

FCC COMPLIANCE REPORT

Order No. : SKE-03-0629/E
Reference No. : F690501/LF-EMC000068
Applicant : Daewoo Precision Industries Ltd.
Address of Applicant : 609-600 P.O. BOX 25, KumJeong, Busan, Korea

Equipment Under Test (EUT) :

Name : Immobilizer
Model No. : IM800
FCC ID : IT7IM800T
Standards : FCC Part 15, Subpart C
ANSI C63.4:1992

Date of Receipt : 23 June 2003

Date of Test : 02 July 2003

Date of Issue : 07 July 2003

Test Result :	PASS
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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.



Kew-Seung, Lim
EMC DIV. Manager
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1. General Information

1.1 Manufacturer Information

Manufacturer : Daewoo Precision Industries Ltd.

Address : 609-600 P.O. BOX 25, KumJeong, Busan, Korea

1.2 General Description of EUT

Name : Immobilizer

Model No. : IM800

Serial No : N/A

1.3 Details of EUT

Operating Frequency : 125kHz

Tested Power Supply : DC 12V

Port : I/O

Description of Operating : Operate it continually.

Modifications to the EUT : None

1.4 Description of Support Units

Product	Model No.	Serial No.	Manufacturer
DC Power Supply	3003	9401892	Protek
Car Key	N/A	N/A	N/A

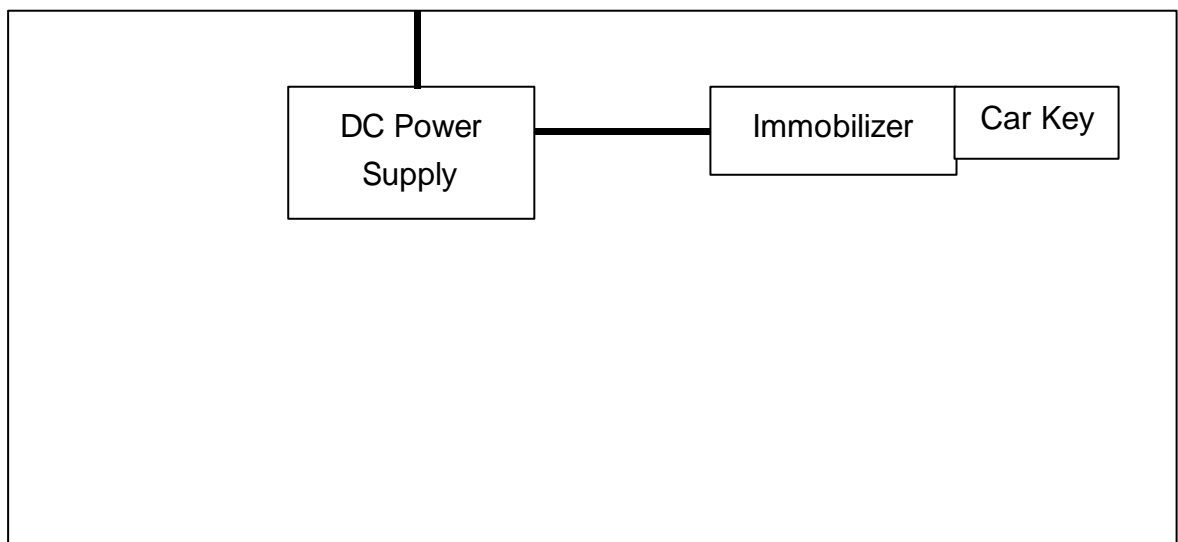
1.5 Cable List

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	I/O	DC Power Supply	DC Output	0.6	Unshielded
DC Power Supply	DC Output	Immobilizer	I/O	0.6	Unshielded
	AC IN	LISN	-	1.2	Unshielded

1.6 System Configuration

Description	Model	Serial No.	Manufacturer
Main Board	IM311214	N/A	N/A

1.7 Test Set-Up Configuration



1.8 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:1992 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 C63.4:1992 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 3 meters. 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 and C

Test Standards	Status
FCC Part 15.109 & 15.209	Applicable
Deviation from Standard	No Deviation

1.10 Summary of Results

The data collected shows that Model **IM800** complies with Part 15.209 of FCC Technical Rules. The highest emission level observed was at 750kHz radiated emission with a margin of 18.54dB.

Radio Disturbance

2.1 Test Results

	Results
Conducted Emission	N/A
Radiated Emission	PASS

Not applied because it is powered from an automobile 12VDC System.

2.2 Frequency Range

Conducted Emission : 450 kHz - 30 MHz

Radiated Emission : 0kHz – 1000 MHz

2.3 Limits Of Radiated Emission

2.3.1 Limit Of Radiated Emission Of FCC Part 15.109 Class B

FREQUENCY (MHz)	Class A (at 10m)*	Class B (at 3m)*
	uV/m(dBuV/m)	uV/m(dBuV/m)
30 - 88	90(39)	100(40)
88 - 216	150(43.5)	150(43.5)
216 - 960	210(46.4)	200(46)
Above 960	300(49.5)	500(54)

2.3.2 Limit Of Radiated Emission Of FCC Part 15.209

FREQUENCY (MHz)	Field Strength*	Measurement Distance
	Microvolts/Meter	Meters
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	2400/F(kHz)	30

Note : (1) *Detector Function : Peak

(2) The lower limit shall apply at the transition frequencies.

(3) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(4) "F" Means Frequency

2.4. Test of Conducted Emission**2.4.1 Test Equipments**

Equipment	Manufacturer	Model No.	Date of Calibration
Test Receiver	R&S	ESPC	Nov. 2002
LISN	3825/2	EMCO	Nov. 2002
LISN	3825/2	EMCO	Dec. 2002
Pulse Limiter	PMM	PL-01	Jul. 2002
Shielded Room	Daeil	N/A	Aug 2002

2.4.2 Test SiteName and address : **SGS KES Co., Ltd.**

705, Dongchun-Dong, Yongin, Korea 449-840

2.4.3 Operating Environment

Temperature : degree C

Humidity : %RH

Atmospheric Pressure : mBar

2.4.4 Measurement Data

Measurement Bandwidth : 9kHz

Date of Test :

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB μ V)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average

Note : This test item is not applied because this product is supplied DC
Power from Car Battery.



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2.5 Test of Radiated Emission**2.5.1 Test Instruments**

Description	Manufacturer	Model No.	Date of Calibration
Test Receiver	R & S	ESVS30	Nov. 2002
Spectrum Analyzer	H.P	E4411A	Oct. 2002
RF Amplifier	H.P	8447F	May. 2003
Loop Antenna	EMCO	6502	Jul. 2003
RF Select s/w	DAIWA	CS201	Oct. 2002

2.5.2 Test Site**Name and address : SGS KES Co., Ltd.**

705, Dongchun-Dong, Yongin, Korea 449-840

2.5.3 Operating Environment

Temperature : 29 degree C

Humidity : 36 %RH

Atmospheric Pressure : 1009 mBar

2.5.4 Measurement Data**Measurement Bandwidth : 1kHz****Date of Test : July 02 2003**

FREQ. (kHz)	LEVEL (dB μ V)	POL (H/V)	AF (dB)	CL (dB)	F/S (μ V/m)	LIMIT (dB)	MARGIN (dB)
125.00	23.1	V	10.08	1.11	34.29	65.7	31.37
250.00	22.1	V	10.08	1.32	33.50	59.6	26.14
375.00	19.6	V	10.08	1.00	30.68	56.1	25.44
500.00	15.8	V	10.06	1.23	27.09	53.6	26.53
625.00	21.6	V	10.06	1.14	32.80	51.7	18.88
750.00	20.3	V	10.06	1.20	31.56	50.1	18.54

Digital Radiated Emissions, Class B

FREQ. (kHz)	LEVEL (dB μ V)	POL (H/V)	AF (dB)	CL (dB)	F/S (μ V/m)	LIMIT (dB)	MARGIN (dB)
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Meets class B limit by more than 20dB

* AF = Antenna Factor. ** CL = Cable Loss.

*** Margin=Each Frequency Limit Level(dBuV) - (Level+AF+CL)

**** The Limit is translated from 300m/30m Value to 3m.


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3. Measured Bandwidth

