

# FCC COMPLIANCE REPORT

**Order No.** : STR-07-0282/G  
**Reference No.** : STK-07-EMCG0259  
**Applicant** : DAESUNG ELECTRIC CO., LTD.  
**Address of Applicant** : 8-27B/L, 743-5, Wonsi-dong Danwon-gu, Ansan-si, Gyeonggi-do, 425-090 Korea  
**Manufacturer** : Qingdao DAESUNG ELECTRIC CO., LTD.  
**Address of Manufacturer** : No. 775 308 State Road., Licangqu, Qingdao, China

## Equipment Under Test (EUT) :

**Name** : RX ASSY-KEYLESS ENTRY  
**Model No.** : HM-RX  
**FCC ID** : None

**Standards** : FCC Part 15:2006, Subpart B, Class B  
 ANSI C63.4:2003  
 CISPR 22:2006  
 CISPR 16-1:2003

**Date of Receipt** : 12 September 2007  
**Date of Test** : 20 September 2007  
**Date of Issue** : 21 September 2007

<b>Test Result :</b>	<b>PASS</b>
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In the configuration tested, the EUT complied with the standards specified above.

## Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

  
**Jess Kim**  
**EMC DIV. Manager**  
**SGS Testing Korea Co., Ltd.**

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## 1. General Information

### 1.1 Applicant & Manufacturer Information

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 Gyeonggi-do, 425-090 Korea  
 Manufacturer : Qingdao DAESUNG ELECTRIC CO., LTD.  
 Address of Manufacturer : No.775 308 State Road, Licangqu, Qingdao, China

### 1.2 General Description of EUT

Name : RX ASSY-KEYLESS ENTRY  
 Model No. : HM-RX  
 Serial No : None  
 FCC ID : SV3HMRX

### 1.3 Details of EUT

Operating Frequency : 315 MHz  
 Tested Power Supply : DC 12V  
 Port : Power & Signal Port  
 Description of Operating : Operate it continually.  
 Modifications to the EUT: None

### 1.4 Description of Support Units

Product	Model No.	Serial No.	Manufacturer
Car Battery	GLOBAL 900L	-	Global Battery Co., Ltd.
Transmitter	-	-	KIA

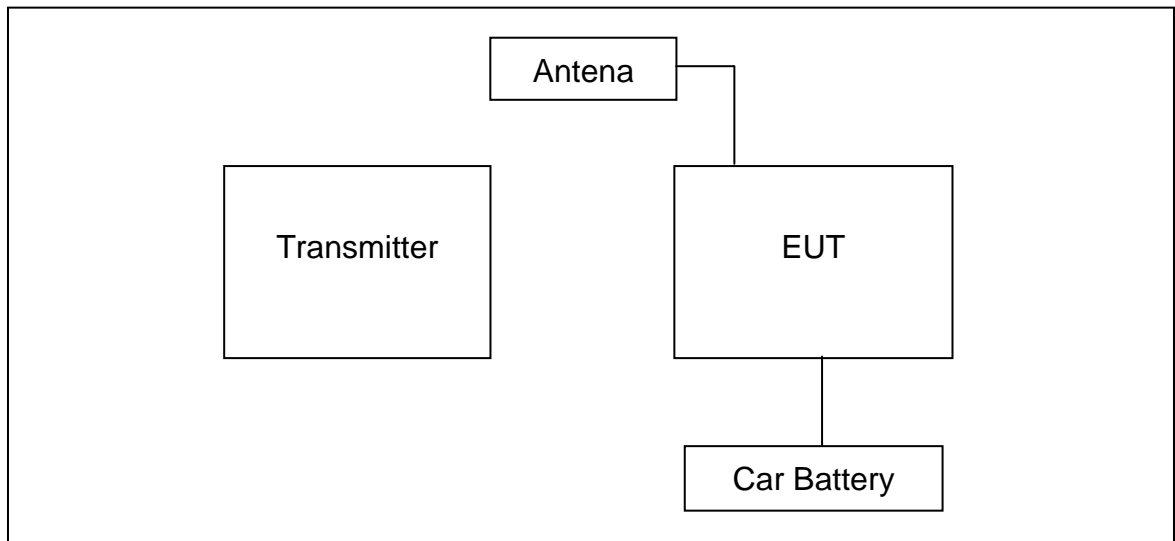
### 1.5 System Configuration

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	-	Car Battery	-	1.5	Unshielded
	-	Antenna	-	0.5	Shielded

### 1.6 System Configuration

Description	Model	Serial No.	Manufacturer
Main Board 1	15499316-02A	-	KALEX
Main Board 2	IK050085/30/BOMA	-	DELPHI
Sub-Board	VQ_RX(REV_SOP_4B)	-	-

### 1.7 Test Set-Up Configuration



### 1.8 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:2003 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall. Radiated Emission Testing was performed according to ANSI C63.4:2003 at the open field test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum. The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

### 1.9 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart B, CLASS B

Test Standards	Status
FCC Part 15,Subpart B, Class B	Applicable
Deviation from Standard	No Deviation

### 1.10 Summary of Results

The data collected shows that Model **HM-RX** complies with Part 15.109 of FCC Technical Rules. The highest emission level observed was at 40.125 MHz radiated emission with a margin of 12.2 dB.

## Radio Disturbance

### 2.1 Test Results

	Results
Conducted Emission	N/A
Radiated Emission	PASS

**Note : This device is power supplied from Car Battery. So, the conducted emission is not performed.**

### 2.2 Frequency Range

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : 30 MHz - 1000 MHz

### 2.3 Limits Of Conducted And Radiated Emission

#### 2.3.1 Limit Of Conducted Emission Of FCC Part 15, Subpart B

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : (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 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

#### 2.3.2 Limit Of Radiated Emission Of FCC Part 15, Subpart B

FREQUENCY (MHz)	Class A (at 10m)*	Class B (at 10m)*
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

\* Detector Function : Quasi - Peak

## 2.4. Test of Conducted Emission

### 2.4.1 Test Equipments

Equipment	Manufacturer	Model No.	Date of Calibration
Test Receiver	ESHS 10	Rohde & Schwarz	Apr. 2007
Two-Line V-Network	NNB 41	SCHAFFNER	Sep. 2007
Two-Line V-Network	ENV216	Rohde & Schwarz	Jan. 2007

### 2.4.2 Test Site

**Name and address : SGS Testing Korea Co., Ltd.**

18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-041

### 2.4.3 Operating Environment

Temperature : °C Humidity : %RH

Atmospheric Pressure : kPa

### 2.4.4 Measurement Data

**Measurement Bandwidth : 9kHz**

**Date of Test :**

FREQ. (MHz)	LEVEL(dB $\mu$ V)		LINE	LIMIT(dB $\mu$ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
			NA				

\* Measurements using CISPR quasi-peak mode



**Forest Lee / Test Engineer**



## 2.5 Test of Radiated Emission

### 2.5.1 Test Instruments

Description	Manufacturer	Model No.	Date of Calibration
Amplifier	8447F	H/P	Sep. 2007
Test Receiver	ESVS10	Rohde & Schwarz	Apr. 2007
Log-Periodic Antenna	HL223	Rohde & Schwarz	May 2007
Bi-conical Antenna	HK-116	Rohde & Schwarz	May 2007
Spectrum Analyzer	8593E	HP	Sep. 2007

### 2.5.2 Test Site

**Name and address : SGS Testing Korea Co., Ltd.**

18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-041

### 2.5.3 Operating Environment

Temperature : 25.0 °C

Humidity : 52 %RH

Atmospheric Pressure : 100.4 kPa

### 2.5.4 Measurement Data

**Measurement Bandwidth : 120 kHz**

**Date of Test : September, 20 2007**

FREQ. (MHz)	LEVEL (dB $\mu$ V)	POL (H/V)	AF (dB)	CL (dB)	F/S (dB $\mu$ V/m)	LIMIT (dB $\mu$ V/m)	MARGIN (dB $\mu$ V)
37.425	7.42	V	15.39	0.79	23.60	40.00	16.40
39.450	9.30	H	14.30	0.81	24.40	40.00	15.60
40.125	13.06	V	13.93	0.81	27.80	40.00	12.20
171.080	15.45	H	7.57	1.68	24.70	40.00	15.30
173.775	16.80	H	7.61	1.70	26.10	40.00	13.90

Note: The other emission level is very lower than the limit by over 20dB



**Forest Lee / Test Engineer**

### 3. Photographs of Test

- Front View of Radiated Emission (30 MHz ~ 300 MHz)



- Rear View of Radiated Emission (30 MHz ~ 300 MHz)





- Front View of Radiated Emission (300 MHz ~ 1000 MHz)



- Rear View of Radiated Emission (300 MHz ~ 1000 MHz)

