RADIO TEST REPORT

Test Report No. : 26HE0041-HO-A-2

Applicant	:	**OMRON Corporation**
Type of Equipment	:	**Transmitter, RF Keyless Entry System**
Model No.	:	**G8D-439H-A**
Test standard	:	**FCC Part 15 Subpart C Section 15.231:2006**
FCC ID	:	**OUCG8D-439H-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 : April 24,2006

Tested by : K. Adachi
Kenichi Adachi
EMC Services

Approved by :
Naoki Sakamoto
Group Leader of EMC Services

CONTENTS **PAGE**

SECTION 1: Client information

Company Name	:	OMRON Corporation
Address	:	6368, NENJO-ZAKA, OKUSA KOMAKI-CITY, 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	:	Transmitter, RF Keyless Entry System
Model No.	:	G8D-439H-A
Serial No.	:	1
Country of Manufacture	:	Japan
Rating	:	DC3.0V, 20mA
Receipt Date of Sample	:	March 22, 2006
Condition of EUT	:	Engineering 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-439H-A (referred to as the EUT in this report) is the Transmitter, RF Keyless Entry System.
The transmitter and receiver of radio frequency keyless entry is a system that it controls locking and unlocking the door by wireless remote controller.

There are variant models which have the same circuit and same RF specification as the original model G8D-439H-A.
Model Number (Original model) : G8D-439H-A-NP: LOCK, UNLOCK, BOOT RELEASE (3SW)
Model Number (Variant model) : G8D-439H-A-NT: LOCK, UNLOCK, PANIC (3SW).
Model Number (Variant model) : G8D-439H-A-NTP: LOCK, UNLOCK (2SW).
The test was made with the G8D-439H-A which is a representative model.
The EUT model for the application is G8D-439H-A only.

Equipment Type	:	Transmitter
Clock frequnecy	:	2MHz
Frequency of Operation	:	313.85MHz
Type of modulation	:	FSK
ITU code	:	F1D
Antenna Type	:	Pattern Antenna

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart C : 2006
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

FCC 15.31 (e)

This test was performed with the New Battery (DC 3.0V) and the constant voltage was supplied to the EUT during the tests. Therefore, the 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.

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Deviation	Worst margin	Results
1	Automatically Deactivate	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> -	<FCC> Section 15.231(a)(1) <IC> RSS-210 A1.1.1	N/A	-	Complied
2	Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.6	<FCC> Section 15.231(b) <IC> RSS-210 A1.1.2	N/A	3.0dB 313.90MHz Horizontal	Complied
3	Electric Field Strength of Spurious Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.7	<FCC> Section 15.205 Section 15.209 Section 15.231(b) <IC> RSS-210 A1.1.2, 2.6, 2.7	N/A	2.0dB 2824.76MHz Vertical, AV	Complied
4	-20dB Bandwidth	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> -	<FCC> Section 15.231(c) <IC> Reference data	N/A	-	Complied
5	Conducted emission	<FCC> ANSI C63.4:2003 7. AC powerline conducted emission measurements <IC> RSS-Gen 7.2.2	<FCC> Section 15.207 <IC> RSS-Gen 7.2.2	-	N/A*1)	N/A
Note: UL Apex's EMI Work procedures No. QPM05 and QPM15 *1) The test is not applicable since the EUT does not have AC Mains.						

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	<IC> RSS-Gen 4.4.1	<IC> RSS-210 A1.1.3	Conducted	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 (30MHz to 300MHz) is ±4.59dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna (300MHz to 1GHz) is ±4.62dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn Antenna or Logperiodic antenna (above 1GHz) is ±5.27dB.
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

	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	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	655103	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247A-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247A-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	-
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 shielded room	-	-	6.0 x 6.0 x 3.9m	N/A	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	N/A	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	N/A	-
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 and No.2 semi-anechoic and No.7 shielded room.

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

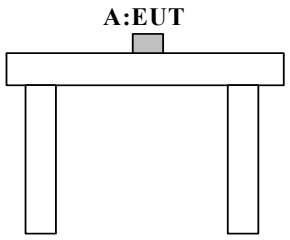
SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : 313.85MHz 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	Remarks
A	Transmitter, RF Keyless Entry System	G8D-439H-A	1	OMRON Corporation	EUT

SECTION 5: Radiated emission (Fundamental and Spurious Emission)

5.1 Operating environment

Test place : No.4 semi anechoic chamber
Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0m by 0.5m, 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-3200MHz
Test distance : 3m
EUT position : Top of urethane
EUT operation mode : See Clause 4.1

5.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi anechoic chamber with a ground plane and at a distance of 3m.
The measuring antenna height was 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.
The radiated emission measurements were made with the following detector function of the test receiver.

	Below or equal to 1GHz	Above 1GHz
Detector Type	QP or AV(=Peak with Duty factor)	Peak and AV(=Peak with Duty factor)
IF Bandwidth	120kHz	PK: S/A:RBW 1MHz, VBW:1MHz, AV: S/A:RBW 1MHz, VBW:1MHz with Duty factor

- The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z, and the position that has the maximum noise was determined.
With the position, the noise levels of all the frequencies was measured.

5.5 Results

Summary of the test results: Pass

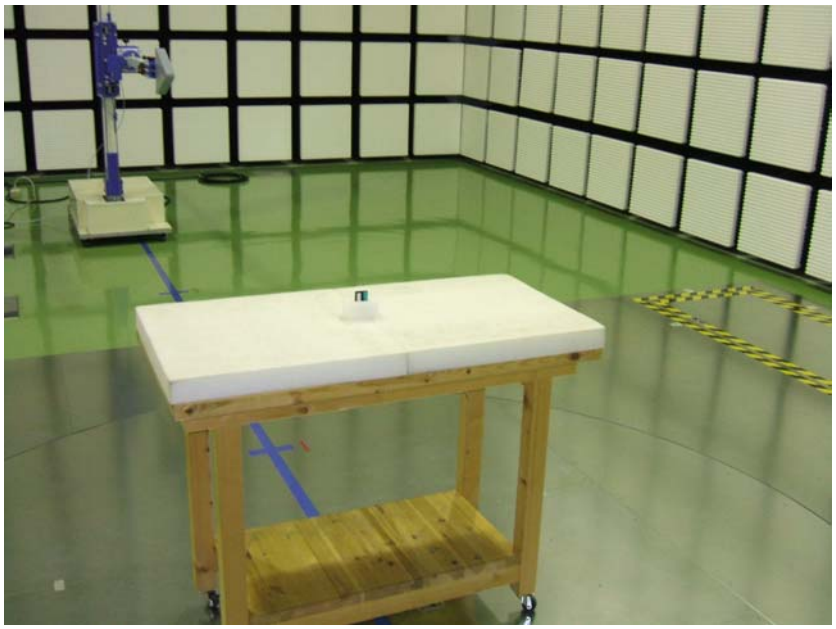
Date: April 24, 2006 Tested by: Kenichi Adachi

APPENDIX 1: Photographs of test setup

Radiated emission

Front

Rear



Worst case position
(Horizontal: X-axis/Vertical : Y-axis)

X-axis

Y-axis

Z-axis

APPENDIX 2:Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/03/06 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MCC-51	Coaxial cable	UL Apex	-	RE	2006/03/11 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MLA-04	Logperiodic Antenna	Rohde & Schwarz	ESLP9145	RE	2006/03/29 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE	2006/03/25 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2006/02/02 * 12
MRENT-31	Spectrum Analyzer	Advantest	R3273	RE	2006/04/24 * 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.4 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26HE0041-HO
EQUIPMENT	: Transmitter, RF Keyless Entry System	REGULATION	: Fcc Part15 Subpart C 231(b) / 205 /209
MODEL	: G8D-439H-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 04/24/2006
POWER	: DC 3.0V	TEMPERATURE	: 25 deg.C.
Mode	: Continuous Transmitting(313.85MHz)	HUMIDITY	: 40 %
Axis	: Hor.: X-axis , Ver.: Y-axis	ENGINEER	: Kenichi Adachi

No.	FREQ	T/R READING		ANT	AMP	LOSS		RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN			HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]		[dBuV/m]		[dBuV/m]	[dB]	[dB]
1	313.90	79.8	75.6	15.0	32.1	9.9		72.6	68.4	75.6	3.0	7.2

(below 1GHz) **AV MEASUREMENT**

No.	FREQ	T/R 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]
2	627.60	50.8	47.3	19.9	32.3	11.7	-5.2	44.9	41.4	55.6	10.7	14.2
3	941.43	37.0	34.2	22.4	31.0	13.1	-5.2	41.5	38.7	55.6	14.1	16.9

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

No.	FREQ	S/A READING		ANT	AMP	LOSS		RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN			HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]		[dBuV/m]		[dBuV/m]	[dB]	[dB]
4	1254.95	48.8	46.9	26.7	34.7	1.7		42.5	40.6	75.6	33.1	35.0
5	1566.66	48.8	48.8	28.8	33.9	1.9		45.6	45.6	73.9	28.3	28.3
6	1882.98	51.0	48.2	28.1	33.2	2.0		47.9	45.1	75.6	27.7	30.5
7	2196.54	48.9	50.8	29.7	32.9	2.1		47.8	49.7	75.6	27.8	25.9
8	2510.49	52.9	51.8	32.3	32.7	2.4		54.9	53.8	75.6	20.7	21.8
9	2824.76	53.7	54.1	33.1	32.6	2.5		56.7	57.1	73.9	17.2	16.8
10	3138.00	45.3	43.8	33.5	32.4	2.7		49.1	47.6	75.6	26.5	28.0

AV MEASUREMENT Result:Reading(RBW: 1MHz, VBW: 1MHz) + Duty Factor

No.	FREQ	S/A READING		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]
4	1254.95	48.8	46.9	26.7	34.7	1.7	-5.2	37.3	35.4	55.6	18.3	20.2
5	1566.66	48.8	48.8	28.8	33.9	1.9	-5.2	40.4	40.4	53.9	13.5	13.5
6	1882.98	51.0	48.2	28.1	33.2	2.0	-5.2	42.7	39.9	55.6	12.9	15.7
7	2196.54	48.9	50.8	29.7	32.9	2.1	-5.2	42.6	44.5	55.6	13.0	11.1
8	2510.49	52.9	51.8	32.3	32.7	2.4	-5.2	49.7	48.6	55.6	5.9	7.0
9	2824.76	53.7	54.1	33.1	32.6	2.5	-5.2	51.5	51.9	53.9	2.4	2.0
10	3138.00	45.3	43.8	33.5	32.4	2.7	-5.2	43.9	42.4	55.6	11.7	13.2

REMARKS
ANTENNA TYPE:30-300MHz Biconical / 300-3200MHz Logperiodic
CALCULATION RESULT=Reading + ANT Factor - Amp Gain + LOSS (Cable+ ATTEN.)+Duty factor
Duty cycle Factor Measurement : The duty cycle factor = 20 log (Ontime [sec.] / 1 cycle:[sec.]) = 20log(0.55)=-5.19dB
* 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.
The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z,
and the position that has the maximum noise was determined.
With the position, the noise levels of all the frequencies was measured.

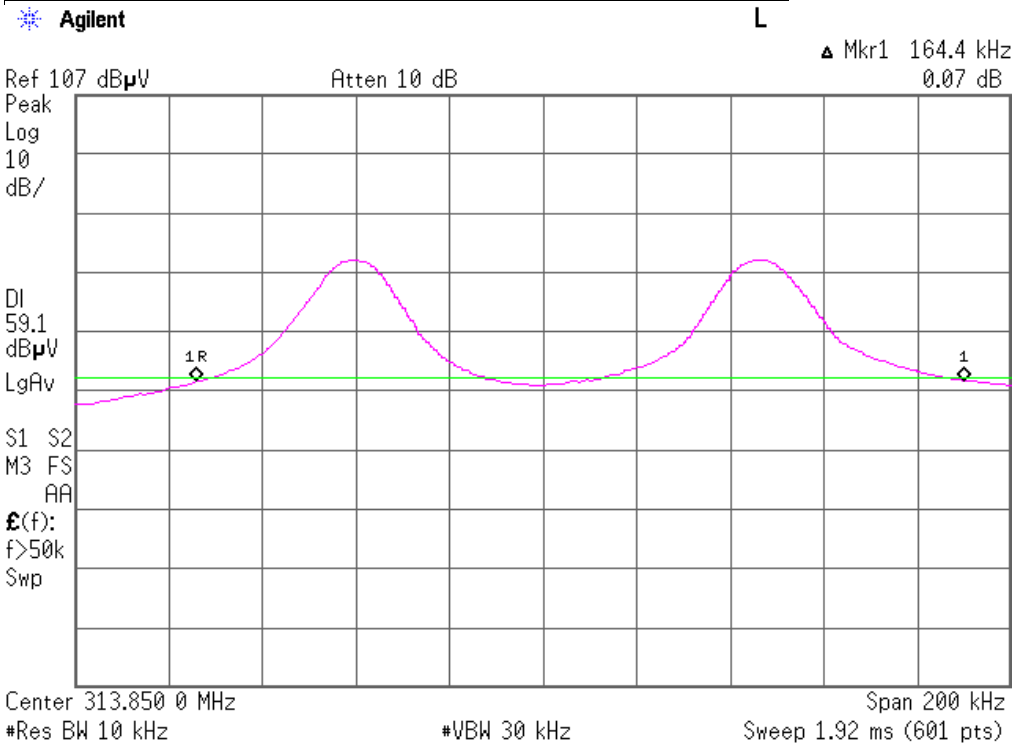
-20dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26HE0041-HO
EQUIPMENT	: Transmitter, RF Keyless Entry System	REGULATION	: Fcc Part15 Subpart C 231(c)
MODEL	: G8D-439H-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 04/24/2006
POWER	: DC 3.0V	TEMPERATURE	: 25deg.C.
Mode	: Transmitting	HUMIDITY	: 40 %
		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]
164.40	784.63	Pass	620.23

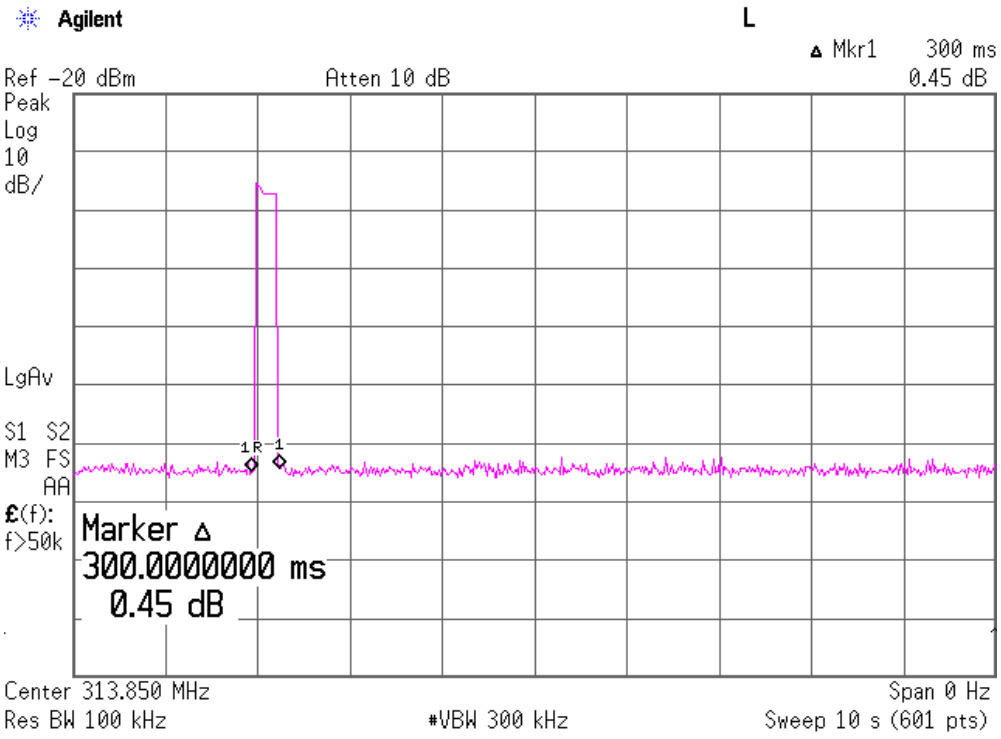


Automatically deactivate

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26HE0041-HO
EQUIPMENT	: Transmitter, RF Keyless Entry System	REGULATION	: FCC Part15 Subpart C 231(b) / 205
MODEL	: G8D-439H-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 04/24/2006
POWER	: DC 3.0V	TEMPERATURE	: 25 deg.C.
Mode	: Transmitting	HUMIDITY	: 40 %
		ENGINEER	: Kenichi Adachi

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

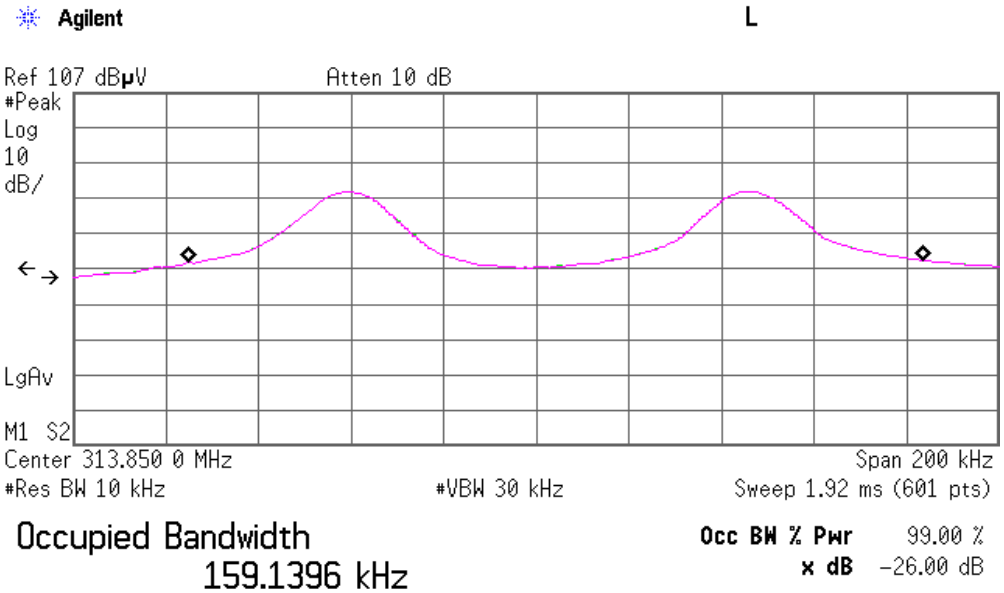


99% Occupied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26HE0041-HO
EQUIPMENT	: Transmitter, RF Keyless Entry System	REGULATION	: RSS-Gen
MODEL	: G8D-439H-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 04/24/2006
POWER	: DC 3.0V	TEMPERATURE	: 25 deg.C.
Mode	: Transmitting	HUMIDITY	: 40 %
		ENGINEER	: Kenichi Adachi

99% Occupied Bandwidth (RSS-Gen)



Duty Cycle

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Semi Anechoic Chamber

COMPANY	: OMRON Corporation	REPORT NO	: 26HE0041-HO
EQUIPMENT	: Transmitter, RF Keyless Entry System	REGULATION	: Fcc Part15 Subpart C 231(b) / 205 / 209
MODEL	: G8D-439H-A	TEST DISTANCE	: 3m
S/N	: 1	DATE	: 04/24/2006
POWER	: DC 3.0V	TEMPERATURE	: 25 deg.C.
Mode	: Transmitting	HUMIDITY	: 40 %
		ENGINEER	: Kenichi Adachi

Time of Transmitting [ms]	1 cycle time [ms]	Duty cycle	Duty Factor [dB]
55.00	100.00	0.55	-5.19