EMISSION TEST REPORT

Test Report No. : 18F0063-02-2

OMRON Corporation

Model: G8D-443H-B

FCC Part 15 Subpart B

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2. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

3. This equipment is in compliance with above regulation. We hereby certify that the data are contain a true representation of the emission profile.

4. The results in this report apply only to the sample tested.

5. This test report clearly shows that Keyless Entry System (Receiver), G8D-443H-B is in compliance with FCC Part 15 Subpart B Class B, specification.

Date of test: July 7, 1999 **Issued date:** July 16, 1999

Tested by: Naoki Sakamoto
Engineer, EMC Dept.

Approved by: Kazutoyo Nakanishi
Group Leader of EMC section

Form Version No. 1

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1 GENERAL INFORMATION

APPLICANT	: OMRON Corporation
ADDRESS	: 1-501, Yashirogaoka, Meito-ku, Nagoya-city Aichi, 465-0051 Japan Tel: +81-52-704-2525 Fax: +81-52-704-2769
REGULATION(S)	: FCC Part 15 Subpart B, Class B
MODEL NUMBER	: G8D-443H-B
SERIAL NUMBER	: -
KIND OF EQUIPMENT	: Keyless Entry System (Receiver)
TESTED DATE	: July 7, 1999
RECEIPT DATE OF SAMPLE	: June 26, 1999
TEST REPORT NUMBER	: 18F0063-02-4
TEST SITE	: A-PEX Yokowa NO.3 Open Test Site

1.1 Product Description

OMRON Corporation, Model G8D-443H-B (referred to as the EUT in this report) is a Keyless Entry System (Receiver).

The specification is as following :
Operation Frequency : 4.19MHz
Local Clock Frequency : 318.60MHz
Operation Voltage : DC 12V, 10mA

1.2 Tested System Details

The FCC IDs for all equipment, plus description of all cables used in the tested system are:

Model	FCC ID	Description	Cable description	Backshell Material
(1) OMRON M/N: G8D-443H-B S/N: - (EUT)	E4EG8DT	Keyless Entry System (Receiver)	-	-
(2) OMRON M/N: G8D-443H-A S/N: -	E4EG8D-443H-A	Keyless Entry System (Transmitter)	-	-
(3) OMRON M/N: - S/N: -	N/A	Simulator	-	-

1.3 Tested Methodology

Both conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4(1992).
Radiated testing was performed at a distance of 3 meters from the antenna to EUT .

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 Japan.
This site has been fully described in a report dated Aug. 1, 1997 submitted to FCC office, and Listed dated Sep. 16, 1997 (31040/SIT 1300F2).

2 SYSTEM TEST CONFIGURATION

2.1 Operation Environment

	Radiation
Temperature :	20 Degree
Humidity :	50%
Power supply :	DC 12V

2.2 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

2.3 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

The sequence is used:

Operation: Receiving mode

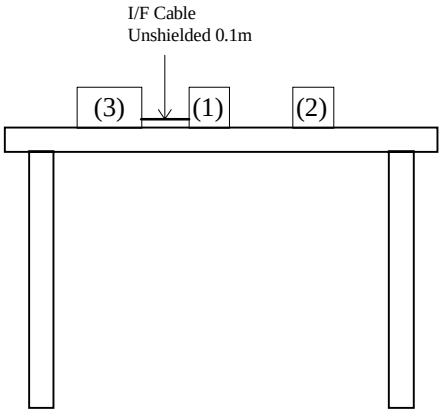
2.4 Test Procedure

2.4.1 Tabletop Equipment Radiated Emissions

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The rear of EUT, including peripherals was aligned and flush with rear of tabletop.
I/O cables that were connected to the peripherals were bundled in center.
They were folded back and forth forming a bundle 30cm to 40cm long and were hanged 40cm height to the ground plane.
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.
The measurement distance was 3m.

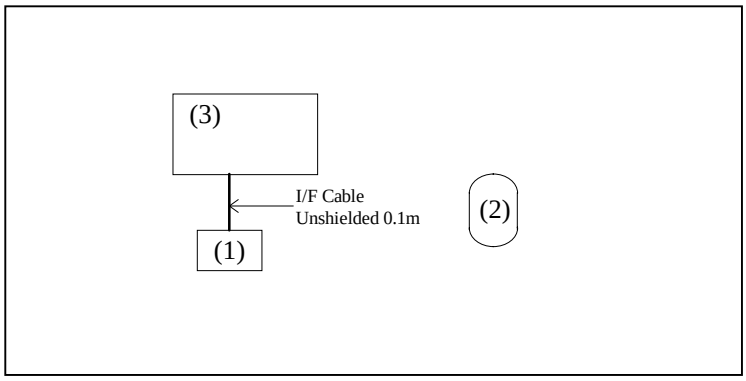
Figure2.1 Configuration of Tested System

Front View



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

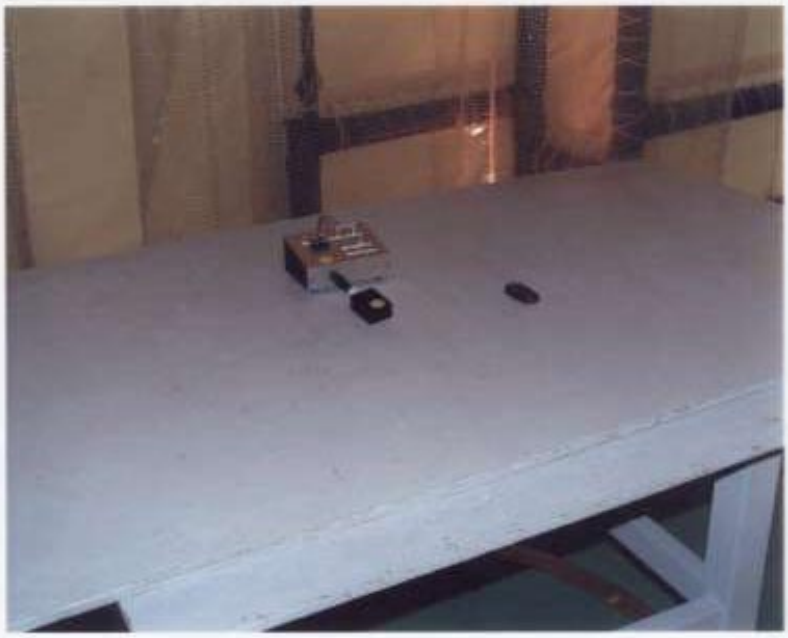
Top View



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

3 RADIATED MEASUREMENT PHOTOS

Figure 3.1 Radiated Measurement Photos



3.1 Measurement Uncertainty

Radiated Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was ±3.3dB.

The data listed in this test report may exceed the test limit because it does not have enough margin (more than 3.3dB).

4 RADIATED EMISSION DATA

The initial step in collecting radiated data was a spectrum analyzer peak scan of the measurement range(30MHz-1000MHz).
The final data was reported in the worst-case emissions.
The minimum margin to the limit is as follows :

Frequency (MHz)	Receiver Reading (dBuV)	Correction Factor (dBuV)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dBuV)
41.91	23.7	-6.1	17.6	40.0	22.4
176.05	23.4	-2.3	21.1	43.5	22.4

* All readings are quasi-peak mode.

5.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, Cable Factor and Antenna Pad, and subtracting the Amplifier Gain from the measured reading. The sample calculation is as follows :

FS = RA + AF + CF + AT - AG

where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Factor
AT = Antenna Pad
AG = Amplifier Gain

Assume a receiver reading of 23.7 / 23.4 dBuV is obtained. The antenna Factor of 14.2 / 16.0 dB, Cable Factor of 1.7 / 3.4 dB and Antenna Pad of 6.0 dB is added. The Amplifier Gain of 28.0 / 27.7 dB is subtracted, giving a field strength of 17.6 / 21.1 dBuV/m.

FS = 23.7 + 14.2 + 1.7 + 6.0 - 28.0 = 17.6dBuV/m : 41.91MHz
FS = 23.4 + 16.0 + 3.4 + 6.0 - 27.7 = 21.1dBuV/m : 176.05MHz

6 TEST EQUIPMENT USED

INSTRUMENTS	Mfr.	MODEL	C/N	Calibrated Until
Pre Amplifier	Hewlett Puckered	8447D	AF1	November 30, 1999
Biconical Antenna	Schwarzbeck	BBA9106	BA2	April 30, 2000
Logperiodic Antenna	Schwarzbeck	UHALP9108-A	LA6	February 14 , 2000
Spectrum Analyzer	Hewlett Packard	8567A	SA4	November 30, 1999
Test Receiver	Rohde & Schwarz	ESVS-10	TR6	April 20, 2000

indicates EMI Test Equipment used.

*All measurement equipment is traceable to national standard.

APPENDIX

A : Test Data

Radiated emissions : A1 to A2

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DATA OF RADIATION TEST

A－P E X INTERNATIONAL CO., LTD.
YOKOWA NO.3 SITE

COMPANY : OMRON Corporation
TRADE NAME : OMRON
EQUIPMENT : Keyless Entry System
MODEL : G8D-443H-B(Receiver)
POWER : DC12V
DESCRIPTION : Receiving
REMARKS : QP Detect
DATE : 07/07/1999

REPORT NO. : 18F0063-02-2
REGULATION : FCC Part 15 Subpart B
CLASS : CLASS B
TEST DISTANCE : 3m
ATTENUATOR : 6dB
FCC ID : E4EG8DT

ENGINEER : Naoki.Sakamoto

No	FREQ	ANT	READING		ANT	CABLE	AMP	RESULT		FCC	MARGIN	
			HOR	VER	FACTOR	LOSS	GAIN	HOR	VER	LIMITS	HOR	VER
	[MHz]	TYPE	[dBμV]		[dB]	[dB]	[dB]	[dBμV/m]		[dBμV/m]	[dB]	
			3m					3m		3m		
1	41.91	BC	22.9	23.7	14.2	1.7	28.0	16.8	17.6	40.0	23.2	22.4
2	67.11	BC	23.4	23.5	7.4	2.1	28.3	10.6	10.7	40.0	29.4	29.3
3	96.42	BC	22.5	22.7	9.5	2.7	27.9	12.8	13.0	43.5	30.7	30.5
4	146.72	BC	22.2	22.3	15.1	3.0	27.9	18.4	18.5	43.5	25.1	25.0
5	176.05	BC	22.7	23.4	16.0	3.4	27.7	20.4	21.1	43.5	23.1	22.4
6	201.19	BC	22.2	22.2	16.4	4.4	28.1	20.9	20.9	43.5	22.6	22.6
7	419.00	LP	22.4	22.4	15.8	5.7	28.0	21.9	21.9	46.0	24.1	24.1

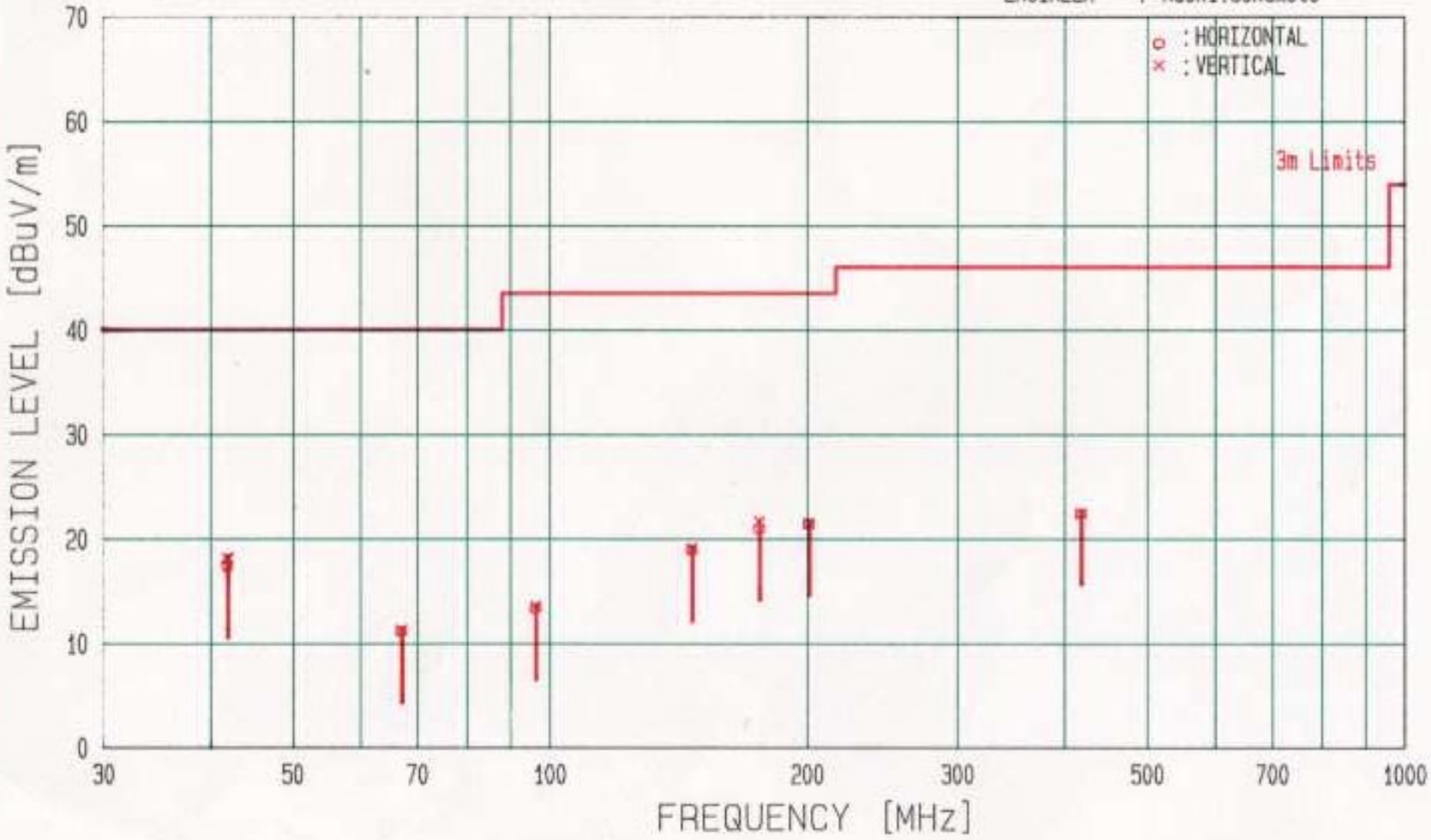
SAMPLE CALCULATION :
RESULT = READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table : adequate margin data below the limits.

RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 SITE

COMPANY	: OMRON Corporation	REPORT No.	: 18F0063-02-2
TRADE NAME	: OMRON	DATE	: 07/07/1999
EQUIPMENT	: Keyless Entry System	REGULATION	: FCC Part 15 Subpart B
MODEL	: G8D-443H-B (Receiver)	CLASS	: CLASS B
POWER	: DC12V	DISTANCE	: 3m
DESCRIPTION	: Receiving	FCC ID	: E4EG8DT
REMARKS	: QP Detect	ENGINEER	: Naoki.Sakamoto



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