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46390-2049



NvLap Lab Code 200093-0



SL2-IN-E-1119R



Korea KCC-RRL
CA2049

3000 Bristol Circle,
Oakville, Ontario,
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April 16, 2010

Elprotronic Inc.
16 Crossroads Drive
Richmond Hill, Ontario
Canada, L4E 5C9

Attn.: Dr. Gregory Czajkowski
Subject: Verification Testing under CISPR 22:2008-09 / EN 55022:2006
+A1:2007, Class B - Information Technology Equipment.
Product: Flash Programming Adapter
Model No.: USB-FPA

Dear Dr. Czajkowski,

The product sample, as provided by you, has been tested and found to comply with **CISPR 22:2008-09 / EN 55022:2006 +A1:2007, Class B - Information Technology Equipment.**

Enclosed you will find copies of the engineering report. If you have any queries, please do not hesitate to contact us.

Yours truly,

Tri Minh Luu, P. Eng.,
V.P., Engineering

Encl

VERIFICATION CERTIFICATE



NOT TRANSFERABLE

This Verification Certificate is hereby issued to the named GRANTEE and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below:

GRANTEE:	Elprotronic Inc.
Address:	16 Crossroads Drive Richmond Hill, Ontario Canada, L4E 5C9
Contact Person:	Dr. Gregory Czajkowski Phone #: 905-780-5789 Fax #: 905-780-2414 Email Address: Gregory@elprotronic.com

Equipment Type:	Class B - Information Technology Equipment
Product Name:	Flash Programming Adapter
Model No.:	USB-FPA

The above product was tested by UltraTech Engineering Labs Inc. and found to comply with:	European CISPR 22:2008-09 / EN 55022:2006 +A1:2007
Date of Authorization:	April 16, 2010

- Note(s):** See attached report, UltraTech's File No.: ELP-006-CISPR22B, dated April 16, 2010 for details and conditions of Verification Compliance.



Approved by: Tri M. Luu, P.Eng.
V.P. – Engineering

UltraTech

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ENGINEERING TEST REPORT



Flash Programming Adapter Model No.: USB-FPA

Applicant: **Elprotronic Inc.**
16 Crossroads Drive
Richmond Hill, Ontario
Canada, L4E 5C9

Tested in Accordance With

**INTERNATIONAL ELECTROTECHNICAL COMMISSION
(International Special Committee on Radio Interference)
CISPR 22:2008-09 / EN 55022:2006 +A1:2007, CLASS B
Information Technology Equipment - Radio Disturbance Characteristics**

UltraTech's File No.: ELP-006-CISPR22B

This Test report is Issued under the Authority of
Tri M. Luu, Professional Engineer,
Vice President of Engineering
UltraTech Group of Labs

Date: April 16, 2010



Report Prepared by: Phuong Ho

Tested by: Ms. Phuong Ngo & Ms. Nimisha Desai, EMI/EMC Technicians

Issued Date: April 16, 2010

Test Dates: April 13 & 14, 2010

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

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TABLE OF CONTENTS

EXHIBIT 1. INTRODUCTION	3
1.1. SCOPE	3
1.2. RELATED SUBMITTAL(S)/GRANT(S)	3
1.3. NORMATIVE REFERENCES	3
EXHIBIT 2. PERFORMANCE ASSESSMENT	4
2.1. CLIENT INFORMATION	4
2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION	4
2.3. LIST OF COMPONENTS/PARTS OF THE EUT	5
2.4. LIST OF EUT'S PORTS	5
2.5. ANCILLARY EQUIPMENT	5
EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS	7
3.1. CLIMATE TEST CONDITIONS	7
3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TEST SIGNALS	7
3.3. BLOCK DIAGRAM OF TEST SETUP FOR AC POWERLINE CONDUCTED EMISSION & RADIATED EMISSION MEASUREMENTS	8
3.4. PHOTOGRAPHS OF TEST SETUP FOR AC CONDUCTED EMISSION MEASUREMENTS	9
3.5. PHOTOGRAPHS OF TEST SETUP FOR RADIATED EMISSION MEASUREMENTS	11
EXHIBIT 4. SUMMARY OF TEST RESULTS	13
4.1. LOCATION OF TESTS	13
4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS	13
4.3. MODIFICATIONS REQUIRED FOR COMPLIANCE	13
4.4. DEVIATION OF THE STANDARD TEST PROCEDURES	13
EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS	14
5.1. TEST PROCEDURES	14
5.2. MEASUREMENT UNCERTAINTIES	14
5.3. MEASUREMENT EQUIPMENT USED:	14
5.4. AC MAINS TERMINAL DISTURBANCE VOLTAGE IN FREQUENCY BAND 150 kHz TO 30 MHz @ CISPR 22:2008-09 / EN 55022:2006 +A1:2007 [5.1, TABLE 2]	15
5.4.1. <i>Limits</i>	15
5.4.2. <i>Method of Measurements</i>	15
5.4.3. <i>Test Equipment List</i>	15
5.4.4. <i>Test Data</i>	16
5.5. ELECTROMAGNETIC RADIATION DISTURBANCE FROM 30 TO 6000 MHz @ CISPR 22:2008-09 / EN 55022:2006 +A1:2007 [6, TABLES 6 & 9]	18
5.5.1. <i>Limits</i>	18
5.5.2. <i>Method of Measurements</i>	18
5.5.3. <i>Test Equipment List</i>	18
5.5.4. <i>Test Data</i>	19
EXHIBIT 6. MEASUREMENT UNCERTAINTY	20
6.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY	20
6.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY	21
EXHIBIT 7. LABELLING REQUIREMENTS	22
EXHIBIT 8. PHOTOGRAPHS OF EQUIPMENT UNDER TEST	23

EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	CISPR 22:2008-09 / EN 55022:2006 +A1:2007
Title	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
Purpose of Test:	To gain Verification Compliance with CISPR 22:2008-09 / EN 55022:2006 +A1:2007 - Class B.
Test Procedures	Both conducted and Electromagnetic Radiation Disturbance measurements were conducted in accordance with the European Standards CISPR 22:2008-09 / EN 55022:2006 +A1:2007 - Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement.
Class B Classification:	<p>Class B ITE is a category of apparatus which satisfies the Class B ITE disturbance limits.</p> <p>Class B is intended primarily for use in domestic environment; the environment where the use of broadcast radio and television receivers may be expected within a distance of 10m of the apparatus concerned, and may include:</p> <ul style="list-style-type: none"> • Equipment with no fixed place of use; for example portable equipment powered by built-in batteries. • Telecommunication terminal equipment powered by a telecommunication network. • Personal computers and auxiliary connected equipment.

The CISPR standard defines the acceptable levels of Conducted Disturbance at Mains Ports and Radiated Disturbance emanated from electronic products. Countries are known to require CISPR compliance are *Australia, Austria, Belgium, Ireland, France, Italy, Spain, Germany, Netherlands, Portugal, Denmark, Luxembourg, Switzerland, Finland, Norway, Sweden, Iceland, Greenland, New Zealand, Japan, United Kingdom, The United States, Canada and etc*

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None

1.3. NORMATIVE REFERENCES

Publication	Year	Title
CISPR 22 EN 55022 +A1:2007	2008-09, Edition 6.0 2006	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
ANSI C63.4	2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40 GHz
CISPR 16-1-1 +A1 +A2	2006 2006 2007	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus
CISPR 16-1-2 +A1: 2004 +A2: 2006	2003	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

APPLICANT:	
Name:	Elprotronic Inc.
Address:	16 Crossroads Drive Richmond Hill, Ontario Canada, L4E 5C9
Contact Person:	Dr. Gregory Czajkowski Phone #: 905-780-5789 Fax #: 905-780-2414 Email Address: Gregory@elprotronic.com

MANUFACTURER:	
Name:	Elprotronic Inc.
Address:	16 Crossroads Drive Richmond Hill, Ontario Canada, L4E 5C9
Contact Person:	Dr. Gregory Czajkowski Phone #: 905-780-5789 Fax #: 905-780-2414 Email Address: Gregory@elprotronic.com

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name	Elprotronic Inc.
Product Name	Flash Programming Adapter
Model Name or Number	USB-FPA
Serial Number	20100562
Type of Equipment	Information Technology Equipment
Oscillators' Frequencies	24.00 MHz
CPUs' Frequencies	48.00 MHz (CPU), 480.0 MHz (SIE), 1.0 MHz (Aux.CPU)
Power input source:	DC derived from host (from PC via USB)

2.3. LIST OF COMPONENTS/PARTS OF THE EUT

None

2.4. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	USB	1	USB type B	shielded
2	Ribbon cable	1	14-pins header	Non-shielded

2.5. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Brand name:	HP PC Pavilion a1106n
Serial Number:	MXK52707SC
Prod. Number:	PY028AA-ABA
Cable Type:	Shielded
Connected to EUT's Port:	USB

Ancillary Equipment # 2	
Brand name:	Acer LCD Monitor
Model Name or Number:	X223W
Part Number:	EX3WP001
Serial Number:	ETLAZ090478130394A3610
Cable Type:	Shielded
Connected to PC's Port:	HD15

Ancillary Equipment # 3	
Brand name:	Dell Keyboard
Model Name or Number:	RT7D5JTW
Serial Number:	37172-990-2445
Cable Type:	Shielded
Connected to PC's Port:	PS2

Ancillary Equipment # 4	
Brand name:	Microsoft Mouse
Part Number:	X800472-145
PID:	55250-576-2785502-0
Cable Type:	Shielded
Connected to PC's Port:	PS2

Continued...

Ancillary Equipment # 5	
Brand name:	Dell Speaker
Model Name or Number:	CN0D3431-48220-4CL-032φ
Cable Type:	Non-shielded
Connected to PC's Port:	¼ " Jack

Ancillary Equipment # 6	
Brand name:	T Sound Headphone
Model Name or Number:	None
Serial Number:	None
Cable Type:	Non-shielded
Connected to PC's Port:	PS2

EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

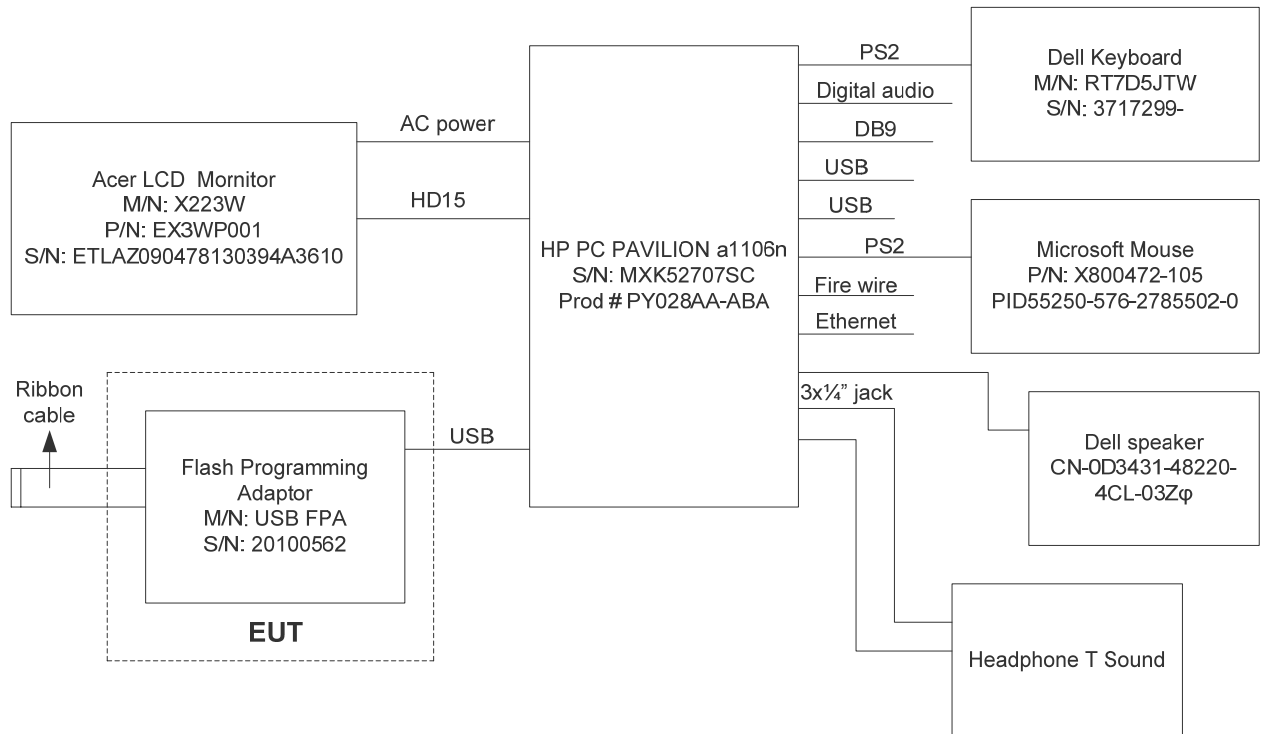
The climate conditions of the test environment are as follows:

Temperature:	21°C
Humidity:	51%
Pressure:	102 kPa
Power input source:	DC derived from host (from PC via USB)

3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TEST SIGNALS

The USB-FPA Flash Programming Adapter, powered from PC via USB cable is dedicated to program the microcontroller's flash memory or communicate with the microcontroller's for debugging purpose. PC software is making communication with the USB-FPA during the test.

3.3. BLOCK DIAGRAM OF TEST SETUP FOR AC POWERLINE CONDUCTED EMISSION & RADIATED EMISSION MEASUREMENTS



3.4. PHOTOGRAPHS OF TEST SETUP FOR AC CONDUCTED EMISSION MEASUREMENTS





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File #: ELP-006-CISPR22B

April 16, 2010

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

3.5. PHOTOGRAPHS OF TEST SETUP FOR RADIATED EMISSION MEASUREMENTS





EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Powerline Conducted Emissions were performed in UltraTech's shielded room, 16'(L) by 12'(W) by 12'(H).
- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site has been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2011-05-01.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

CISPR 22 EN 55022	TEST REQUIREMENTS	MARGIN BELOW (-)/ ABOVE (+) THE LIMITS	COMPLIANCE (YES/NO)
5.1, Table 2, Class B	AC Mains Terminal Disturbance Voltage in the frequency band 150 kHz to 30 MHz	- 9.8 dB @ 0.153 MHz	Yes
6, Table 6, Class B	Electromagnetic Radiation Disturbance in the frequency band 30 to 6000 MHz	- 3.1 dB @ 900.00 MHz	Yes

4.3. MODIFICATIONS REQUIRED FOR COMPLIANCE

None

4.4. DEVIATION OF THE STANDARD TEST PROCEDURES

None

EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

5.1. TEST PROCEDURES

Please refer to Ultratech Test Procedures, File# ULTR-P001-2004, CISPR 22 / EN 55022, CISPR 16-1-2 and CISPR 16-2-3 for Test Procedures.

5.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with requirements of UKAS Document LAB 34 with a confidence level of 95%. Please refer to Exhibit 6 for Measurement Uncertainties.

5.3. MEASUREMENT EQUIPMENT USED:

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4, and CIPSR 16-1-1,

5.4. AC MAINS TERMINAL DISTURBANCE VOLTAGE IN FREQUENCY BAND 150 KHZ TO 30 MHZ @ CISPR 22:2008-09 / EN 55022:2006 +A1:2007 [5.1, TABLE 2]

5.4.1. Limits

The equipment shall meet the limits of the following table:

CISPR 22:2008-09 / EN 55022:2006 +A1:2007 CLASS B LIMITS			
Test Frequency Range (MHz)	Quasi-Peak (dB μ V)	Average* (dB μ V)	Measuring Bandwidth
0.15 to 0.5	66 to 56*	56 to 46*	RBW = 9 kHz VBW \geq 9 kHz for QP VBW = 1 Hz for Average
0.5 to 5	56	46	RBW = 9 kHz VBW \geq 9 kHz for QP VBW = 1 Hz for Average
5 to 30	60	50	RBW = 9 kHz VBW \geq 9 kHz for QP VBW = 1 Hz for Average

- Decreasing linearly with logarithm of frequency

5.4.2. Method of Measurements

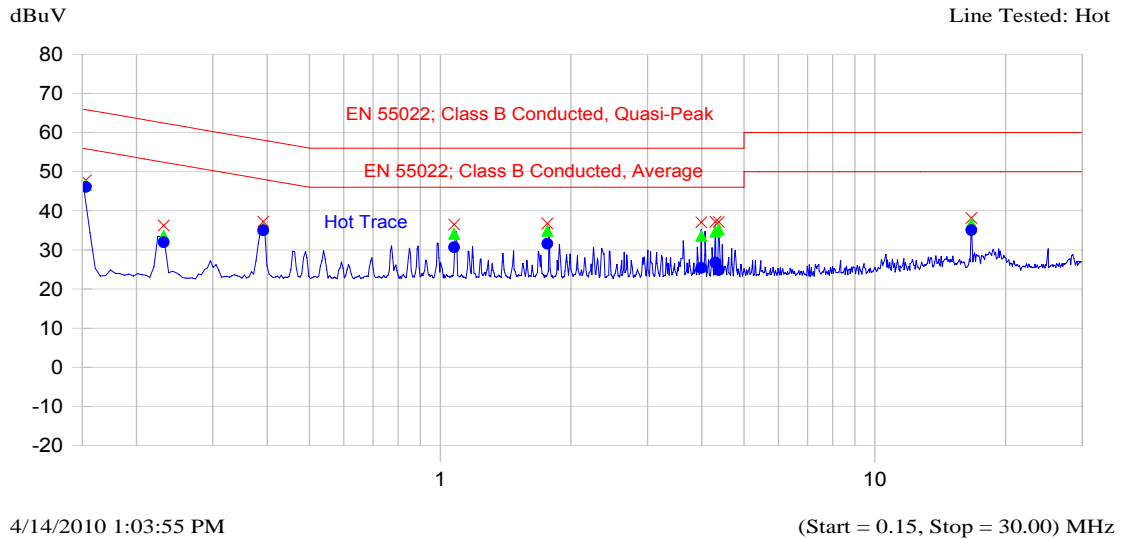
Refer to Test Procedures ULTR P001-2004, CISPR 22 / EN 55022, ANSI C63-4

5.4.3. Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
EMI Receiver System/Spectrum Analyzer	Hewlett Packard	HP 8546A	3650A00371	9kHz-6.5GHz, 50 Ohms
Transient Limiter	Pasternack	PE7010-20	---	DC to 2 GHz 20dB attenuation
L.I.S.N.	EMCO	3825/2R	1165	10 kHz – 30 MHz
12'x16'x12' RF Shielded Chamber	RF Shielding

5.4.4. Test Data

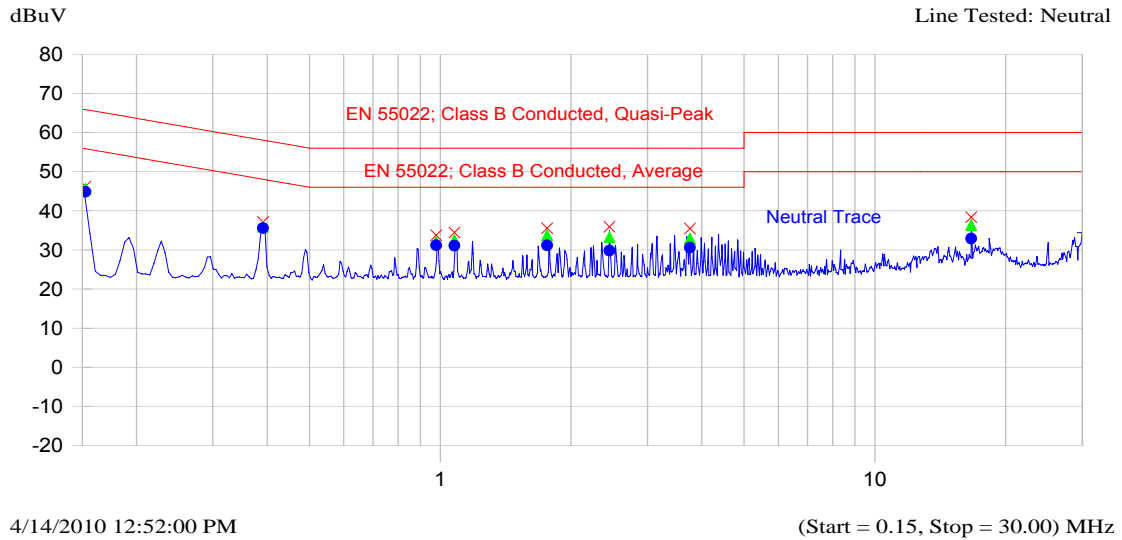
Current Graph



Current List

Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
0.153	47.8	46.5	-19.4	46.1	-9.8	Hot Trace
0.231	36.2	33.6	-30.1	31.9	-21.7	Hot Trace
0.391	37.2	35.5	-23.5	35.0	-14.0	Hot Trace
1.076	36.5	34.1	-21.9	30.6	-15.4	Hot Trace
1.765	36.7	34.9	-21.1	31.5	-14.5	Hot Trace
3.990	37.0	33.5	-22.5	25.4	-20.6	Hot Trace
4.296	37.2	34.6	-21.4	26.7	-19.3	Hot Trace
4.375	37.1	35.2	-20.8	24.8	-21.2	Hot Trace
16.677	38.1	36.7	-23.3	35.1	-14.9	Hot Trace

Current Graph



Current List

Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
0.153	46.2	45.6	-20.3	44.9	-11.1	Neutral Trace
0.391	37.1	36.0	-23.1	35.6	-13.5	Neutral Trace
0.979	33.7	32.0	-24.0	31.2	-14.8	Neutral Trace
1.078	34.4	32.5	-23.5	31.1	-14.9	Neutral Trace
1.763	35.6	33.7	-22.3	31.2	-14.8	Neutral Trace
2.452	35.9	33.3	-22.7	29.8	-16.2	Neutral Trace
3.757	35.4	32.8	-23.2	30.6	-15.4	Neutral Trace
16.670	38.4	36.4	-23.6	32.9	-17.1	Neutral Trace

5.5. ELECTROMAGNETIC RADIATION DISTURBANCE FROM 30 TO 6000 MHZ @ CISPR 22:2008-09 / EN 55022:2006 +A1:2007 [6, TABLES 6 & 9]

5.5.1. Limits

Test Frequency Range (MHz)	Class B Limits @ 10m (dB μ V/m)	EMI Detector Used	Measuring Bandwidth (kHz)	Measurement Distance (meters)
30 – 230	30.0	Quasi-Peak	RBW = 120 kHz, VBW \geq 120 kHz	10
230 – 1000	37.0	Quasi-Peak	RBW = 120 kHz, VBW \geq 120 kHz	10
1000 – 3000	70.0 50.0	Peak Average	RBW = 1 MHz, VBW \geq 1 MHz	3
3000 – 6000	74.0 54.0	Peak Average	RBW = 1 MHz, VBW \geq 1 MHz	3

5.5.2. Method of Measurements

Refer to Exhibit 7 of this report, CISPR 22:2008-09 / EN 55022:2006 +A1:2007, CISPR 16-1-1 and ANSI C63.4
The EUT shall be scanned from 30 to 6000 MHz.

5.5.3. Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
EMI Receiver	Rohde & Schawrz	ESU 40	100037	20 Hz to 40 GHz
Pre Amplifier	AH System	PAM-0118	225	20 MHz to 18 GHz
Biconilog Antenna	EMCO	3142	1005	26 – 2 GHz
Horn Antenna	EMCO	3115	5955	1GHz – 18 GHz

5.5.4. Test Data

The emissions were scanned from 30 to 1000 MHz at 10 Meters distance and all emissions less than 20 dB below the limits were recorded.

FREQUENCY (MHz)	RF LEVEL (dBuV/m)	DETECTOR USED (PEAK/QP)	ANTENNA PLANE (H/V)	LIMIT (dBuV/m)	MARGIN (dB)	PASS/ FAIL
49.87	22.7	QP	V	30.0	-7.3	PASS
54.03	25.6	QP	V	30.0	-4.4	PASS
56.92	25.0	PEAK	V	30.0	-5.0	PASS
56.92	25.5	PEAK	H	30.0	-4.5	PASS
59.96	26.5	QP	V	30.0	-3.5	PASS
63.01	25.1	PEAK	V	30.0	-4.9	PASS
66.05	26.4	PEAK	V	30.0	-3.6	PASS
75.35	25.5	PEAK	V	30.0	-4.5	PASS
148.72	22.0	PEAK	V	30.0	-8.0	PASS
148.72	21.9	PEAK	H	30.0	-8.1	PASS
223.43	21.4	QP	V	30.0	-8.6	PASS
223.43	25.6	QP	H	30.0	-4.4	PASS
232.81	24.8	PEAK	V	37.0	-12.2	PASS
232.81	27.0	PEAK	H	37.0	-10.0	PASS
840.54	32.3	PEAK	V	37.0	-4.7	PASS
840.54	31.7	QP	H	37.0	-5.3	PASS
866.18	32.8	PEAK	V	37.0	-4.3	PASS
900.00	33.9	PEAK	H	37.0	-3.1	PASS
960.73	32.9	PEAK	V	37.0	-4.1	PASS

The radiated emissions were scanned from 1 to 6 GHz at 3 meters distance, and no significant RF emissions were found.

EXHIBIT 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 and LAB 34

6.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

CONTRIBUTION (Line Conducted)	PROBABILITY DISTRIBUTION	UNCERTAINTY (dB)	
		9-150 kHz	0.15-30 MHz
EMI Receiver specification	Rectangular	<u>+1.5</u>	<u>+1.5</u>
LISN coupling specification	Rectangular	<u>+1.5</u>	<u>+1.5</u>
Cable and Input Transient Limiter calibration	Normal (k=2)	<u>+0.3</u>	<u>+0.5</u>
Mismatch: Receiver VRC $\Gamma_1 = 0.03$ LISN VRC $\Gamma_R = 0.8(9 \text{ kHz}) 0.2 (30 \text{ MHz})$ Uncertainty limits $20\text{Log}(1+\Gamma_1\Gamma_R)$	U-Shaped	<u>+0.2</u>	<u>+0.3</u>
System repeatability	Std. deviation	<u>+0.2</u>	<u>+0.05</u>
Repeatability of EUT	--	--	--
Combined standard uncertainty	Normal	<u>+1.25</u>	<u>+1.30</u>
Expanded uncertainty U	Normal (k=2)	<u>+2.50</u>	<u>+2.60</u>

Sample Calculation for Measurement Accuracy in 150 kHz to 30 MHz Band:

$$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)} = \pm \sqrt{(1.5^2 + 1.5^2)/3 + (0.5/2)^2 + (0.05/2)^2 + 0.35^2} = \pm 1.30 \text{ dB}$$

$$U = 2u_c(y) = \pm 2.6 \text{ dB}$$

6.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

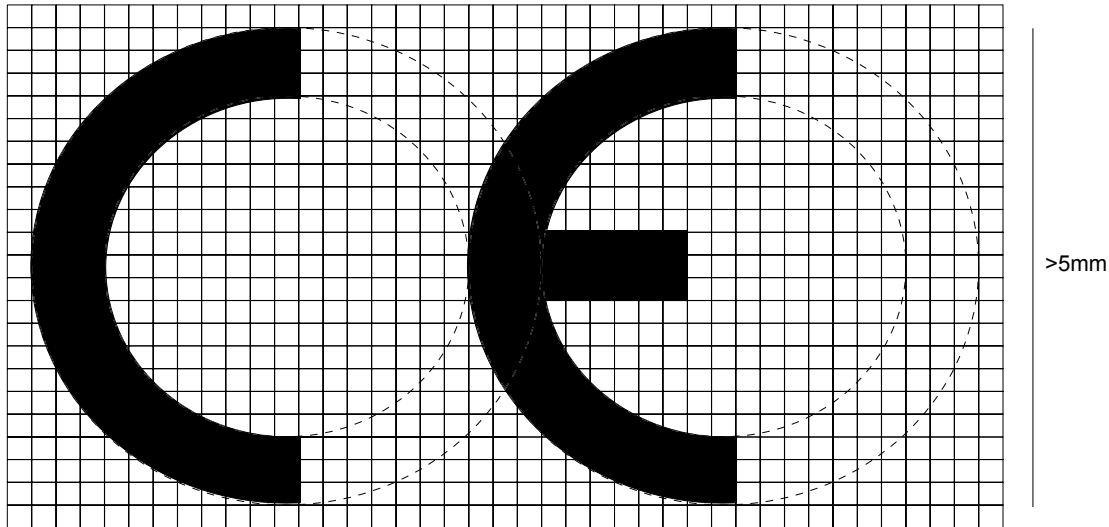
CONTRIBUTION (Electromagnetic Radiation Disturbance)	PROBABILITY DISTRIBUTION	Uncertainty (dB)	
		3 M	10 M
Antenna Factor Calibration	Normal (k=2)	+1.0	+1.0
Cable Loss Calibration	Normal (k=2)	+0.3	+0.5
EMI Receiver specification	Rectangular	+1.5	+1.5
Antenna Directivity	Rectangular	+0.5	+0.5
Antenna factor variation with height	Rectangular	+2.0	+0.5
Antenna phase center variation	Rectangular	0.0	+0.2
Antenna factor frequency interpolation	Rectangular	+0.25	+0.25
Measurement distance variation	Rectangular	+0.6	+0.4
Site imperfections	Rectangular	+2.0	+2.0
Mismatch: Receiver VRC $\Gamma_1 = 0.2$ Antenna VRC $\Gamma_R = 0.67(\text{Bi}) 0.3 (\text{Lp})$ Uncertainty limits $20\text{Log}(1 \pm \Gamma_1 \Gamma_R)$	U-Shaped	+1.1 -1.25	+0.5
System repeatability	Std. Deviation	+0.5	+0.5
Repeatability of EUT		-	-
Combined standard uncertainty	Normal	+2.19 / -2.21	+1.74 / -1.72
Expanded uncertainty U	Normal (k=2)	+4.38 / -4.42	+3.48 / -3.44

Calculation for maximum uncertainty when 10 M biconical antenna including a factor of k=2 is used:

$$U = 2u_c(y) = 2x(+2.19) = +4.38 \text{ dB} \quad \text{And} \quad U = 2u_c(y) = 2x(-2.21) = -4.42 \text{ dB}$$

EXHIBIT 7. LABELLING REQUIREMENTS

The CE Mark with respect to the EMC Directive 2004/108/EC



The CE mark shall consist of the initials “CE” taking the following form

- If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.
- Where apparatus is the subject of other Directives covering other aspects and which also provide for the CE conformity marking, the latter shall indicate that the appliances are also presumed to conform to those other Directives.
- However, where one or more of these Directives allow the manufacturer, during a transitional period, to choose which arrangements to apply, the CE mark shall indicate conformity only to the Directives applied by the manufacturer. In this case, particulars of the Directive applied, as published in the Official Journal of the European Communities, must be given in the documents, notices or instructions required by the Directives and accompanying such apparatus.

The various components of the CE marking must have substantially the same vertical dimension, which may not be less than 5mm.

EXHIBIT 8. PHOTOGRAPHS OF EQUIPMENT UNDER TEST





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All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)