



EMI TEST REPORT

Test Report No. : 27LE0315-HO-C

Applicant : OMRON Corporation
Type of Equipment : Receiver and Antenna Module
Model No. : G8D-640M-RAM-NBR
Test standard : FCC Part 15 Subpart B 2007
FCC ID : OUCG8D640MRAM-NBR
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.

Date of test:

August 3 and 4, 2007

Tested by:

Shinya Watanabe
EMC Services

Approved by :

Mitsuru Fujimura
EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
<http://uljapan.co.jp/emc/nvlap.htm>

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MF060b (18.06.07)

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SECTION 1: Client information

Company Name : OMRON Corporation
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Telephone Number : +81-568-78-6392
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Contact Person : Masashi Matsuda

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : Receiver and Antenna Module
Model No. : G8D-640M-RAM-NBR
Serial No. : 9100
Country of Manufacture : Japan
Receipt Date of Sample : August 3, 2007
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No modification by the test lab.

2.2 Product Description

Model No: G8D-640M-RAM-NBR is the Receiver and Antenna Module.

Type of Receiver : Super Heterodyne
Receiving Frequency : 315MHz
Intermediate Frequency : 10.7MHz
Other Clock Frequency : 8MHz
Antenna Type : Inverted F
Operating Voltage (inner) : 5.0V

FCC15.111(b)

The receiving antenna (of the EUT) is installed inside the EUT and cannot be removed. Therefore, this EUT complies with the requirement in section 15.111(b).

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B 2007
Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin *0)	Result
Conducted emission	ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Receiver	N/A	N/A	N/A *1)
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Receiver	N/A	18.6dB, 630.000MHz, Hori., Vert.	Complied

*Note: UL Japan, Inc.'s EMI Work Procedure QPM05.

*0) The test result is round off to one or two decimal place, so some differences might be observed.

*1) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

*These tests were performed without any deviations from test procedure except for additions or exclusions.

3.3 Additions or deviations to standards

No addition, deviation, nor exclusion has been made from standards.

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3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Radiated Emission

The measurement uncertainty for this test using Loop antenna is $\pm 4.41\text{dB}(3\text{m})$.

The measurement uncertainty for this test using Biconical antenna is $\pm 4.59\text{dB}(3\text{m})$.

The measurement uncertainty for this test using Logperiodic antenna is $\pm 4.62\text{dB}(3\text{m})$.

The measurement uncertainty for this test using Horn antenna is $\pm 5.27\text{dB}$.

The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test set up, Data of EMI, and Test instruments

Refer to APPENDIX 1 to 3.

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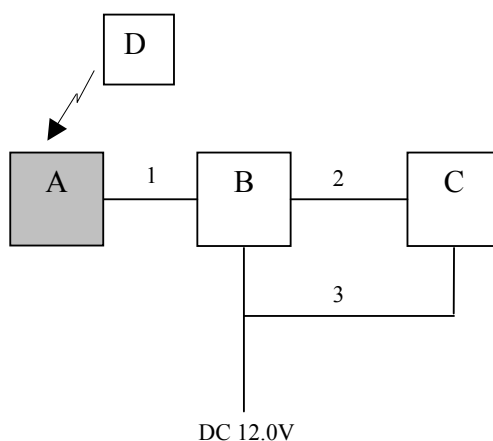
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SECTION 4: Operation of E.U.T. during testing

4.1 Operating modes

The mode is used : 315MHz Receiving mode

4.2 Configuration and peripherals



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Receiver and Antenna Module	G8D-640M-RAM-NBR	9100	OMRON	EUT
B	KOS ECU	G8D-640M-ECU	-	OMRON	-
C	Simulator	-	-	OMRON	-
D	Key	-	-	OMRON	-

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	DC & Signal Cable	1.4	Unshielded	Unshielded
2	Signal Cable	1.4	Unshielded	Unshielded
3	DC Cable	1.4	Unshielded	Unshielded

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SECTION 5: Radiated Emission

5.1 Operating environment

Test place : No.1 semi anechoic chamber
Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.5m by 1.0m, raised 80cm above the conducting ground plane. The EUT was set on the center of the tabletop. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. A drawing of the set up is shown in the photos of APPENDIX 1.

5.3 Test conditions

Frequency range : 30MHz – 300MHz (Biconical antenna) / 300MHz – 1000MHz (Logperiodic antenna)
1000-2000MHz (Horn antenna)
Test distance : 3m
EUT position : Table top
EUT operation mode : See Clause 4.1

5.4 Test procedure

The height of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer (in linear mode). The test was made with the detector (RBW/VBW) in the following table. When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

5.5 Test result

Summary of the test results: Pass

Date: August 3 and 4, 2007

Test engineer: Shinya Watanabe