FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7

CERTIFICATION TEST REPORT

FOR

ELECTROMAGNETIC INDUCTIVE RFID MODULE

MODEL NUMBER: V720S-HMC75

FCC ID: OZGV720HMC75
IC: 850L-72HMC75

REPORT NUMBER: 08U12276-1, Revision C

ISSUE DATE: JANUARY 16, 2009

Prepared for
OMRON ELECTRONICS, LLC
ONE COMMERCE DRIVE
SCHAUMBURG, IL 60173, U.S.A.

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	12/16/08	Initial Issue	F. Ibrahim
A	01/12/09	Revised description of class II change	F. Ibrahim
B	01/15/09	Revised description of class II change.	A. Zaffar
C	01/16/09	Revised Fundamental and Second harmonic data, model name, and EUT description	F. Ibrahim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: OMRON ELECTRONICS, LLC
ONE COMMERCE DRIVE
SCHAUMBURG, IL 60173, U.S.A.

EUT DESCRIPTION: ELECTROMAGNETIC INDUCTIVE RFID MODULE

MODEL: V720S-HMC75

SERIAL NUMBER: 0143

DATE TESTED: December 10-12, 2008 and January 14, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 7, Annex 2	Pass
INDUSTRY CANADA RSS-GEN Issue 2	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

FRANK IBRAHIM
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

TOM CHEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an IVD Medical Device (The Electromagnetic Inductive RFID module is manufactured by Omron Electronics, LLC).

Model name and description were changed to V720S-HMC75, and ELECTROMAGNETIC INDUCTIVE RFID MODULE, respectively after performing the testing; therefore all data sheets in this report pertain to model V720S-HMC75.

5.2. DESCRIPTION OF CLASS II CHANGE

A new host was added manufactured by MEC Dynamics Corp., model A1C. The AvieT A1c System provides quantitative measurement of the percent of glycated hemoglobin levels in fingerstick (fresh capillary) whole blood samples. The test is for professional use and physician directed home use at the point of care, to monitor glycemic control in diabetic patients. The AvieT A1c Test System provides a simple, reliable way to monitor glycemic control.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a permanently attached / integral underground loop antenna with a gain of –62 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Ver1.00.

5.5. WORST-CASE CONFIGURATION AND MODE OF OPERATION

EUT was laid out and oriented as in normal operation, and then a tag was taped to the EUT in order to keep the EUT reading the tag continuously. Two configurations were tested; EUT powered by AC adapter, and EUT powered by battery.

5.6. MODIFICATIONS

No modifications were made during testing.

5.7. DESCRIPTION OF TEST SETUP

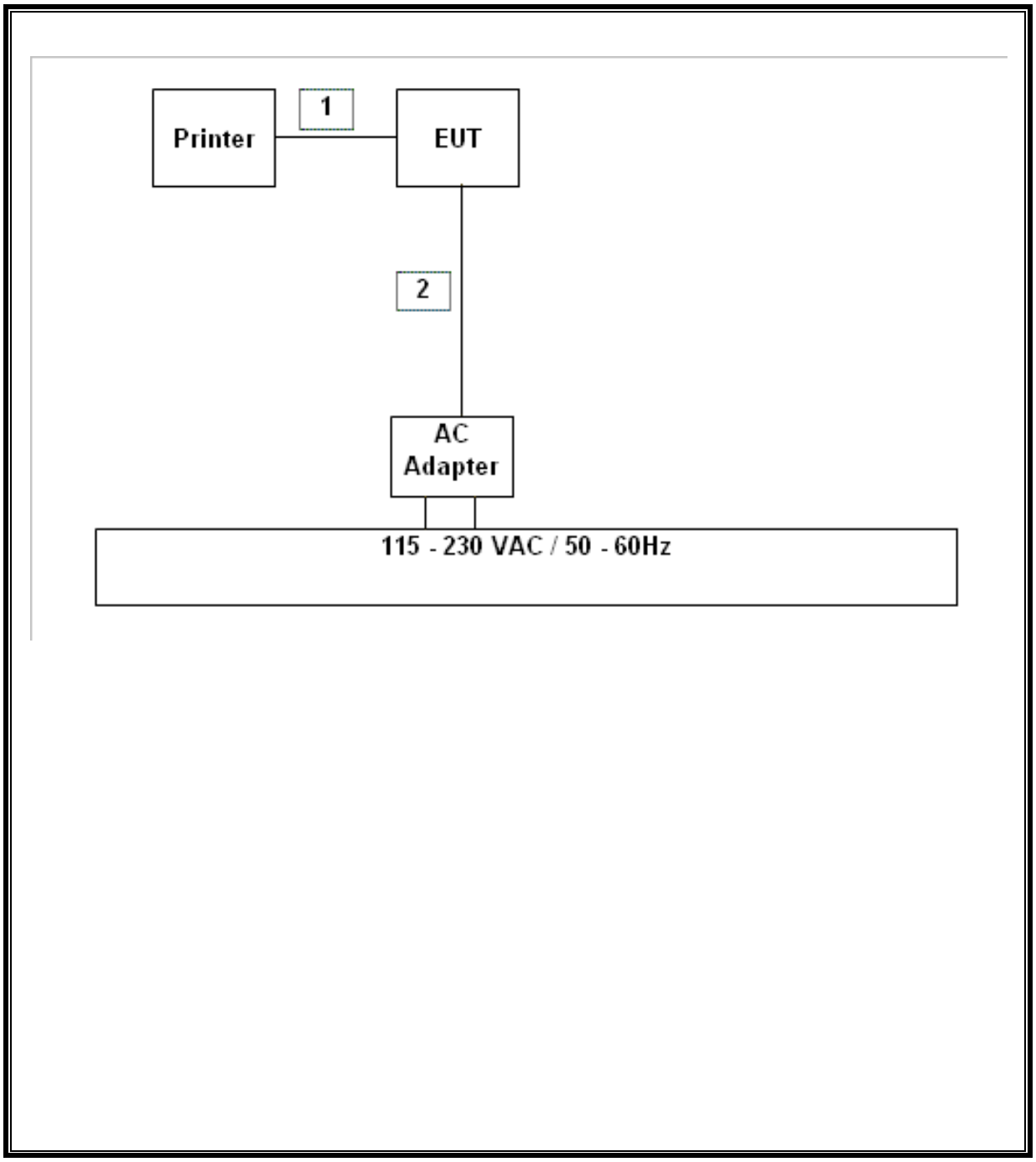
SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
Printer	Martel Instruments	MCP7810	261215296
AC/DC Adapter	ASTEC	DA4-050US	NA

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	Data	1	RJ-11	Un-Shielded	2 m	Ferrite on one end
2	DC	1	Mini-Jack	Un-Shielded	1.5 m	NA

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	09/19/09
EMI Receiver, 2.9 GHz	Agilent / HP	8542E	C00957	09/19/09
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	03/31/09
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	02/11/09
Antenna, Loop, 30 MHz	EMCO	6502	C00593	09/16/10
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4407B	C01101	01/22/09

7. RADIATED EMISSION TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMIT

§15.225
IC RSS-210, Section 2.6 (Transmitter)
IC RSS-GEN, Section 6 (Receiver)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.4

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 30 MHz to the 1000 MHz.

RESULTS

7.1.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz)

TRANSCEIVER FUNDAMENTAL EMISSION

FCC Part 15, Subpart B & C **3 Meter Distance Measurement At Open Field**

Company: MEC Dynamics
Project #: 08U12276
Model #: A1C
Tester: Mengistu Mekuria
Date: 01/14./2009

Frequency (MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Loop Antenna Face On:												
13.56	43.17		N/A	10.56	-40.00	13.73	N/A	84.00	N/A	-70.3	N/A	Fundamental @ 3m Dist
Loop Antenna Face Off:												
13.56	37.33		N/A	10.56	-40.00	7.89	N/A	84.00	N/A	-76.1	N/A	Fundamental @ 3m Dist

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Reading
A.F. = Antenna factor

TRANSCEIVER SPURIOUS EMISSIONS BELOW 30 MHz

FCC Part 15, Subpart B & C **3 Meter Distance Measurement At Open Field**

Company: MEC Dynamics
Project #: 08U12276
Date: 1/14/2009
Test Engineer: Mengistu Mekuria
Configuration: EUT with Printer
Mode: Normal mode

Frequency (MHz)	PK (dBuV)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Loop Antenna Face On:										
27.12	26.00	N/A	9.046	-40.00	-4.95	N/A	29.54	-34.5	N/A	3m distance
Loop Antenna Face Off:										
27.12	22.67		9.046	-40.00	-8.28	-30.95	29.54	-37.8	-60.5	3m distance

Rev. 2.12.08

* No more emissions were found up to 30MHz

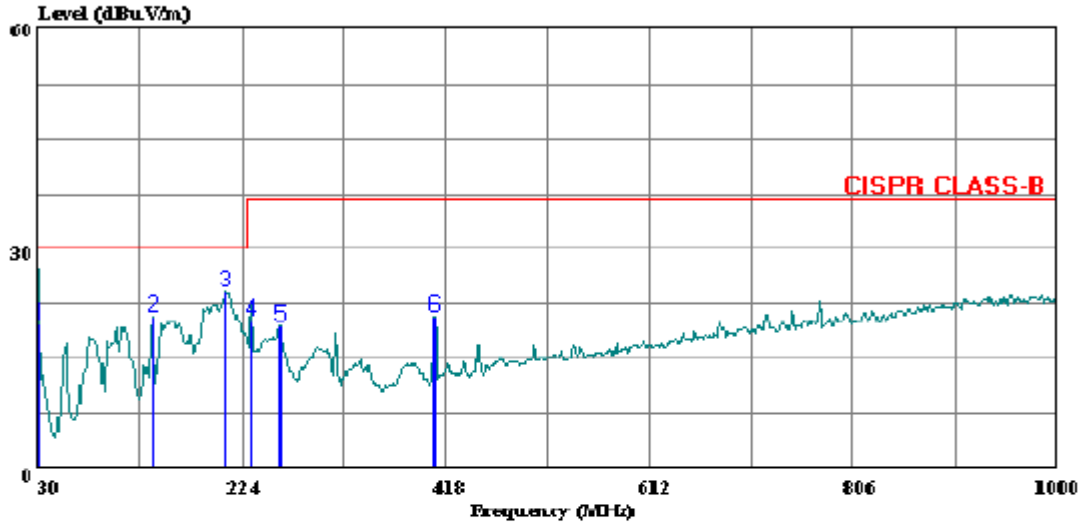
7.1.2. SPURIOUS EMISSIONS (30 – 1000 MHz)

TX SPURIOUS EMISSION 30 TO 1000 MHz (HORIZONTAL) – EUT powered by AC

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 2 File#: 08u12276.EMI Date: 12-10-2008 Time: 10:26:22



Trace: 1 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT and Printer
Mode : : Normal
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	26.86	-7.11	19.75	30.00	-10.25	Peak
2	138.640	34.29	-13.49	20.80	30.00	-9.20	Peak
3	208.480	37.14	-13.02	24.12	30.00	-5.88	Peak
4	233.700	33.33	-13.17	20.16	37.00	-16.84	Peak
5	259.890	32.42	-12.83	19.59	37.00	-17.41	Peak
6	407.330	28.71	-7.94	20.77	37.00	-16.23	Peak

TX SPURIOUS EMISSION 30 TO 1000 MHz (VERTICAL) – EUT powered by AC

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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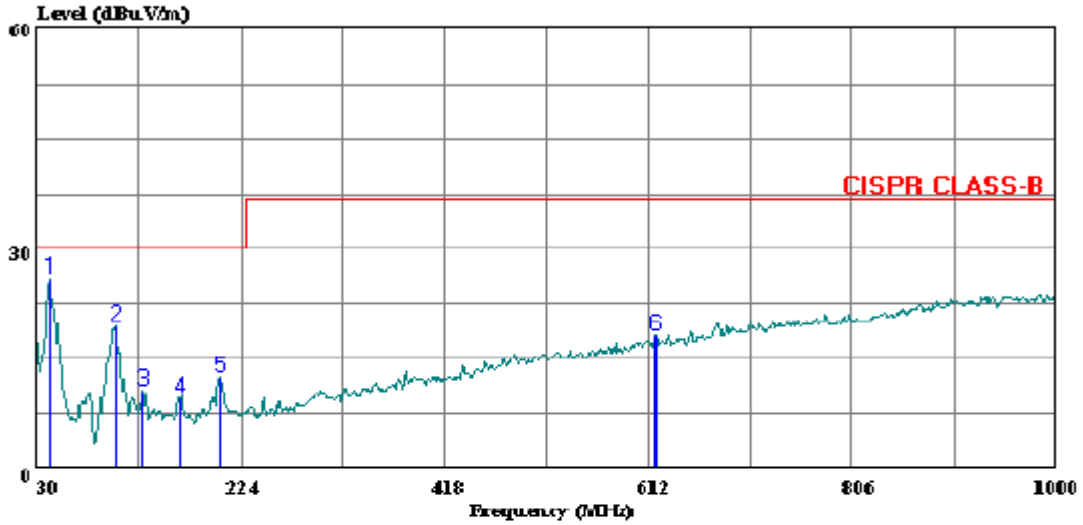

Trace: 4 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT and Printer
Mode : : Normal
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	41.640	39.61	-13.72	25.90	30.00	-4.10	Peak
2	104.690	35.34	-15.81	19.53	30.00	-10.47	Peak
3	130.880	24.14	-13.38	10.76	30.00	-19.24	Peak
4	165.800	24.15	-14.55	9.60	30.00	-20.40	Peak
5	203.630	25.39	-13.02	12.37	30.00	-17.63	Peak
6	618.790	20.55	-2.39	18.16	37.00	-18.84	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL) – EUT powered by battery

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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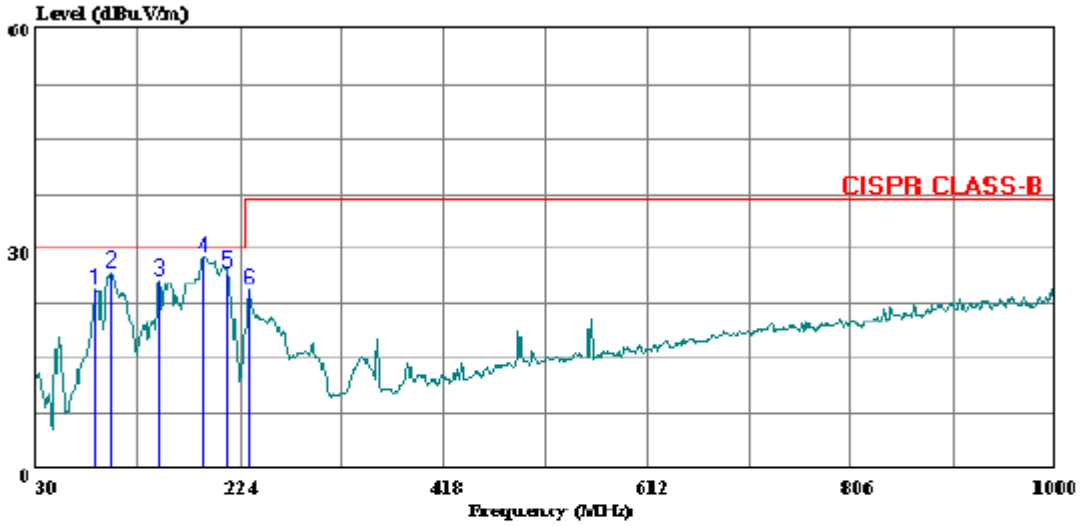

Trace: 8 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT and Printer with Battery Power
Mode : : Normal
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	87.230	43.55	-19.17	24.38	30.00	-5.62	Peak
2	101.780	43.29	-16.41	26.88	30.00	-3.12	Peak
3	148.340	39.51	-13.71	25.80	30.00	-4.20	Peak
4	189.080	42.73	-13.89	28.84	30.00	-1.16	Peak
5	212.360	39.68	-13.05	26.63	30.00	-3.37	Peak
6	232.730	37.61	-13.15	24.46	37.00	-12.54	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL) – EUT powered by battery

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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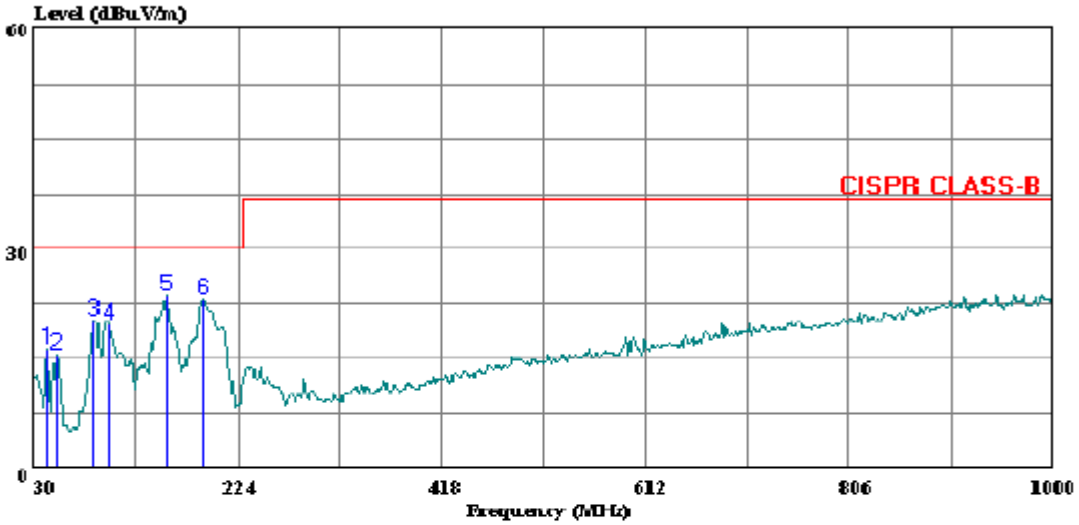


Trace: 6 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT and Printer with Battery Power
Mode : : Normal
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	41.640	30.13	-13.72	16.42	30.00	-13.58	Peak
2	51.340	35.32	-19.66	15.66	30.00	-14.34	Peak
3	87.230	39.40	-19.17	20.23	30.00	-9.77	Peak
4	100.810	36.27	-16.61	19.65	30.00	-10.35	Peak
5	155.130	37.77	-14.17	23.60	30.00	-6.40	Peak
6	191.990	36.77	-13.68	23.09	30.00	-6.91	Peak

8. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207
IC RSS-GEN, Section 7.2.2

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

TEST PROCEDURE

ANSI C63.4

RESULTS

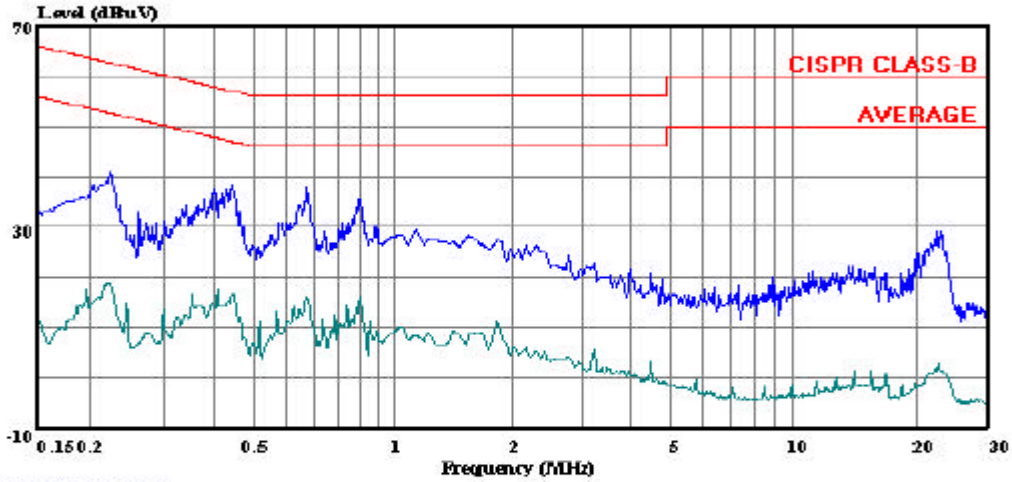
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.45	38.37	--	16.68	0.00	56.93	46.93	-18.56	-30.25	L1
0.67	37.95	--	15.72	0.00	56.00	46.00	-18.05	-30.28	L1
0.90	35.88	--	14.76	0.00	56.00	46.00	-20.12	-31.24	L1
0.17	60.14	--	18.10	0.00	65.06	55.06	-4.92	-36.96	L2
0.32	52.81	--	15.66	0.00	59.71	49.71	-6.90	-34.05	L2
0.53	51.67	--	8.10	0.00	56.00	46.00	-4.33	-37.90	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 08U12276 LC.EMI Date: 12-10-2008 Time: 11:16:14



(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT with Printer
Mode: : Normal
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L1: Peak (Blue), Average (Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

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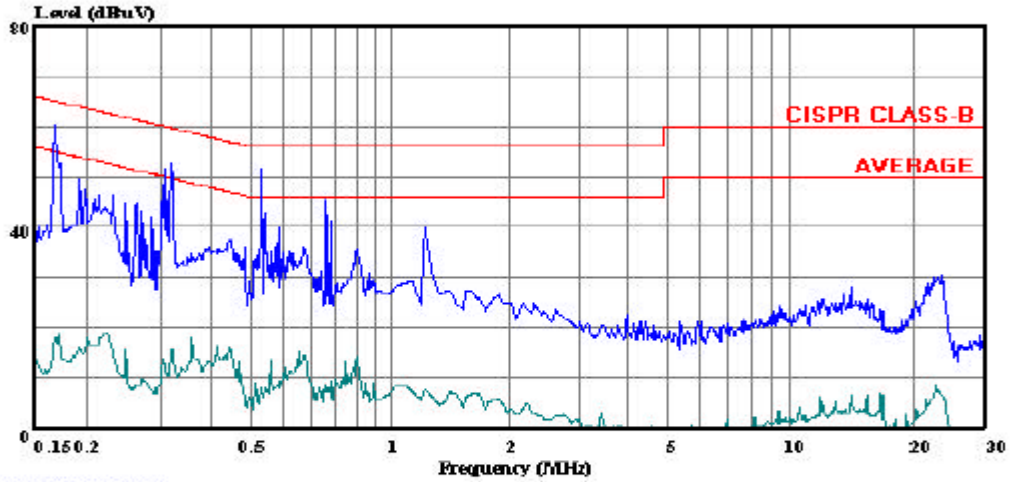


(Line Conduction)

Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 08U12276
Company: : MEC Dynamics
Configuration:: EUT with Printer
Mode: : Normal
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L2: Peak (Blue), Average (Green)

9. SETUP PHOTOS

RADIATED EMISSION BELOW 30 MHz

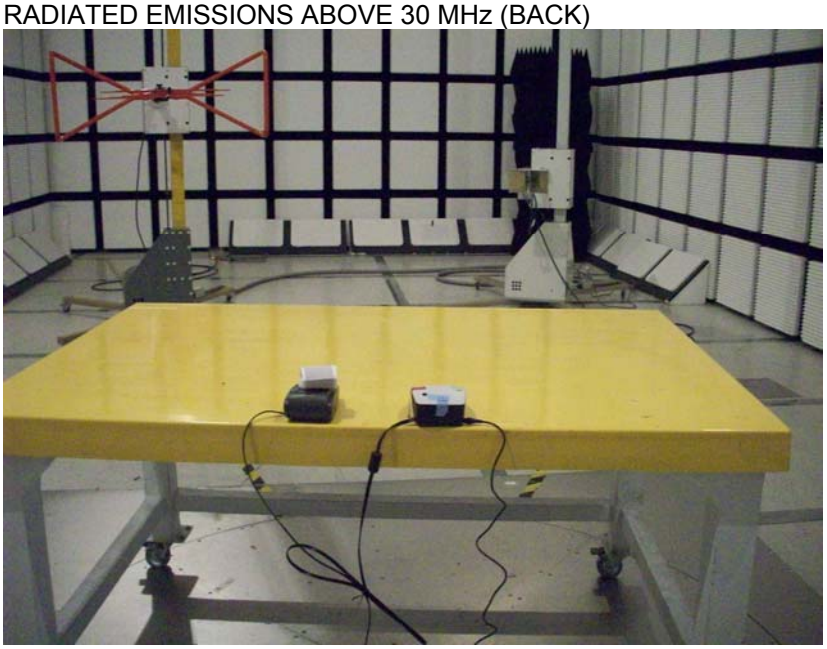
RADIATED EMISSIONS BELOW 30MHz (FRONT)

RADIATED EMISSIONS BELOW 30MHz (BACK)

RADIATED EMISSION ABOVE 30 MHz – EUT powered by AC

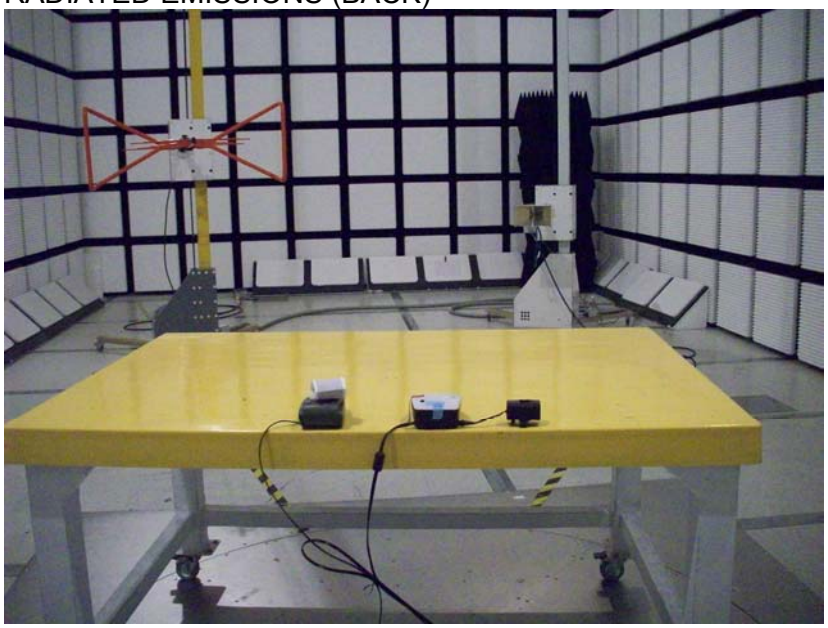
RADIATED EMISSIONS ABOVE 30 MHz (FRONT)

RADIATED EMISSIONS ABOVE 30 MHz (BACK)



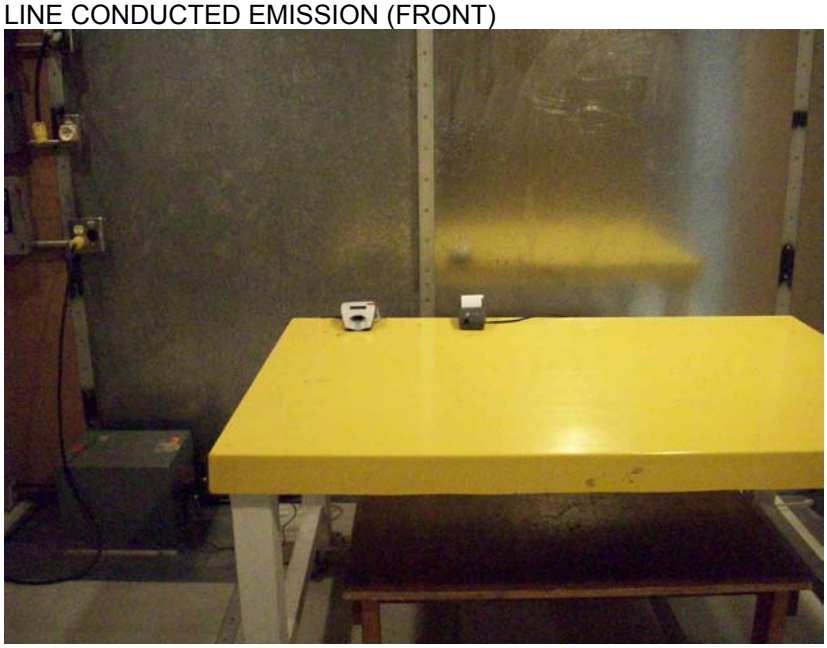
RADIATED EMISSION ABOVE 30 MHz – EUT powered by battery

RADIATED EMISSIONS (BACK)



AC MAINS LINE CONDUCTED EMISSION

LINE CONDUCTED EMISSION (FRONT)



LINE CONDUCTED EMISSION (BACK)

END OF REPORT