



EMI TEST REPORT

Test Report No. : 26DE0207-HO-3

Applicant : Honda Lock Mfg. Co., Ltd.

Type of Equipment : System: Integrate Immobilizer system with RKE
Product: Receiver of Keyless system

Model No. : System: HLIK-1
Product: HLIK-1R

Test Standard : FCC Part 15 Subpart B Class B 2006
(Certification)

FCC ID : MLBHLIK-1R

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

Date of test:

January 26 and 27, 2006

Tested by:

Mitsuru Fujimura
EMC Services

Approved by :

Naoki Sakamoto
Group Leader of
EMC Services

UL Apex Co., Ltd.

Head Office EMC Lab.

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CONTENTS	PAGE
SECTION 1: Client information.....	3
SECTION 2: Equipment under test (E.U.T.)	3
SECTION 3: Test specification, procedures & results	4
SECTION 4: Operation of E.U.T. during testing.....	6
SECTION 6: Radiated Emission	7
APPENDIX 1: Photographs of test setup.....	8
Radiated Emission	8
Worst Case Position.....	9
APPENDIX 2: Test instruments	10
APPENDIX 3: Data of EMI test	11
Radiated Emission	11

SECTION 1: Client information

Company Name : Honda Lock Mfg. Co., Ltd.
Address : 535-14 Oaza-Ishizue, Takanezawamachi, Shioya-Gun, Tochigi, 329-1225 Japan
Telephone Number : +81-28-680-1661
Facsimile Number : +81-28-680-1045
Contact Person : Mitsunori Suyama

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

2.1 Identification of E.U.T.

Type of Equipment : System: Integrate Immobilizer system with RKE
Product: Receiver of Keyless system
Model No. : System: HLIK-1
Product: HLIK-1R
Serial No. : 0005
Country of Manufacture : Japan
Receipt Date of Sample : January 26, 2006
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Model No: HLIK-1R (referred to as the EUT in this report) is the Receiver of Keyless system.

Equipment Type : Transceiver
Power Supply : DC12.0V
Operating Voltage : DC5.0V
[Tx section] *1)
Frequency of Operation : 125kHz
Type of modulation : ASK
Mode of Operation : Simplex
Antenna Type : Loop Antenna
Mehod of Frequency Generation : Ceramic Resonator

[Rx section]
Receiving frequency : 313.85MHz
Antenna Type : Monopole Antenna

*1) Please refer to UL Apex Test Report No. 26DE0207-HO-2 for Tx section test (FCC 15 Subpart C test)

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B 2006
Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

FCC 15.111(b)

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

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	Class B	N/A *1)	N/A	Complied
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	22.3dB 376.270MHz Horizontal	Complied

*Note: UL Apex's EMI Work Procedure QPM05.

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

*1) The test is not applicable since the EUT does not have AC power port.

*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.

3.4 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications, FCC Part15 Subpart B 2006.

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3.5 Uncertainty

Radiated Emission

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is $\pm 4.5\text{dB}(3\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.
The data listed in this test report has enough margin, more than the site margin.

3.6 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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	FCC Registration Number	IC Number	Width x Depth x Height (m)	Size of reference ground plane / horizontal conducting plane (m)	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	846015	IC4247A-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 shielded room.

3.7 Test set up, Test instruments and Data of EMI

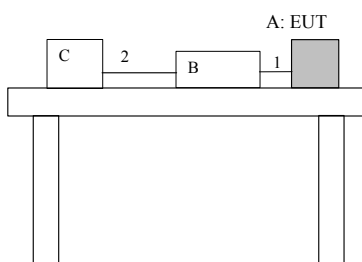
Refer to APPENDIX 1 to 3.

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

4.1 Operating modes

The mode is used : 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 of Keyless system	HLIK-1R	0005	Honda Lock Mfg. Co., Ltd.	EUT
B	Checker	-	-	Honda Lock Mfg. Co., Ltd.	-
C	Car Battery	40B19L	A030402	YUASA	-

List of cables used

No.	Name	Length (m)	Shield	Remarks
1	Signal Cable	0.5	N	-
2	DC Cable	0.5	N	-

SECTION 5: Radiated Emission

5.1 Operating environment

Test place : No.2 semi anechoic chamber.
Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a platform of nominal size, 1.0m by 0.5m, raised 80cm above the conducting ground plane.

The EUT was set on the edge 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 : Receiving mode

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

5.5 Test result

Summary of the test results: Pass

Date: January 26 and 27, 2006

Test engineer: Mitsuru Fujimura

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APPENDIX 1: Photographs of test setup

This page has been submitted as a separate exhibit.

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APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2005/04/11 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2005/02/02 * 12
MRENT-23	Spectrum Analyzer	Advantest	R3273	RE	2006/01/10 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2005/02/24 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2005/09/07 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/02/03 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2005/08/30 * 12
MPA-05	Pre Amplifier	TSJ	TSJ 1-26.5GHz PreAmp	RE	2005/07/08 * 12
MCB-03	Car Battery	YUASA	40B19L	RE	Pre Check
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24

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

Test Item :

RE: Radiated emission

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APPENDIX 3: Data of EMI test

Radiated Emission

DATA OF RADIATED EMISSION TEST

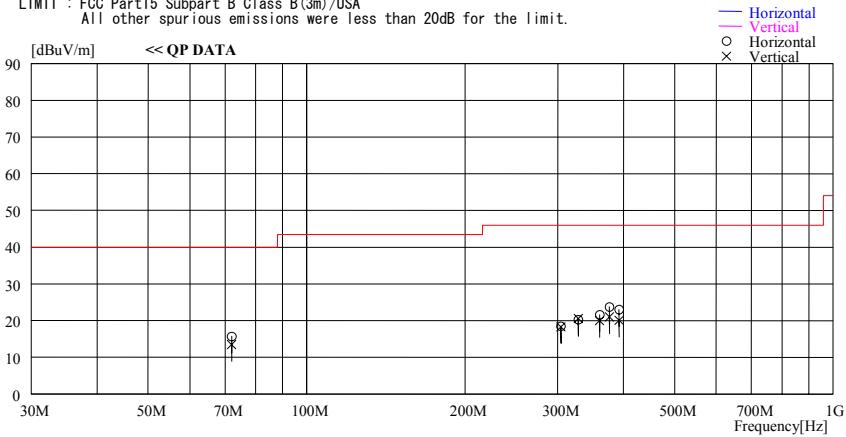
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/01/26 23:37:46

Company : Honda Lock Mfg Co., Ltd. Report No. : 26DE0207-HO
Kind of EUT : Receiver of Keyless system Power : DC 12.0V
Model No. : HLIK-1R Temp./Humi. : 26deg. C. / 25%
Serial No. : 0005 Operator : Mitsuru Fujimura

Mode / Remarks : Receiving 313.85MHz / Max-axis (Hor:Y, Ver:Y) High-Power

LIMIT : FCC Part15 Subpart B Class B(3m)/USA

All other spurious emissions were less than 20dB for the limit.



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
72.059	31.2	QP	6.5	-22.0	15.7	0	233	Hori.	40.0	24.3
72.058	29.0	QP	6.5	-22.0	13.5	99	100	Vert.	40.0	26.5
304.212	23.7	QP	14.3	-19.5	18.5	98	100	Hori.	46.0	27.5
304.219	23.5	QP	14.3	-19.5	18.3	86	154	Vert.	46.0	27.7
328.234	24.1	QP	15.3	-19.1	20.3	283	100	Hori.	46.0	25.7
328.239	24.4	QP	15.3	-19.1	20.6	152	167	Vert.	46.0	25.4
360.259	23.5	QP	16.5	-20.0	20.0	171	161	Vert.	46.0	26.0
360.260	25.1	QP	16.5	-20.0	21.6	353	100	Hori.	46.0	24.4
376.270	26.5	QP	17.0	-19.8	23.7	158	100	Hori.	46.0	22.3
376.270	23.8	QP	17.0	-19.8	21.0	177	169	Vert.	46.0	25.0
392.279	22.5	QP	17.5	-19.9	20.1	139	100	Vert.	46.0	25.9
392.280	25.4	QP	17.5	-19.9	23.0	154	100	Hori.	46.0	23.0

CHART: WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

Radiated Emission

DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/01/27 01:09:07

Company

Kind of EUT

Model No.

Serial No.

: Honda Lock Mfg. Co., Ltd.

: Receiver of Keyless system

: HLIK-1R

: 0005

Report No.

Power

Temp./Humi.

Operator

: 26DE0207-HO

: DC 12.0V

: 26deg. C. / 25%

: Mitsuru Fujimura

Mode / Remarks : Receiving 313.85MHz / Max-axis (Hor:Y, Ver:Y) High-Power

LIMIT : FCC Part15 Subpart B Class B(3m)/USA, above1GHz:PK
FCC Part15 Subpart B Class B(3m)/USA, above1GHz:AV

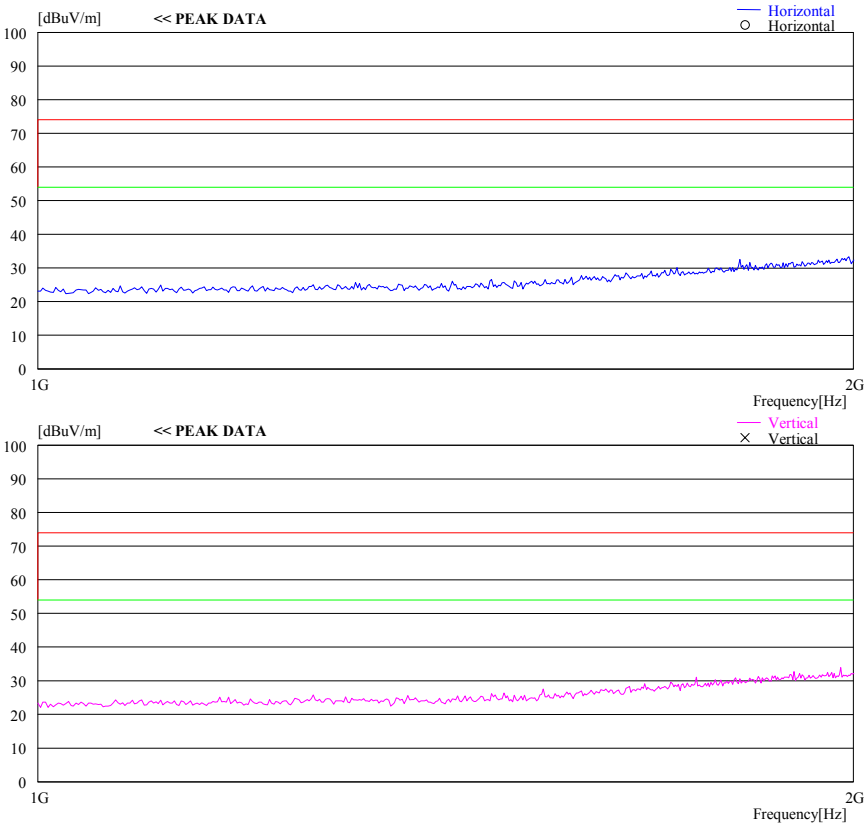


CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)