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

Report Number: 98632-1R1TRFEMC

Product Marketing Name: EZ-Load “Standard”

Test Specification:

- FCC 47 CFR Part 15, Subpart B – Verification (USA)
- ICES-003 Issue 4 February 2004 (Canada)
- EN 55022: 1998 (European Union)

Reviewed by: _____ April 10, 2008
Signature Date
David Duchesne, EMC Specialist

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada.
The tests included in this report are within the scope of this accreditation.

Table of Contents

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: Nanoptix
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:

FCC 47 CFR Part 15, Subpart B – Verification (USA)
ICES-003 Issue 4 February 2004 (Canada)
EN 55022: 1998 (European Union)

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 55022: 1998; Class B	TEST RESULT PASS/FAIL/NA
Radiated Disturbance	PASS
Conducted Disturbance at Mains Port	PASS
Conducted Common mode (asymmetric mode) Disturbance at Telecommunication Ports	N/A

- Test Method Used: CISPR 22
- System Power: 230VAC/50Hz
- All tests were performed using measurement apparatus defined in CISPR 16-1. Radiated Emissions were performed on an open area test site within the NSA conforming to the requirements of CISPR16-1.

FCC 47 CFR Part 15, Subpart B for Digital Devices; Class B	TEST RESULT PASS/FAIL/NA
Radiated Disturbance	PASS
Conducted Disturbance at Mains Port	PASS

- Test Method Used: ANSI C63.4-2003
- System Power: 120VAC/60Hz
- The equipment was tested for conducted emissions from 0.15MHz to 30MHz using a 50 microhenry line impedance stabilization network (L.I.S.N.) as described in ANSI C63.4-2003. Peripheral equipment was also operated through a 50 microhenry L.I.S.N.

ICES-003 Issue 4 February 2004; Class B	TEST RESULT PASS/FAIL/NA
Radiated Disturbance	PASS
Conducted Disturbance at Mains Port	PASS

- Test Method Used: CISPR 22
- System Power: 120VAC/60Hz
- All tests were performed using measurement apparatus defined in CISPR 16-1. Radiated Emissions were performed on an open area test site within the NSA conforming to the requirements of CISPR16-1.

Measurement Uncertainty

Measurement	Test Specification	Ulab
Conducted disturbance	9kHz – 150kHz	4.0dB
	150kHz – 30MHz	3.6dB
Radiated disturbance	30MHz – 200MHz *Horizontal polarization*	4.7dB
	200MHz – 1000MHz *Horizontal polarization*	4.7dB
	30MHz – 200MHz *Vertical polarization*	4.9dB
	200MHz – 1000MHz *Vertical polarization*	4.9dB

Accuracy of Measurement
Measurement uncertainty was calculated using the methods described in CISPR 16-4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC measurements and Nemko Canada Inc. procedure EMC/MUC/001 Uncertainty in EMC Measurements.

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.

Deviations from Standard Test Procedure
None

Test Report Revision History	
Issue #	Details of changes made to test report
-	Original Report Issued
R1	Updated Model#

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

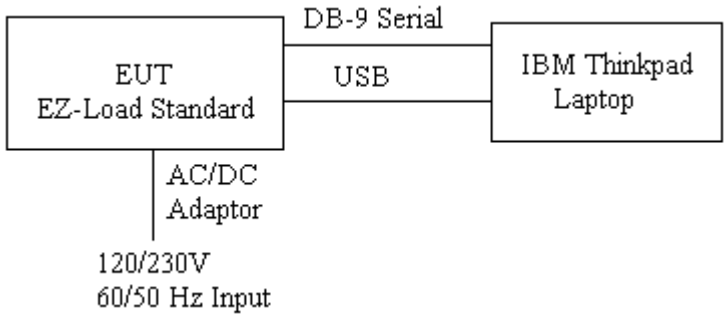
Equipment Configuration

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)



Radiated Disturbance

Test Date: Jan 03, 2008

Engineer's Name: Sumeet Bhalla

Configuration: Table Top

Enclosure Investigation Data

Result: Refer to spectral plots and tables of this section.

Test Location: River Road. 303 River Road, Ottawa, ON, K1V 1H2
Facility: 3m Semi Anechoic Chamber
Measuring Distance: = 3m
Antenna Height: 1-4m

Preview measurements:
30MHz to 1GHz
Receiver settings:
- Peak Detector, Max Hold
- 120kHz RBW

1GHz to 40GHz
Spectrum analyzer settings:
- Peak Detector, Max Hold
- 1MHz RBW/3MHz VBW

Final measurement:
30MHz to 1GHz
Receiver settings:
- Q-Peak Detector
- 120kHz RBW

1GHz to 40GHz
Receiver settings:
- Average Detector
- 1MHz RBW

- The spectral plot is a combined vertical and horizontal scan.
- Spectral plots have been corrected with transducer factors for antennas, cable loss, amplifiers, and attenuators.
- Limits have been adjusted to reflect 3m requirements.
- The preview measurement was generated with receiver in continuous scan mode while the EUT was rotated and antenna adjusted for maximized radiated emission. Emissions detected within 6dB of limit were re-measured with a quasi peak or average detector for a final measurement.

Notes

None

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

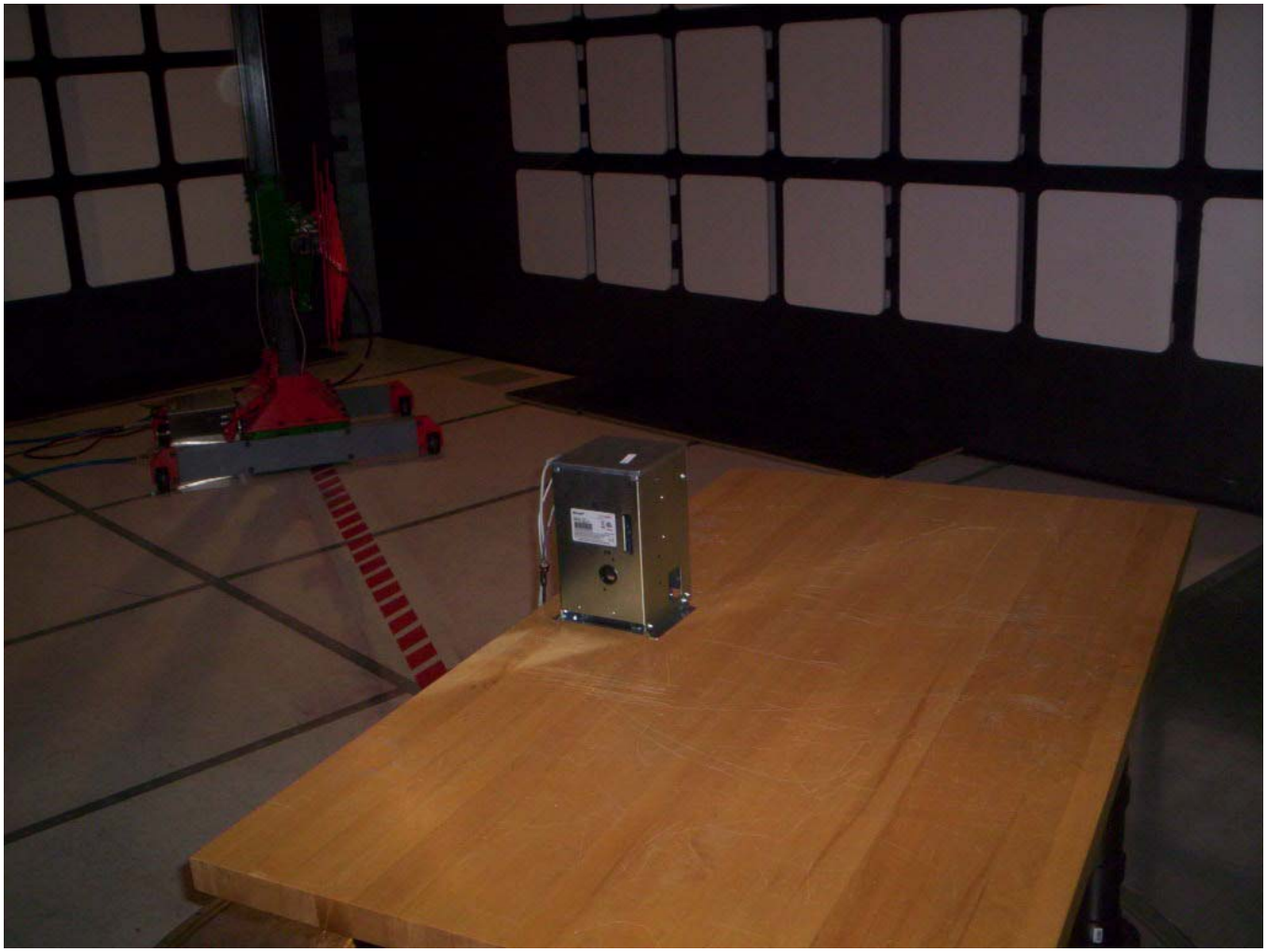
Radiated Disturbance, continued

Test Equipment Used

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Electro-Magnetic Interference Test Chamber	TDK	SAC-3	FA002047	May 19/08
Biconical	Sunol	BC2	FA002078	July 25/08
Log Periodic Antenna	Sunol	LP5	FA002077	July 25/08
Flush Mount Turntable	Sunol	FM2022	FA002082	NCR
Controller	Sunol	SC104V	FA002060	NCR
Mast	Sunol	TLT2	FA002061	NCR
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 40	FA002071	Nov. 15/08
50 Coax cable	HUBER + SUHNER	None	FA002015	Sept. 19/08
50 Coax cable	HUBER + SUHNER	None	FA002074	July 03/08
International Power Supply	California Inst.	3001i	FA001021	Jan. 09/08

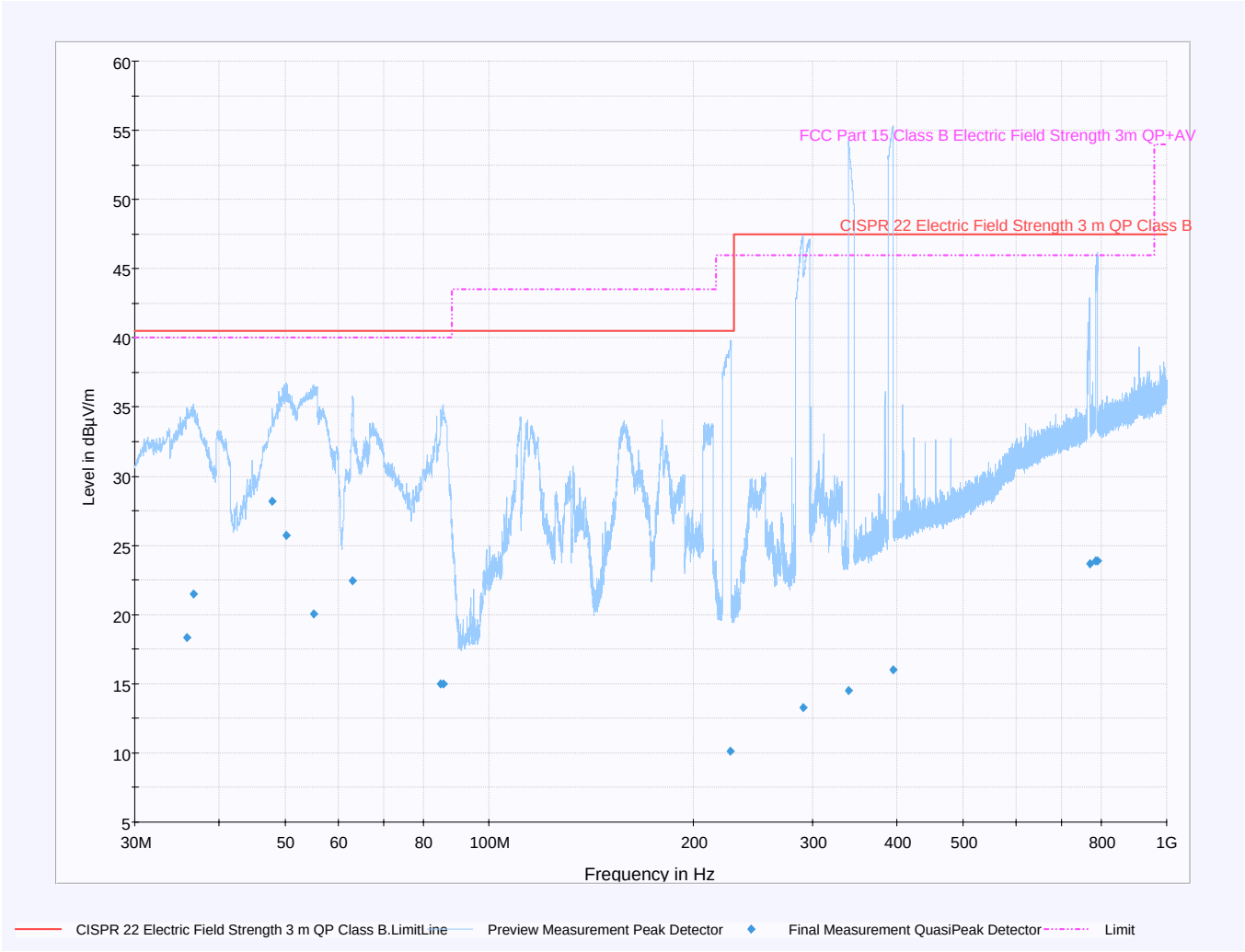
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

Setup Photos



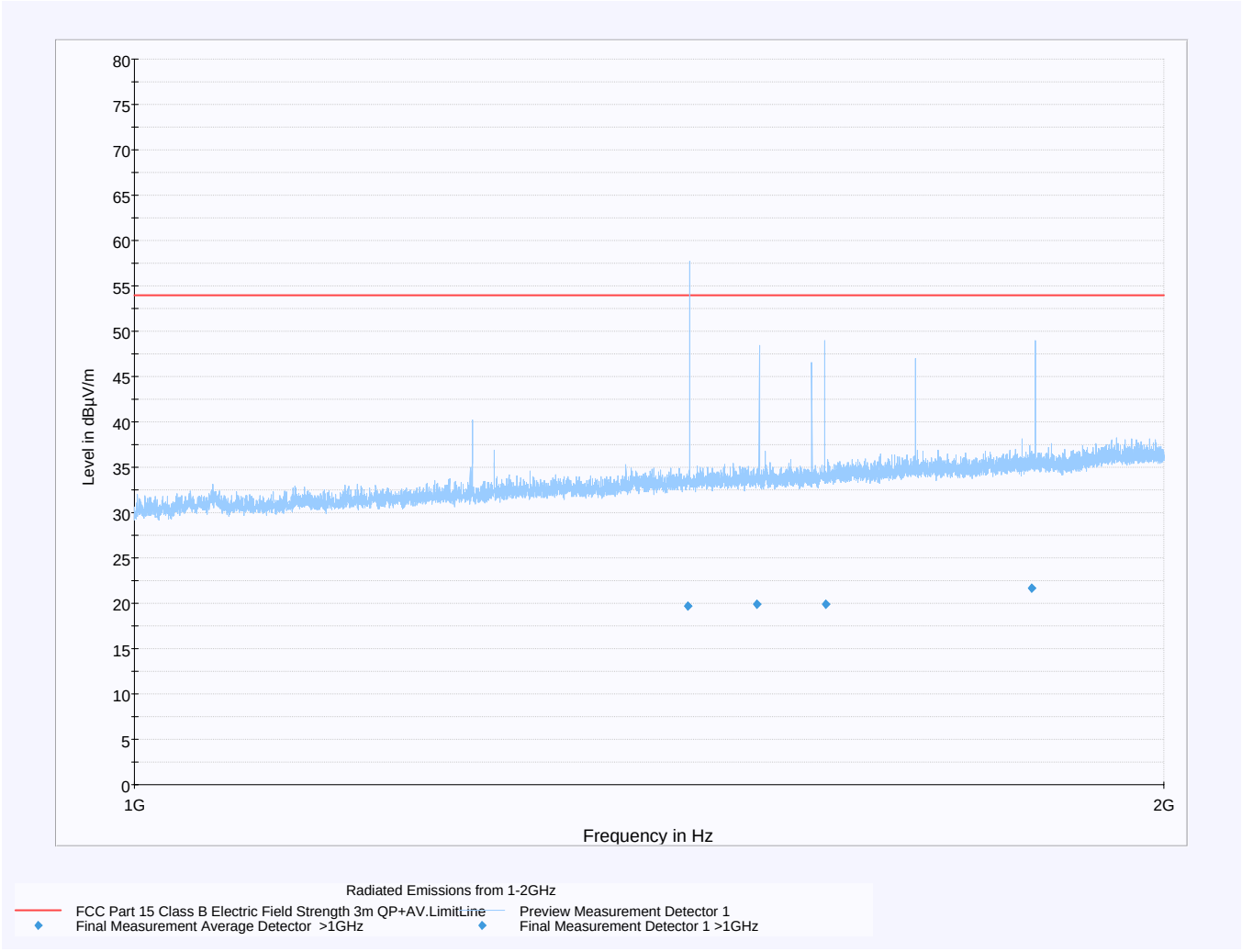
Radiated Disturbance, continued

Spectral Plots



Radiated Disturbance, continued

Spectral Plots, continued



Radiated Disturbance, continued

Tabular Data

EN 55022: 1998, Class B

Freq. (MHz)	Q-Peak Field Strength (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna Height (cm)	Pol.	Turn Table Position	Correction (dB)	Margin (dB)	Limit (dBμV/m)
35.76	18.3	100	120	100	V	138	10.3	22.2	40.5
36.57	21.5	100	120	132	V	180	10.2	19.0	40.5
47.85	28.2	100	120	120	V	236	9	12.3	40.5
50.16	25.7	100	120	111	V	262	8.9	14.8	40.5
55.14	20	100	120	99.9	V	248	9	20.5	40.5
62.94	22.4	100	120	135	V	221	9.3	18.1	40.5
84.93	15	100	120	104.9	V	242	10.3	25.5	40.5
85.53	15	100	120	111	V	250	10.3	25.5	40.5
227.03	10.1	100	120	181	V	272	11.9	30.4	40.5
290.36	13.3	100	120	132	V	4	14.2	34.2	47.5
339.2	14.5	100	120	172	V	24	15.4	33.0	47.5
394.67	16	100	120	138	H	3	17.5	31.5	47.5
769.7	23.7	100	120	368	H	30	23.5	23.8	47.5
785.09	23.9	100	120	401.9	H	0	23.8	23.6	47.5
790.82	23.9	100	120	382	H	30	23.9	23.6	47.5

FCC 47 CFR Part 15, Subpart B for Digital Devices; Class B

Freq. (MHz)	Average Field Strength (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna Height (cm)	Pol.	Turn Table Position	Correction (dB)	Margin (dB)	Limit (dBμV/m)
35.76	18.3	100	120	100	V	138	10.3	21.7	40.0
36.57	21.5	100	120	132	V	180	10.2	18.5	40.0
47.85	28.2	100	120	120	V	236	9	11.8	40.0
50.16	25.7	100	120	111	V	262	8.9	14.3	40.0
55.14	20	100	120	99.9	V	248	9	20.0	40.0
62.94	22.4	100	120	135	V	221	9.3	17.6	40.0
84.93	15	100	120	104.9	V	242	10.3	25.0	40.0
85.53	15	100	120	111	V	250	10.3	25.0	40.0
227.03	10.1	100	120	181	V	272	11.9	35.9	46.0
290.36	13.3	100	120	132	V	4	14.2	32.7	46.0
339.2	14.5	100	120	172	V	24	15.4	31.5	46.0
394.67	16	100	120	138	H	3	17.5	30.0	46.0
769.7	23.7	100	120	368	H	30	23.5	22.3	46.0
785.09	23.9	100	120	401.9	H	0	23.8	22.1	46.0
790.82	23.9	100	120	382	H	30	23.9	22.1	46.0

Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.

Radiated Disturbance, continued

Tabular Data, continued

ICES-003 Issue 4 February 2004; Class B

35.76	18.3	100	120	100	V	138	10.3	22.2	40.5
36.57	21.5	100	120	132	V	180	10.2	19.0	40.5
47.85	28.2	100	120	120	V	236	9	12.3	40.5
50.16	25.7	100	120	111	V	262	8.9	14.8	40.5
55.14	20	100	120	99.9	V	248	9	20.5	40.5
62.94	22.4	100	120	135	V	221	9.3	18.1	40.5
84.93	15	100	120	104.9	V	242	10.3	25.5	40.5
85.53	15	100	120	111	V	250	10.3	25.5	40.5
227.03	10.1	100	120	181	V	272	11.9	30.4	40.5
290.36	13.3	100	120	132	V	4	14.2	34.2	47.5
339.2	14.5	100	120	172	V	24	15.4	33.0	47.5
394.67	16	100	120	138	H	3	17.5	31.5	47.5
769.7	23.7	100	120	368	H	30	23.5	23.8	47.5
785.09	23.9	100	120	401.9	H	0	23.8	23.6	47.5
790.82	23.9	100	120	382	H	30	23.9	23.6	47.5

Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.

Conducted Disturbance at Mains Port

Test Date: Jan 03, 2008

Engineer's Name: Sumeet Bhalla

Configuration: Table Top

Port Investigation Data

Port under test: AC Mains

Result: Refer to spectral plots and tables of this section.

Test Location: River Road. 303 River Road, Ottawa, ON, K1V 1H2
Facility: 3m Semi Anechoic Chamber

Preview measurements:
0.15MHz to 30MHz
Receiver settings:
- Peak Detector, Max Hold and Average
- 10kHz RBW

Final measurement:
0.15MHz to 30MHz
Receiver settings:
- Q-Peak Detector and Average
- 10kHz RBW

- Spectral plots have been corrected for transducer factors; cable loss, LISN, and attenuator.
- Emissions detected within 6dB of limit were re-measured with a quasi peak or average detector for a final measurement.

Notes

The conducted emissions was performed at multiple voltage levels: 120V/60Hz and 230V/50Hz

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Conducted Disturbance at Mains, continued

Test Equipment Used

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
International Power Supply	California Inst.	3001i	FA001021	Jan. 09/08
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 40	FA002071	Nov. 15/08
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 04/08
50 Coax cable	HUBER + SUHNER	None	FA002015	Sept. 19/08
50 Coax cable	HUBER + SUHNER	None	FA002074	July 03/08

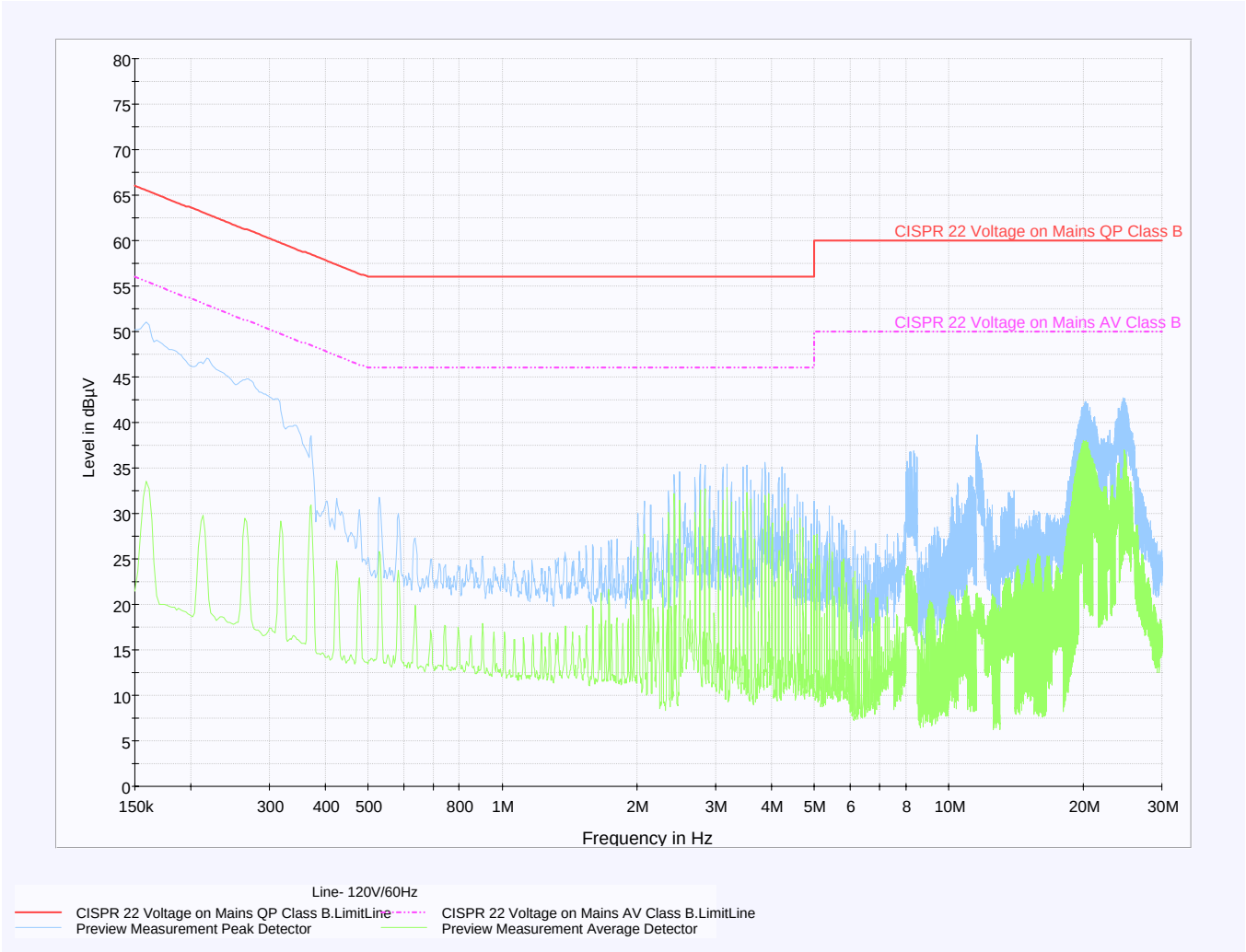
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

Setup Photos

Conducted Disturbance at Mains, continued

Spectral Plots

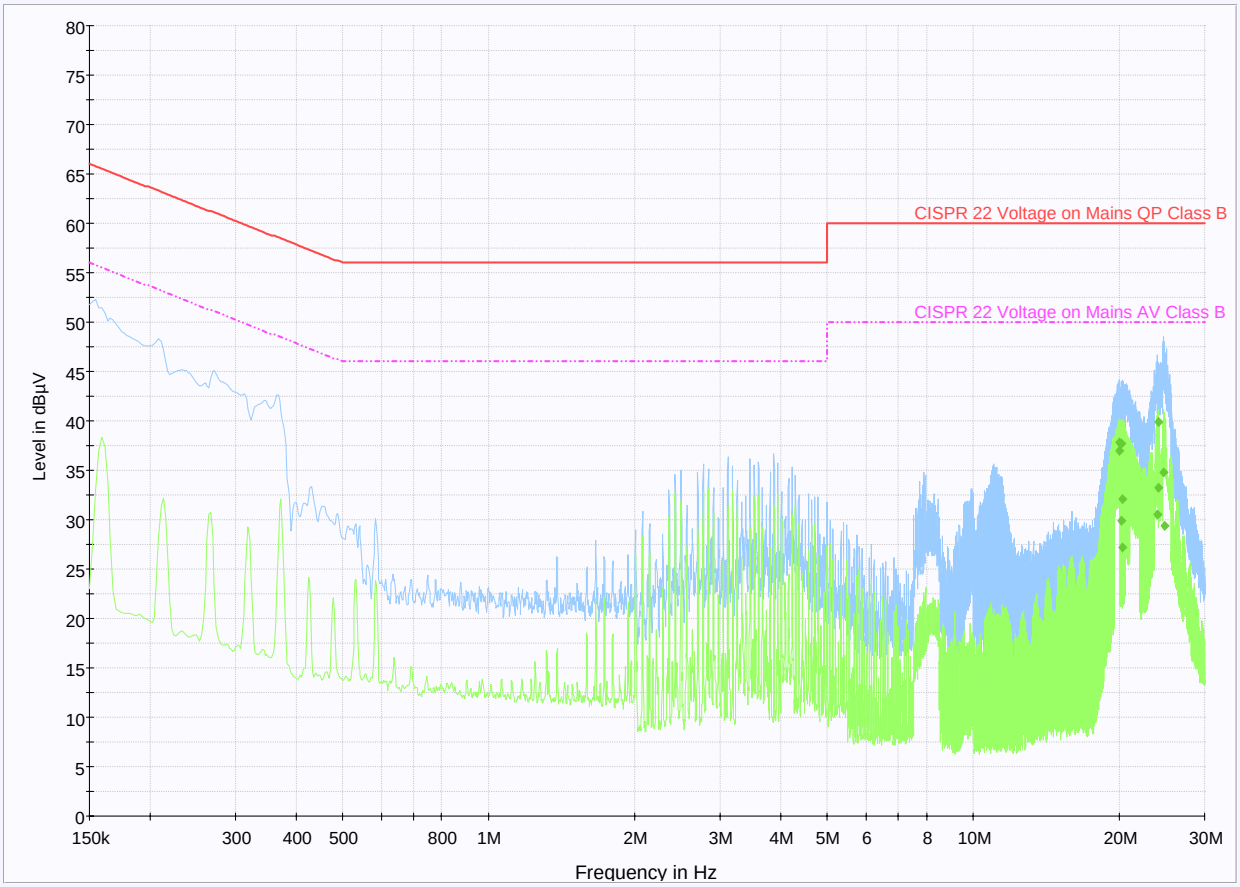
Line- 120V/60Hz



Conducted Disturbance at Mains, continued

Spectral Plots, continued

Neutral- 120V/60Hz



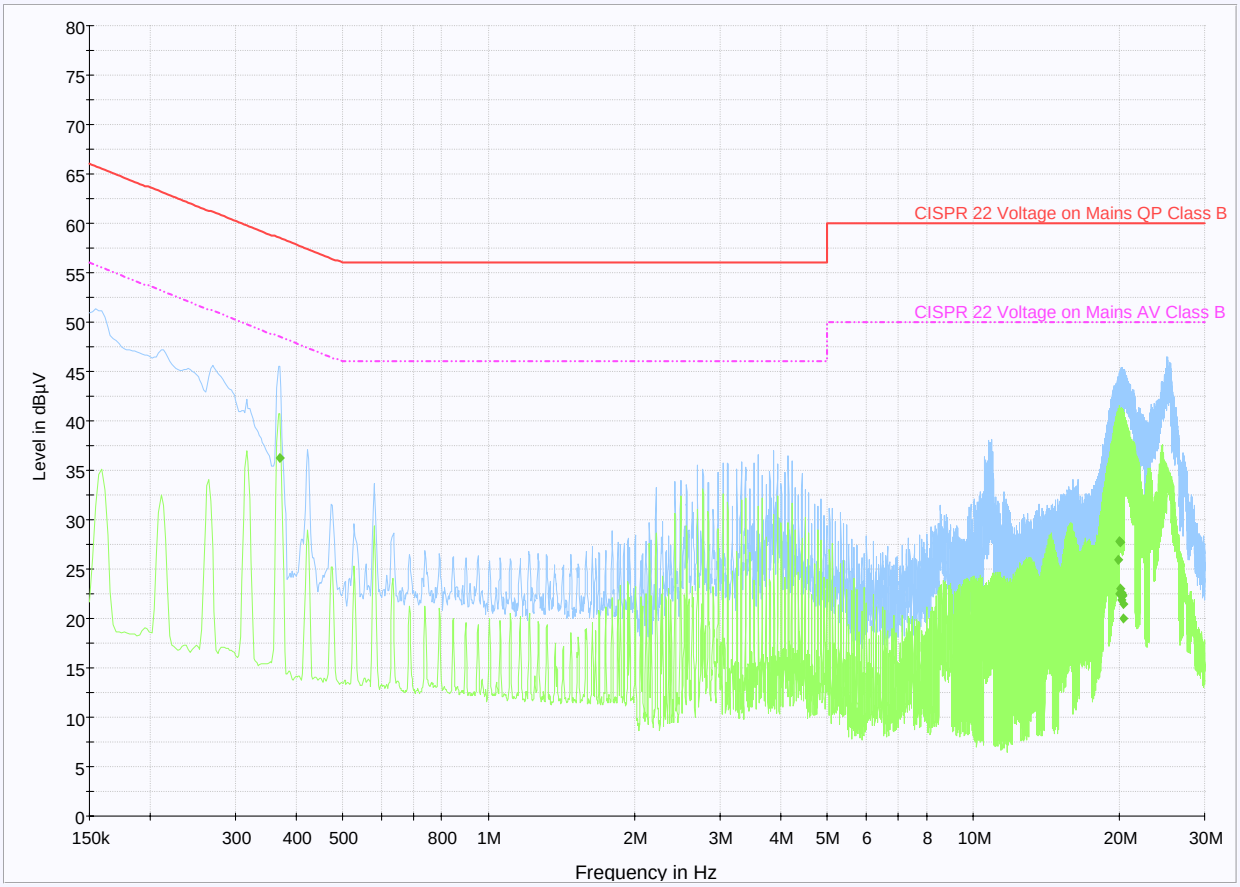
Neutral- 120V/60Hz

CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Measurement Peak Detector
Preview Measurement Average Detector
Final Measurement Average Detector

Conducted Disturbance at Mains, continued

Spectral Plots, continued

Line- 230V/50Hz



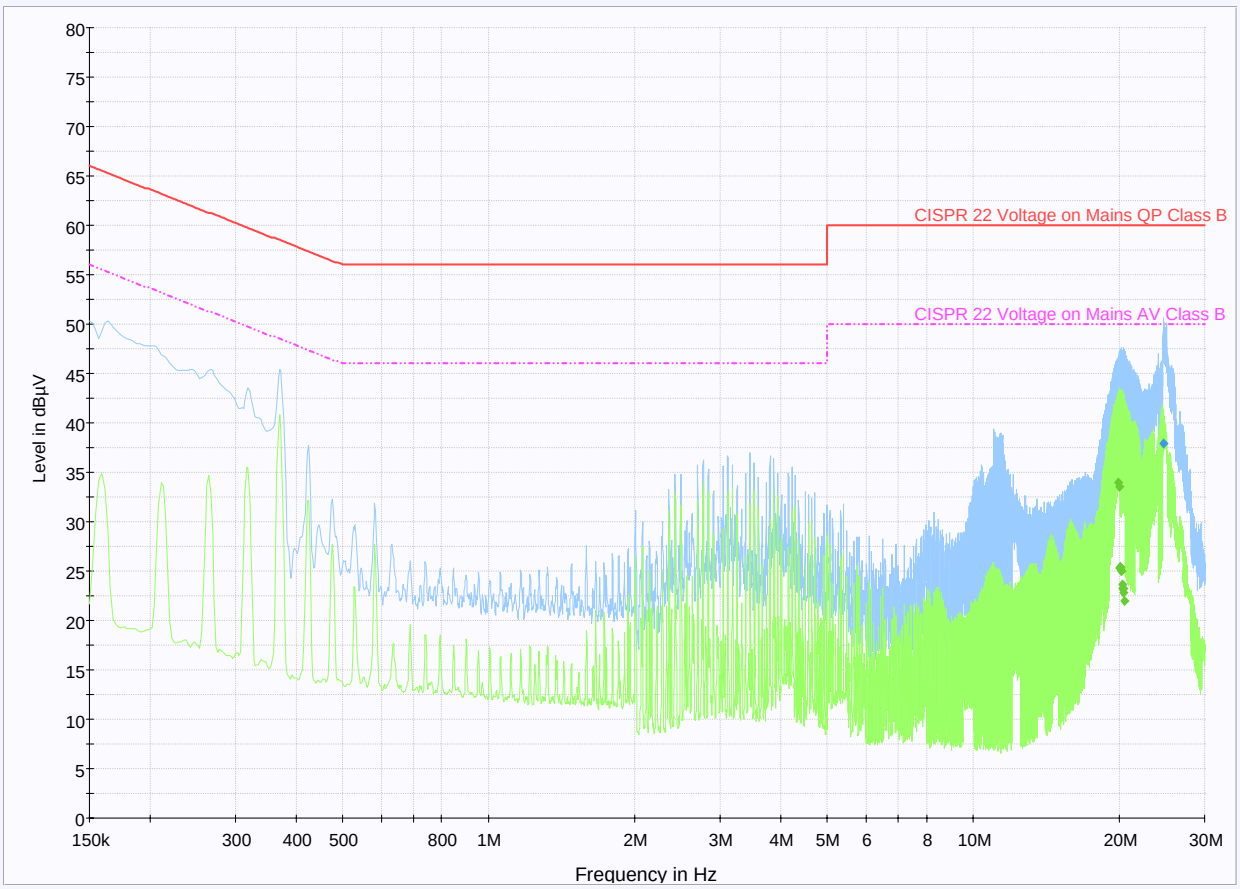
Line- 230V/50Hz

CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Measurement Peak Detector
Preview Measurement Average Detector
Final Measurement Average Detector

Conducted Disturbance at Mains, continued

Spectral Plots, continued

Neutral- 230V/50Hz



Neutral- 230V/50Hz

CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Measurement Peak Detector
Preview Measurement Average Detector
Final Measurement Quasi-Peak Detector
Final Measurement Average Detector