61000-4-5	Not Tested
Fast transients	0.5kV 5/50 Tr/Th ns 5kHz	IEC 61000-4-4	Not Tested

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 3Vrms 80% AM (1 kHz)	IEC 61000-4-6	N/A
Surge	0.5kV Line To Earth 1.2/50 (8/20) Tr/Th μ s	IEC 61000-4-5	N/A
Fast transients	0.5kV 5/50 Tr/Th ns 5kHz	IEC 61000-4-4	N/A

Notes

- System Power: 230VAC/50Hz

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 3Vrms 80% AM (1 kHz)	IEC 61000-4-6	Not Tested
Surge	1.2/50 (8/20) 1kV Line to Line 2kV Line To Earth	IEC 61000-4-5	Not Tested
Fast transients	1kV 5/50 Tr/Th ns 5kHz	IEC 61000-4-4	Not Tested
Voltage dips	>95% Reduction 0.5 Period 30% Reduction 25 Period	IEC 61000-4-11	Not Tested
Voltage interruptions	>95% Reduction 250 Period	IEC 61000-4-11	Not Tested

Notes

- System Power: 230VAC/50Hz



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Lab Environmental Conditions

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



Engineering Considerations

Product Modification Required for Compliance

None

Justification

Testing was performed on EZ-Load “Standard” sample to demonstrate compliance for other model variants as requested by client.

Limited subsets of test were performed as per client request. (See Nemko Canada Inc. Quote 11780)
The following tests have been excluded from evaluation: Conducted immunity, Surge, EFT, Voltage dips and Voltage Interruption

Deviations from Standard Test Procedure

None

Test Report Revision History

Issue #	Details of changes made to test report
-	Original Report Issued
R1	Updated MN#



Nemko Canada Inc.,
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Report No: 98632-2R1TRFEMC

General Information Regarding the Equipment Under Test (EUT)

Date Received In Laboratory: Dec 19, 2007

Nemko Identification Number: Item# 1

Description & Theory of Operation:

Ticket will be printed when terminal requests a printout.

EUT Clock and Operational Frequencies:

12MHz (crystal) external, 192MHz internal to DSP processor

Exercise/Monitoring method:

Continual Printing Feature. Press paperfeed button once prints one ticket , hold for 5 seconds will print continually. No errors should occur during testing process, unit will recover if failure occurs. If printing stop during ESD perform start print test as required above.

Software Version:

Continual Printing Feature 3.65T

Equipment Configuration

Equipment Configuration List

Description	Identification: (MN#, SN#, PN#, Rev.)
EZ-Load Standard	MN# 102317, SN# EZL1131
Nanoptix ITE Power Supply	MN# GT-21126-6024, PN# GS-1110
IBM Thinkpad Laptop	PN# 2647, SN# 78-1VRMP

EUT Ports

Description	Indoor/Outdoor	Type (See Legend)	Qty
AC Power	Indoor	1	1
USB	Indoor	5	1
RS-232	Indoor	5	1

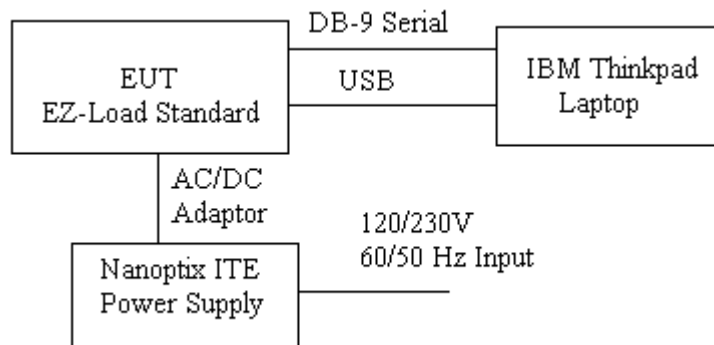
Inter-Connection Cables

Description	Length (m)
AC Power	1
USB	3
RS-232	7.62

Legend:

1 = AC Power Input/Output, 2 = DC Power Input/Output, 3 = Telecom, 4 = Non-telecom I/O, 5 = Maintenance, 6 = Fiber Optic

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: Jan 15, 2008

Engineer's Name: Sumeet Bhalla

Configuration: Table Top

Investigation Data

Contact Discharge

Discharge Point	Number at +/-	Test Voltage (kV)	Result
Refer to "Test Location Points" photos of this section	25	2, 4	See Notes
Front Chassis lower left and top corner	25	2, 4	See Notes
Back metallic plane of chassis	25	2, 4	See Notes
Left metallic plane of chassis	25	2, 4	See Notes
Right metallic plane of chassis	25	2, 4	See Notes
USB connector shell	25	2, 4	No Degradation
RS-232 connector shell	25	2, 4	No Degradation

Indirect Discharge

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

Air Discharge

Discharge Point	Number at +/-	Test Voltage (kV)	Result
Refer to "Test Location Points" photos of this section	10	2, 4, 8	No Degradation

Notes

- Contact discharges caused the continuous print function to halt. The printer would be in an idle state waiting for re-initiation from operator. The printer would function normally after manually resetting the print routine. (See EN 55024 Annex D, Printers - Performance criterion B)
- Repetition rate of discharge applied was 1second.

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Electrostatic Discharge, continued

Test Equipment Used

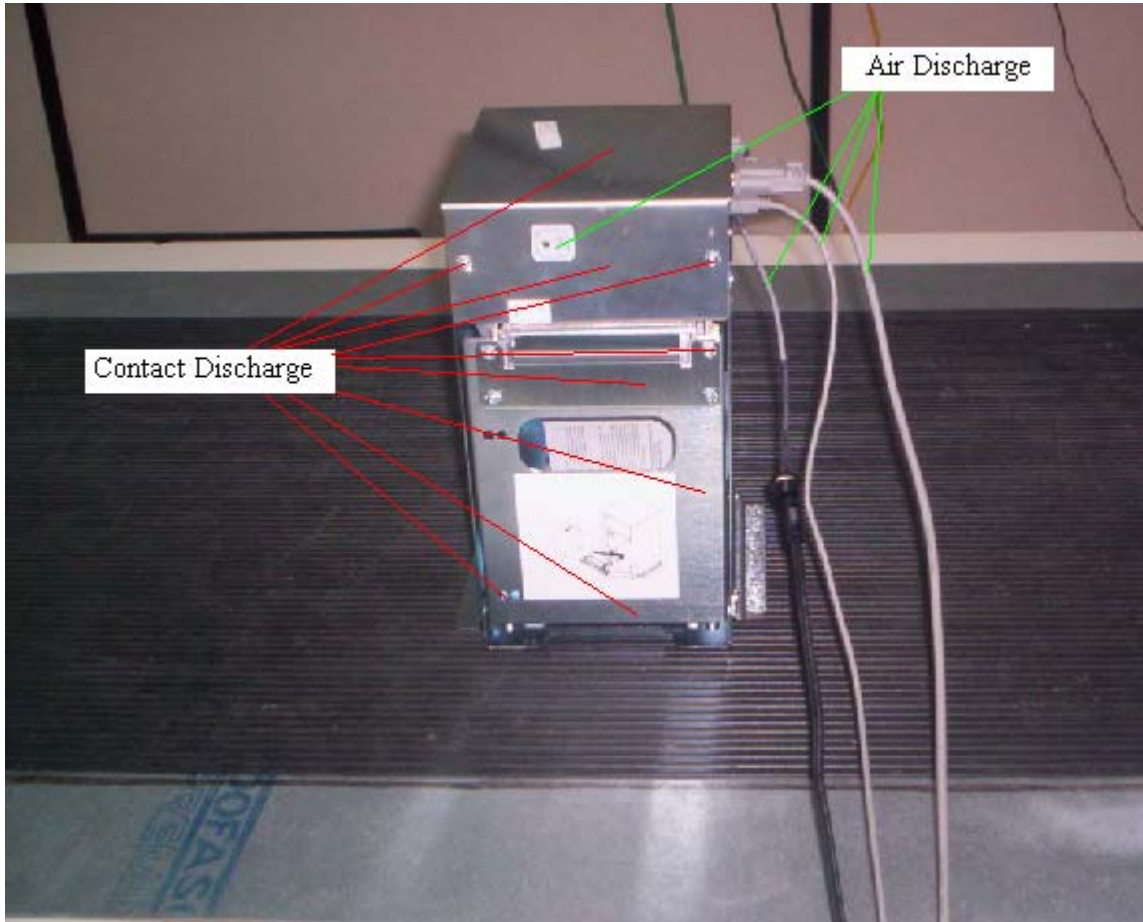
Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
ESD Gun	KeyTek	MZ-15/EC	FA001983	Feb. 06/08

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

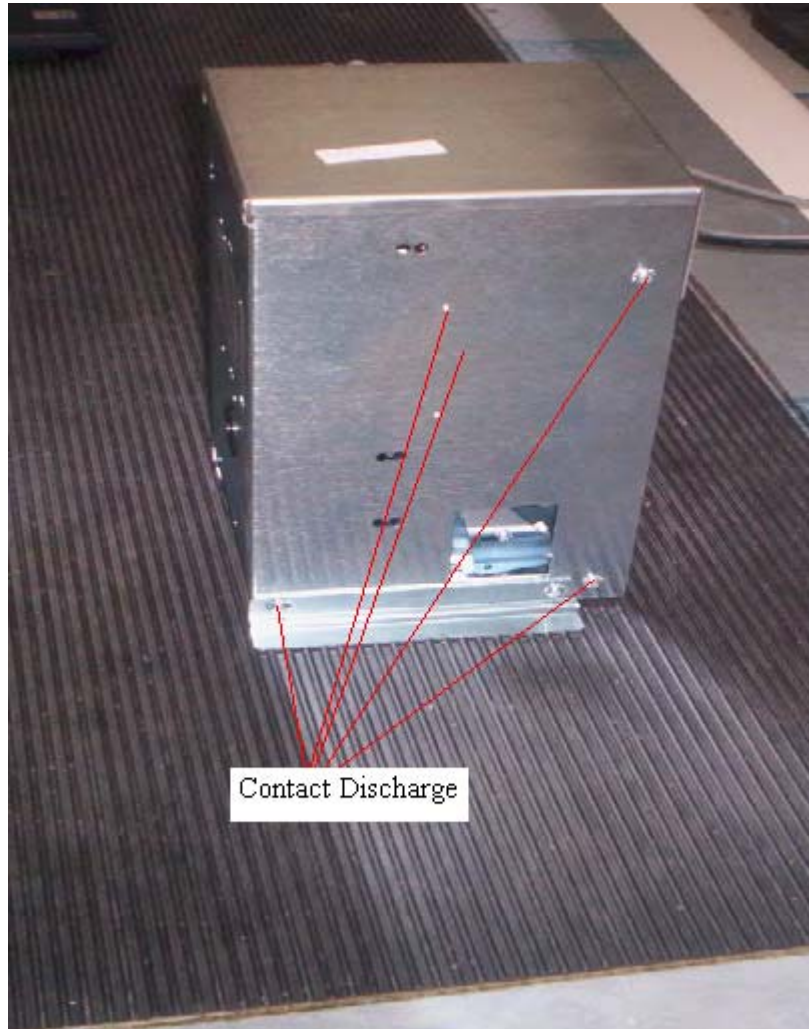
Setup Photos



Electrostatic Discharge Test Location Points



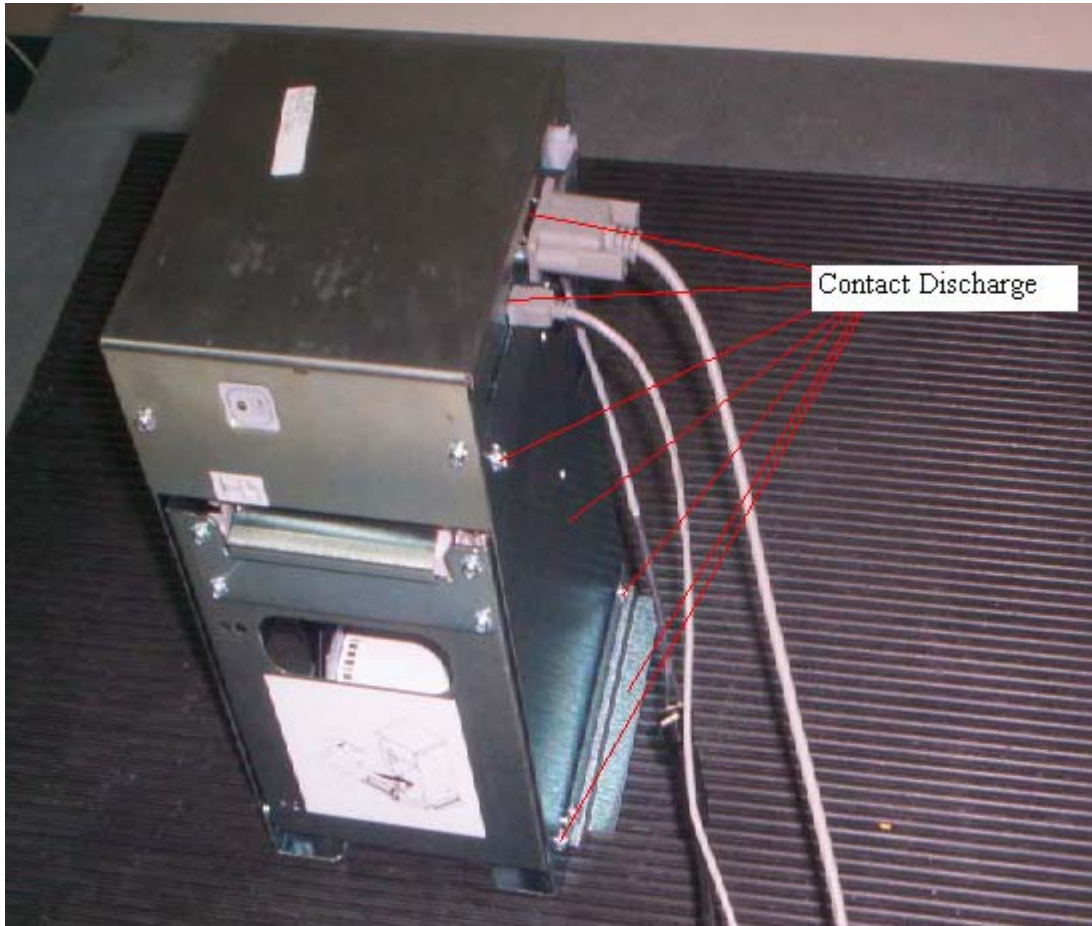
Electrostatic Discharge Test Location Points, continued



Electrostatic Discharge Test Location Points, continued



Electrostatic Discharge Test Location Points, continued





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Report No: 98632-2R1TRFEMC

Radio-Frequency Electromagnetic Field Amplitude Modulated

Test Date: Jan 15, 2008

Engineer's Name: Sumeet Bhalla

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): All EUT clock frequencies within specified test band. Dwell Time (s): 30

Annex A Frequencies (MHz): 80, 120, 160, 230, 434, 460, 600, 863 and 900 Dwell Time (s): 30

Enclosure Investigated

Facility: Ottawa Chamber

Polarization Assessed: Vertical Horizontal

Sides Assessed: Front Side Rear Side Left Side Right Side

Result: No Degradation

Notes

None

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Radio-Frequency Electromagnetic Field Amplitude Modulated, continued

Test Equipment Used

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Signal Generator	Rhode & Schwarz	SMH	FA000873	Oct. 16/08
Amplifier	AR	250W1000A	FA002038	NCR
Biconical (1) Antenna	EMCO	3109	FA000805	May 05/08
Log Periodic Antenna #4	EMCO	3146	FA001455	April 26/08

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

Setup Photos

