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

Report Number: 94281-2TRFEMC

Product Marketing Name: PayCheck Slim

Test Specification:

- FCC 47 CFR Part 15, Subpart B – Verification (USA)
- ICES-003 Issue 4 February 2004 (Canada)
- EN 55022: 1998 + amendment A1: 2000 + amendment A2: 2003 (European Community)

Reviewed by: _____ November 23, 2007
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: PayCheck Slim	
Model #: 103665	
Trademark: Nanoptix	
Serial #: None	
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 + amendment A1: 2000 + amendment A2: 2003 (European Community)

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 + amendment A1: 2000 + amendment A2: 2003, Class (A)	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 (A)	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 (A)	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

The radiated emissions test was performed at 120V/60Hz power based on the worst case pre-scans as compared with 230V/50Hz.

Deviations from Standard Test Procedure

None

Test Report Revision History

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

General Information Regarding the Equipment Under Test (EUT)

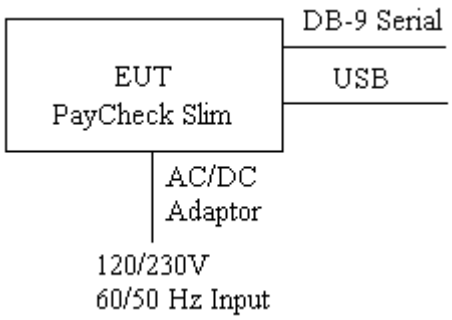
Date Received In Laboratory: Oct 10, 2007
Nemko Identification Number: Item# 1 & 3
Description & Theory of Operation: Ticket will be printed when terminal requests a printout.
EUT Clock and Operational Frequencies: 12MHz (crystal) external, 192MHz internal to DSP processor
Exercise/Monitoring method: Continual Printing Feature. Press paperfeed button once prints one ticket , hold for 5 seconds will print continually. Continual Printing Feature, no errors should occur during testing process, unit will recover if failure occurs.
Software Version: Continual Printing Feature 1.79U

Equipment Configuration

Equipment Configuration List			
Description	Identification: (MN#, SN#, PN#, Rev.)		
PayCheck Slim (EUT)	MN# 103665		
Nanoptix ITE Power Supply	MN# GT-21126-6024, PN# GS-1110		
EUT Ports			
Description	Indoor/Outdoor	Type (See Legend)	Qty
DC Power	Indoor	2	1
USB	Indoor	4	1
DB-9 Serial	Indoor	4	1
Bezel LED Port	Indoor	4	1
Inter-Connection Cables			
Description			Length (m)
DC Power			1
USB			1.5
DB-9 Serial			1.5

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: Nov 14, 2007

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

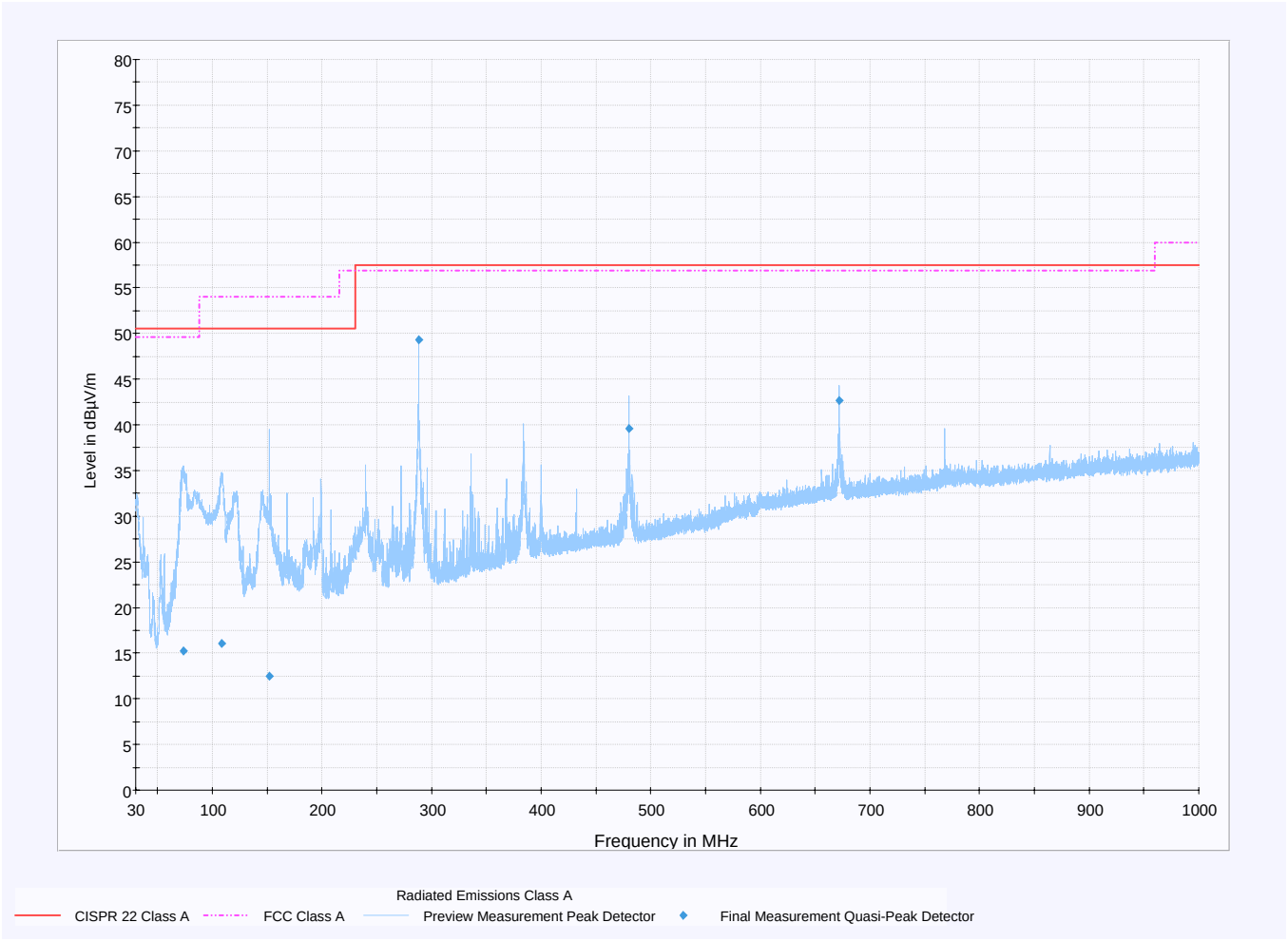
Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Electro-Magnetic Interference Test Chamber 3m	TDK	SAC-3	FA002047	May 19/08
Biconical	Sunol	BC2	FA002078	July 25/08
Log Periodic Antenna	Sunol	LP5	FA002077	July 25/08
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Dec 31/07

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

Setup Photos

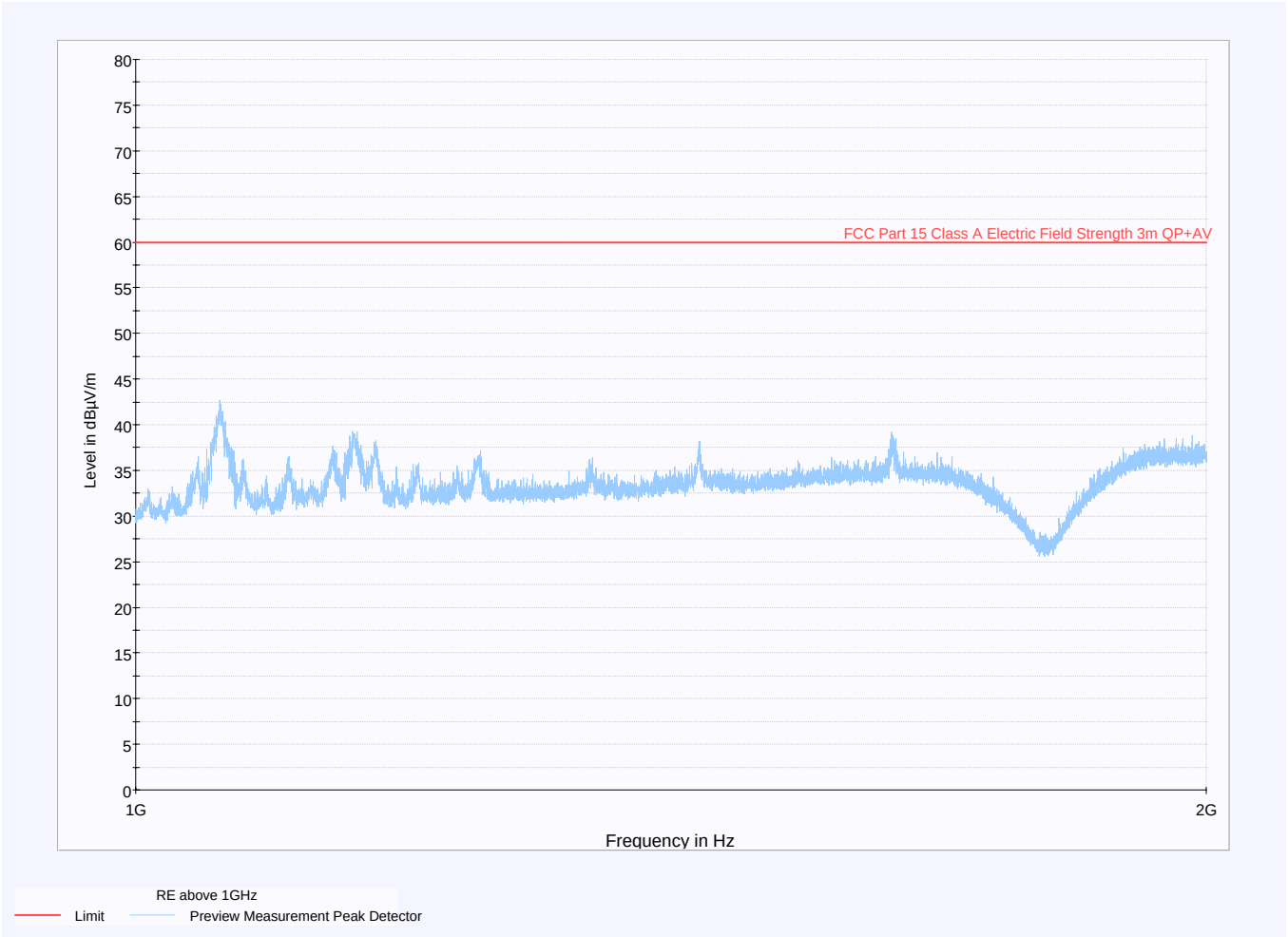
Radiated Disturbance, continued

Spectral Plots



Radiated Disturbance, continued

Spectral Plots, continued



Radiated Disturbance, continued

Tabular Data

EN 55022: 1998 + amendment A1: 2000 + amendment A2: 2003 Class A

Frequency (MHz)	Field Strength (dBμV/m)	Meas. Time	Bandwidth (kHz)	Detector	Pol.	Correction (dB)	Margin (dB)	Limit (dBμV/m)
73.14	15.2	100	120	Quasi-Peak	V	10	35.3	50.5
108.72	16.1	100	120	Quasi-Peak	V	11.5	34.4	50.5
152.01	12.5	100	120	Quasi-Peak	V	12.8	38	50.5
288.02	49.3	100	120	Quasi-Peak	H	14.9	8.2	57.5
480.02	39.6	100	120	Quasi-Peak	V	18.8	17.9	57.5
672.05	42.7	100	120	Quasi-Peak	V	21.6	14.8	57.5

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

ICES-003 Issue 4 February 2004 Class A

Frequency (MHz)	Field Strength (dBμV/m)	Meas. Time	Bandwidth (kHz)	Detector	Pol.	Correction (dB)	Margin (dB)	Limit (dBμV/m)
73.14	15.2	100	120	Quasi-Peak	V	10	35.3	50.5
108.72	16.1	100	120	Quasi-Peak	V	11.5	34.4	50.5
152.01	12.5	100	120	Quasi-Peak	V	12.8	38	50.5
288.02	49.3	100	120	Quasi-Peak	H	14.9	8.2	57.5
480.02	39.6	100	120	Quasi-Peak	V	18.8	17.9	57.5
672.05	42.7	100	120	Quasi-Peak	V	21.6	14.8	57.5

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

FCC 47 CFR Part 15, Subpart B Class A

Frequency (MHz)	Field Strength (dBμV/m)	Meas. Time	Bandwidth (kHz)	Detector	Pol.	Correction (dB)	Margin (dB)	Limit (dBμV/m)
73.14	15.2	100	120	Quasi-Peak	V	10	34.4	49.6
108.72	16.1	100	120	Quasi-Peak	V	11.5	37.9	54
152.01	12.5	100	120	Quasi-Peak	V	12.8	41.5	54
288.02	49.3	100	120	Quasi-Peak	H	14.9	7.6	56.9
480.02	39.6	100	120	Quasi-Peak	V	18.8	17.3	56.9
672.05	42.7	100	120	Quasi-Peak	V	21.6	14.2	56.9

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

Conducted Disturbance at Mains Port

Test Date: Nov 14, 2007

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 EUT was tested at multiple voltages: 120V/60Hz & 230V/50Hz

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Conducted Disturbance at Mains, continued

Test Equipment Used

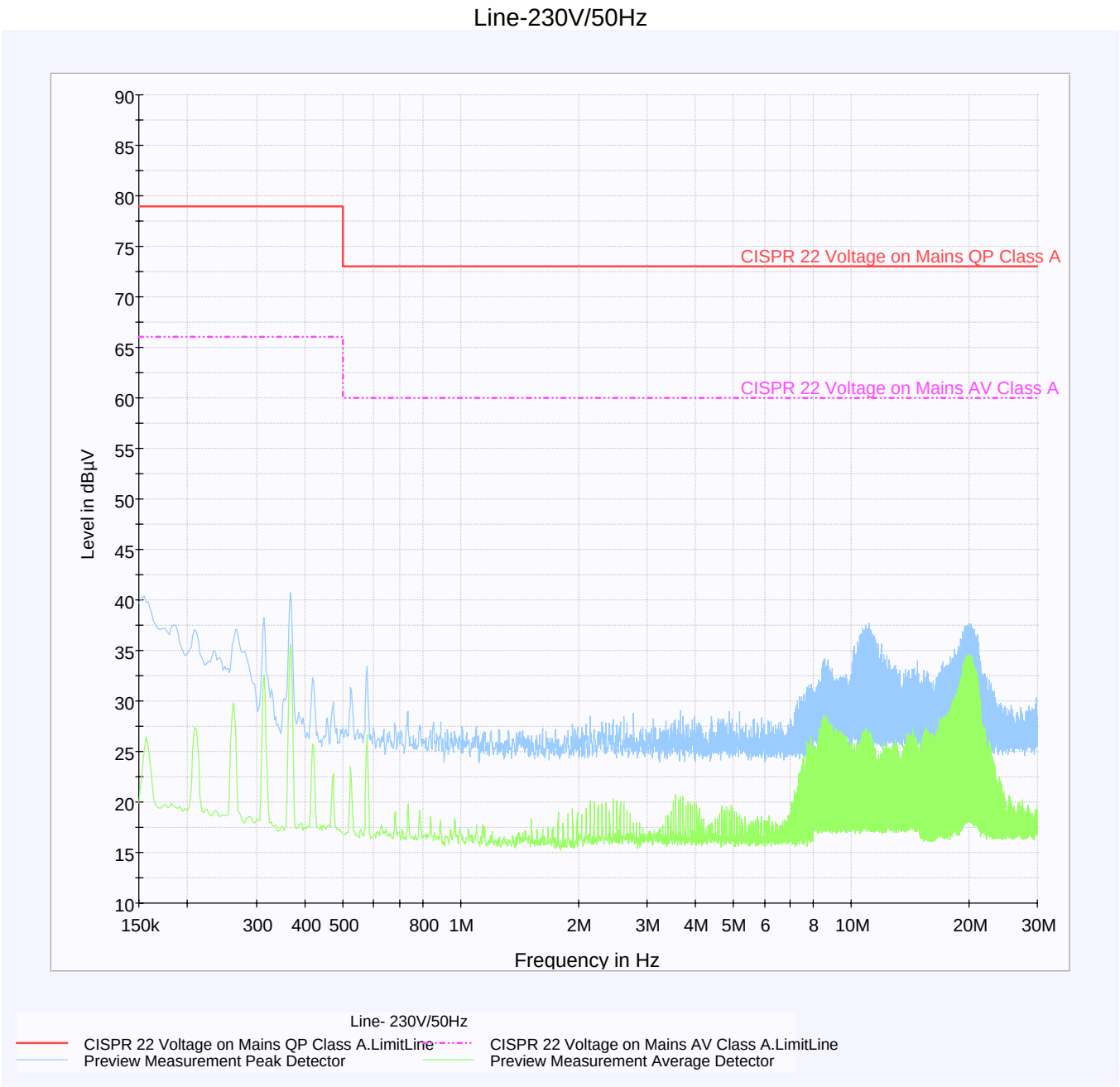
Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Dec. 31/07
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 04/08

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

Setup Photos

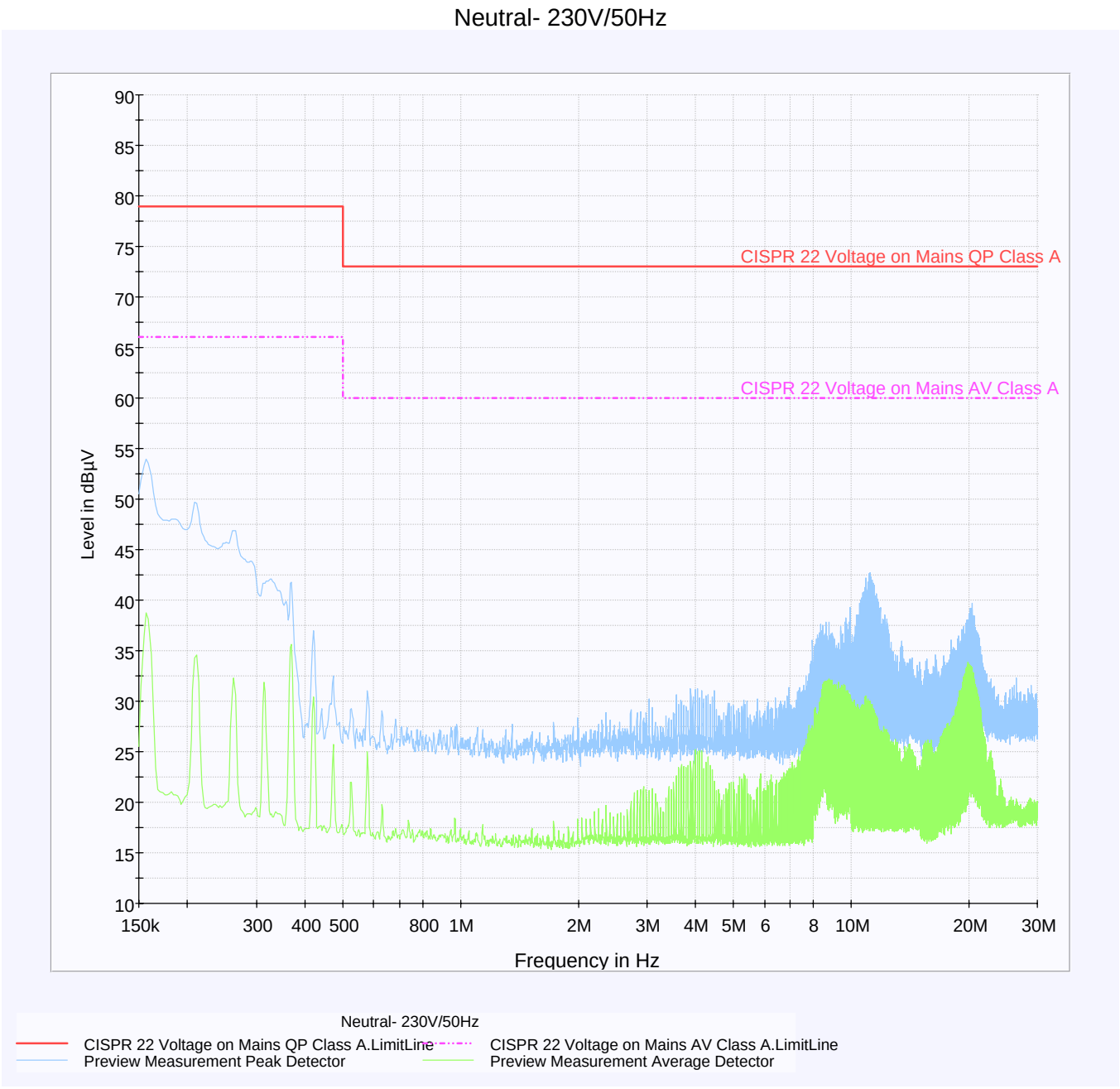
Conducted Disturbance at Mains, continued

Spectral Plots



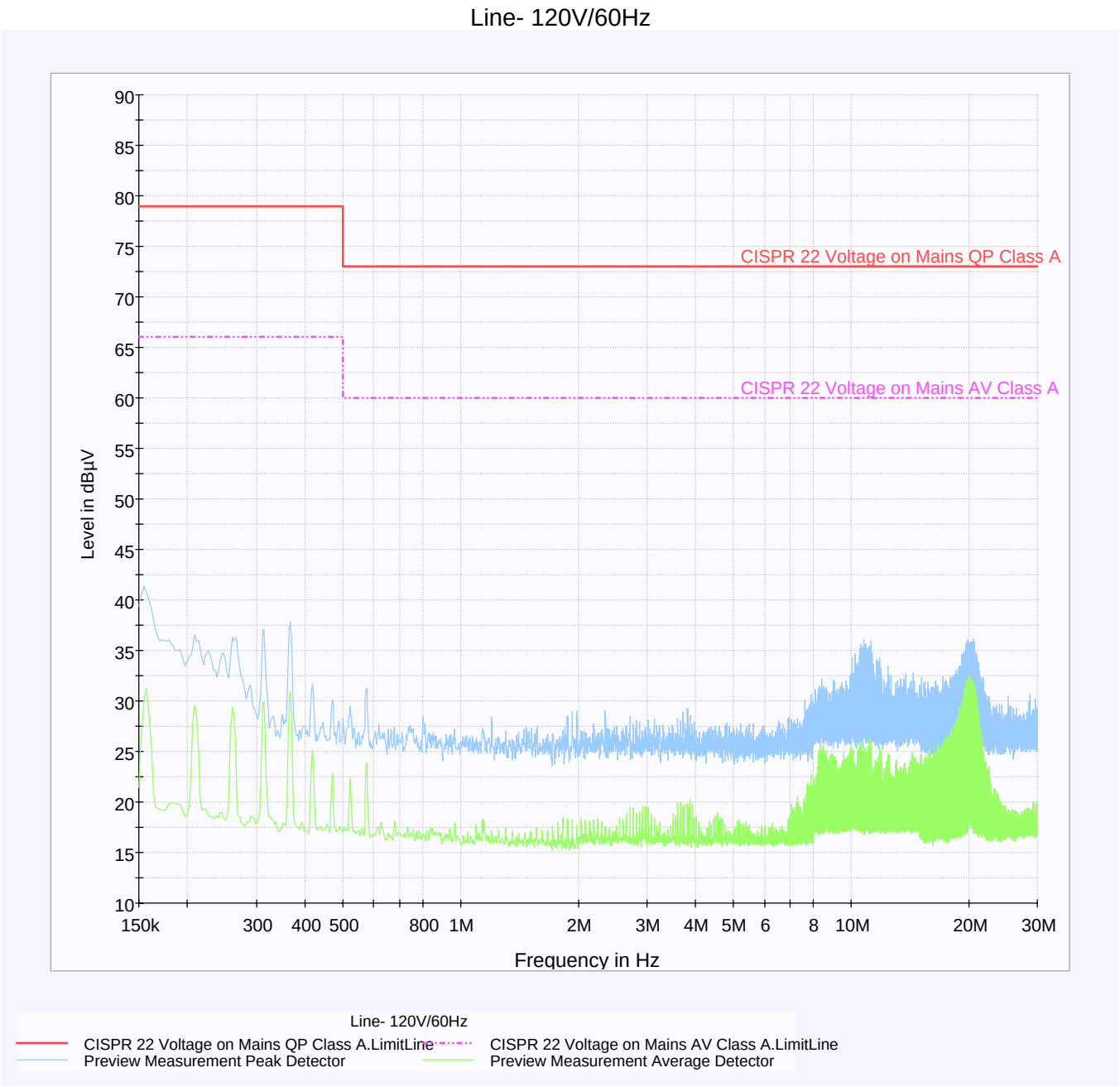
Conducted Disturbance at Mains, continued

Spectral Plots, continued



Conducted Disturbance at Mains, continued

Spectral Plots, continued



Conducted Disturbance at Mains, continued

Spectral Plots, continued