EMI TEST REPORT

Test Report No. : 25AE0094-HO-1

Applicant	:	**OMRON Corporation**
Type of Equipment	:	**Keyless entry system (Transmitter)**
Model No.	:	**G8D-620M-A**
Test standard	:	**FCC Part 15 2004** **Subpart C Section 15.209, Section 15.231**
FCC ID	:	**OUCG8D-620M-A**
Test Result	:	**Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.

Date of test:

October 4 and 27, 2004

Tested by:

K. Adachi

Kenichi Adachi
EMC Service

Approved by :

Naoki Sakamoto
Group Leader of
EMC Service

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SECTION 1: Client information

Company Name	:	OMRON Corporation
Address	:	6368 NENJOZAKA,OKUSA,KOMAKI,AICHI,485-0802 JAPAN
Telephone Number	:	+81-568-78-6394
Facsimile Number	:	+81-568-78-6188
Contact Person	:	Harumi Itatsu

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

2.1 Identification of E.U.T.

Type of Equipment	:	Keyless Entry System (Transmitter)
Model No.	:	G8D-620M-A
Serial No.	:	1
Rating	:	DC3.0V
Country of Manufacture	:	Japan
Receipt Date of Sample	:	October 1, 2004
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Model No: G8D-620M-A is the Keyless Entry System (Transmitter).
There is a variant model which has the same circuit as this model.
Model Number : G8D-620M-A: LOCK, UNLOCK, BOOT RELEASE, PANIC (4SW)
Model Number (Variant model) : G8D-620M-A-NT: LOCK, UNLOCK, PANIC (3SW).
The test was made with the G8D-620M-A which is a representative model.

Equipment Type	:	Transmitter
Type of modulation	:	FSK
Frequency band	:	313.85MHz
Antenna Type	:	PATTERN ANNTENA
Antenna connector Type	:	No connector
Method of Frequency Generation	:	Crystal
Power Supply (inner)	:	DC3V
ITU code	:	F1D

FCC Part 15.31 (e)
This test was performed with the New Battery (DC3V) and the constant voltage was supplied to this EUT during the tests. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC 2003 Part 15 Subpart C 2004
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.231 Periodic operation in the band 40.66 - 40.70MHz and above 70MHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Deviation	Worst margin	Results
1	Automatically Deactivate	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.231(a)(1)	N/A	-	Complied
2	Electric Field Strength of Fundamental Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.231(b)	N/A	1.2dB, 313.81MHz, Horizontal	Complied
3	Electric Field Strength of Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.205 Section 15.209 Section 15.231(b)	N/A	2.5dB, 2197.12MHz, Horizontal	Complied
4	-20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.231(c)	N/A	-	Complied
Note: UL Apex's EMI Work procedures No. QPM05						

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4:2004	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4:2004	Radiated	N/A	N/A	N/A

3.4 Uncertainty

Radiated Emission Test
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.5dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±5.2dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn Antenna is ±6.6dB.

*In case of the margin below the EMC Head Office's uncertainty.
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.5 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

	Listed date (for FCC)	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	February 01, 2002	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	June 05, 2002	846015	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 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 and No.2 semi-anechoic and No.3 measurement room.

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

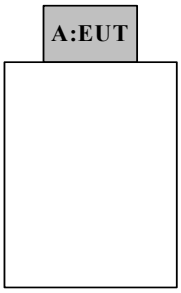
SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : Transmitting mode

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

4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Keyless Entry System (Transmitter)	G8D-620M-A	1	OMRON	OUCG8D-620M-A

SECTION 5: Radiated emission (Fundamental and Spurious 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 platform of table size (0.5m x 0.5m x 0.8m) on 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 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-3200MHz
Test distance : 3m
EUT position : Tabletop
EUT operation mode : See Clause 4.1

5.4 Test procedure

The measuring antenna height 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.

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 axis of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

5.5 Results

Summary of the test results: Pass

Date: October 4, 2004 Tested by: Kenichi Adachi

APPENDIX 1: Photographs of test setup

This page has been submitted for a separate exhibit.

This page has been submitted for a separate exhibit.

APPENDIX 2:Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2003/12/27 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2003/11/12 * 12
MCC-01	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	RE	2003/12/19 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2004/05/25 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2003/12/16 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2003/10/15 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2003/10/15 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2004/01/06 * 12
MPA-05	Pre Amplifier	TSJ	PreAmp	RE	2004/06/12 * 12
MCC-23	Microwave Cable	Storm	-	RE	2004/05/01 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2004/01/10 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

RE: Radiated emission,

APPENDIX 3: Data of EMI test

Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	: OMRON CORPORATION	REPORT NO	: 25AE0094-HO
EQUIPMENT	: Keyless entry system (Transmitter)	REGULATION	: Fcc Part15 Subpart C 231(b) / 205
MODEL	: G8D-620M-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 10/04/2004
POWER	: DC 3.0V	TEMPERATURE	: 24 deg.C.
Mode	: Continuous Transmitting	HUMIDITY	: 60 %
Axis	: Hor.: X-axis , Ver.: Y-axis	ENGINEER	: Kenichi Adachi

No.	FREQ	T/R READING: QP		ANT	AMP	LOSS	Duty	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN		Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	313.81	76.8	74.6	14.8	27.4	10.1	0.0	74.3	72.1	75.5	1.2	3.4

(below 1GHz) **QP DETECT**

No.	FREQ	T/R READING : QP		ANT	AMP	LOSS	Duty	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN		Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	627.78	27.9	28.0	19.7	28.8	12.0	0.0	30.8	30.9	55.5	24.7	24.6
2	941.67	28.9	25.6	22.0	28.6	13.1	0.0	35.5	32.2	55.5	20.0	23.3

(above 1GHz)
PK DETECT (RBW: 1MHz , VBW: 1MHz)

No.	FREQ	S/A READING: PK		ANT	AMP	LOSS	Duty	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN		Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	1255.47	61.7	55.9	23.3	39.8	3.9	0.0	49.1	43.3	75.5	26.4	32.2
2	1569.33	59.8	55.0	25.1	39.6	4.4	0.0	49.7	44.9	74.0	24.3	29.1
3	1882.90	56.1	56.4	28.9	39.4	4.9	0.0	50.5	50.8	75.5	25.0	24.7
4	2197.12	63.8	60.1	30.5	39.6	5.3	0.0	60.0	56.3	75.5	15.5	19.2
5	2510.41	59.6	59.9	30.8	40.1	5.6	0.0	56.0	56.3	75.5	19.5	19.2
6	2824.03	57.7	55.0	31.8	40.6	6.0	0.0	54.9	52.2	74.0	19.1	21.8
7	3138.83	54.2	51.5	32.0	40.9	6.3	0.0	51.7	49.0	75.5	23.8	26.5

AV DETECT (RBW: 1MHz , VBW: 10Hz) Restricted bands

No.	FREQ	S/A READING: AV		ANT	AMP	LOSS	Duty	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN		Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	1569.33	55.7	48.8	25.1	39.6	4.4	0.0	45.6	38.7	54.0	8.4	15.3
2	2824.03	49.2	46.0	31.8	40.6	6.0	0.0	46.4	43.2	54.0	7.6	10.8

AV MEASUREMENT (RBW: 1MHz , VBW: 1MHz) Out of Restricted bands

No.	FREQ	S/A READING: PK		ANT	AMP	LOSS	Duty	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN		Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	1255.47	61.7	55.9	23.3	39.8	3.9	-7.0	42.1	36.3	55.5	13.4	19.2
6	1882.90	56.1	56.4	28.9	39.4	4.9	-7.0	43.5	43.8	55.5	12.0	11.7
7	2197.12	63.8	60.1	30.5	39.6	5.3	-7.0	53.0	49.3	55.5	2.5	6.2
8	2510.41	59.6	59.9	30.8	40.1	5.6	-7.0	49.0	49.3	55.5	6.5	6.2
10	3138.83	54.2	51.5	32.0	40.9	6.3	-7.0	44.7	42.0	55.5	10.8	13.5

CALCULATION RESULT=Reading + ANT Factor - Amp Gain + LOSS (Cable+ ATTEN.)+Duty factor

Duty cycle Factor Measurement : The duty cycle factor = 20 log (On time [m sec.] / 100 [m sec.]) -7.01 dB

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*EUT was placed in X axis when the measurement antenna was positioned horizontally.

*EUT was placed in Y axis when the measurement antenna was positioned vertically.

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

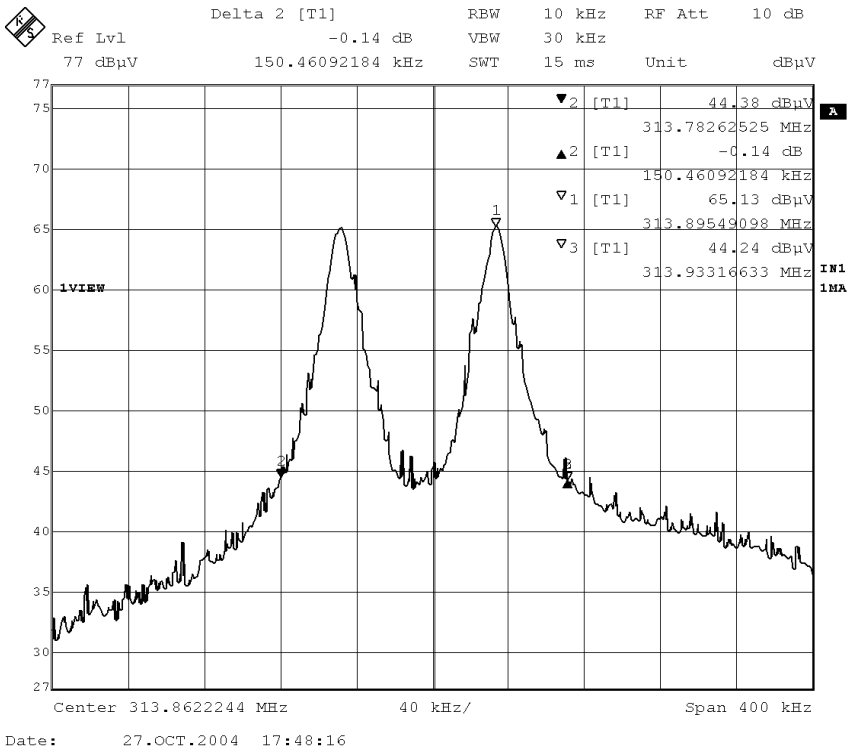
-20dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	: OMRON CORPORATION	REPORT NO	: 25AE0094-HO
EQUIPMENT	: Keyless entry system (Transmitter)	REGULATION	: Fcc Part15 Subpart C 231(c) / 205
MODEL	: G8D-620M-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 10/27/2004
POWER	: DC 3.0V	TEMPERATURE	: 22 deg.C.
Mode	: Transmitting	HUMIDITY	: 41 %
		ENGINEER	: Kenichi Adachi

Bandwidth Limit : Fundamental Frequency 313.85 MHz X 0.25% = 784.625 kHz

-20dB Bandwidth [kHz]	Bandwidth Limit [kHz]	Result	Margin [kHz]
150.46	784.63	Pass	634.16

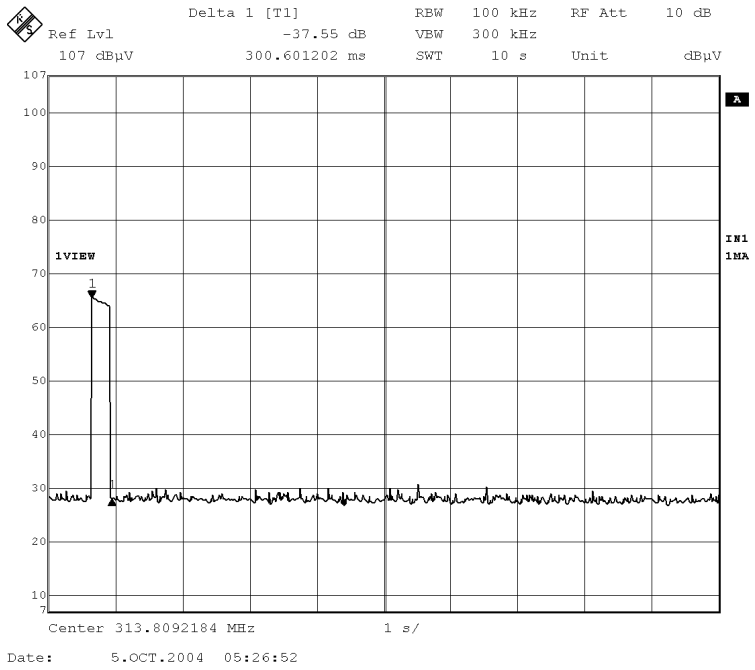


Automatically deactivate

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	: OMRON CORPORATION	REPORT NO	: 25AE0094-HO
EQUIPMENT	: Keyless entry system (Transmitter)	REGULATION	: Fcc Part15 Subpart C 231(a)
MODEL	: G8D-620M-A	TEST DISTANCE	: -
S/N	: 1	DATE	: 10/04/2004
POWER	: DC 3.0V	TEMPERATURE	: 24 deg.C.
Mode	: Transmitting	HUMIDITY	: 60%
		ENGINEER	: Kenichi Adachi

Time of Transmitting [sec]	Limit [sec]	Result	Margin [sec]
0.30	5.00	Pass	4.70

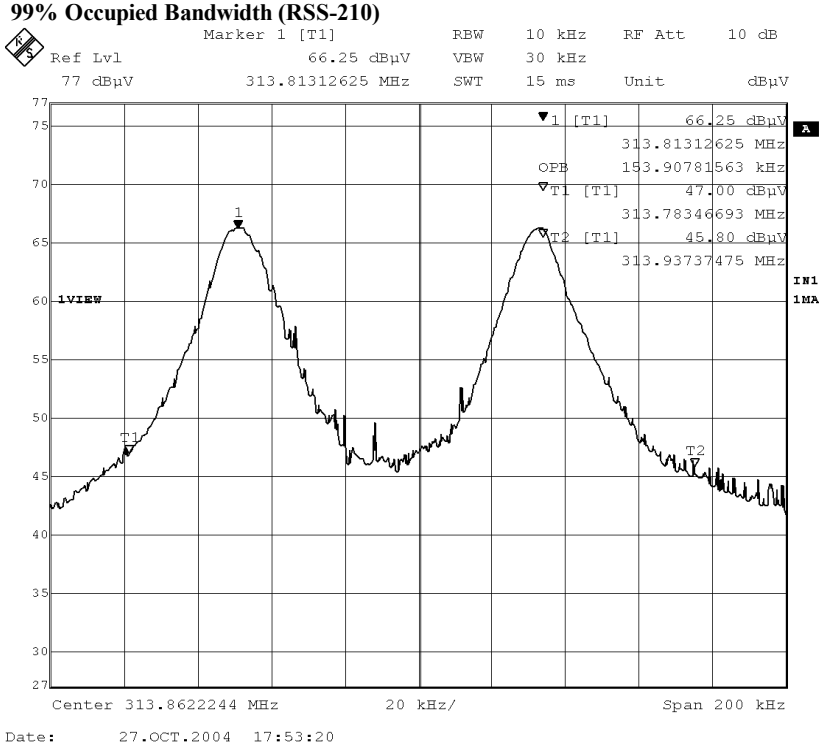


99% Occupied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	: OMRON CORPORATION	REPORT NO	: 25AE0094-HO
EQUIPMENT	: Keyless entry system (Transmitter)	REGULATION	: RSS-210
MODEL	: G8D-620M-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 10/27/2004
POWER	: DC 3.0V	TEMPERATURE	: 22 deg.C.
Mode	: Transmitting	HUMIDITY	: 41 %
		ENGINEER	: Kenichi Adachi

99% Occupied Bandwidth (RSS-210)



* 99% Occupied Bandwidth : 153.91 kHz

Duty Cycle

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	: OMRON CORPORATION	REPORT NO	: 25AE0094-HO
EQUIPMENT	: Keyless entry system (Transmitter)	REGULATION	: Fcc Part15 Subpart C 231(b)
MODEL	: G8D-620M-A	TEST DISTANCE	: -
S/N	: 1	DATE	: 10/04/2004
POWER	: DC 3.0V	TEMPERATURE	: 24 deg.C.
Mode	: Transmitting	HUMIDITY	: 60 %
		ENGINEER	: Kenichi Adachi

Time of Transmitting [ms]	1 cycle time [ms]	Duty cycle	Duty Factor [dB]
44.60	100.00	0.45	-7.01

Long cycle 201.2072435 times

1cycle :	0.497 ms	on time	0.221643287 ms
total :	100 ms	total :	44.59623481 ms