



SGS

Date issued: June 18, 2010

CERTIFICATE No.: F690501/SP-EMY000307

CERTIFICATE OF EMC COMPLIANCE

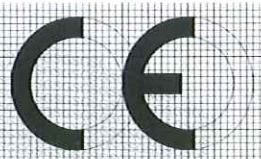
Order No. : G-44-2010-01609
Product submitted : SAFE LOCK
(Model: YFM/310/FG / Alt. Model: YFM/420/FG2, YFM/520/FG2, YDM/420/FG3)
Applicant : iRevo, Inc.
iRevo Bldg., 459-7, Gasan-dong, Geumcheon-gu, Seoul, 153-803, Korea
Testing Laboratory : SGS Lab 23 – SGS Testing Korea Co., Ltd.
Test Report Number(s) : F690501/RF-EMY005887
Date of Receipt : June 04, 2010
Date of Test : June 14, 2010 to June 16, 2010
Specification Requested : EN 55022:2006/A1:2007
EN 50130-4:1995/A1:1998/A2:2003


Conclusion


The apparatus meets the requirements of the above standards and hence fulfills the requirements of Directive 89/336/EEC as amended by Directives 92/31/EEC, 93/68/EEC and 2004/108/EC.

This certificate is only valid for the equipment and configuration described, in conjunction with the test data detailed above. It does not permit the use of the SGS PRODUCT CERTIFICATION MARK.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.




WonWoo Lee
Manager


Eric-IS. Lee
General Manager

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Member of SGS Group (Société Générale de Surveillance)

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F690501

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SGSPAPER
05536708



EMC TEST REPORT

Reference No. : G-44-2010-01609

Applicant : iRevo, Inc.

Equipment Under Test (EUT) :

Product Name : SAFE LOCK

Model Name : YFM/310/FG2

Alt. Model Name : YFM/420/FG2, YFM/520/FG2,
YDM/420/FG3

Applied Standards : EN 55022:2006/A1:2007

EN 50130-4:1995/A1:1998/A2:2003

Date of Receipt : June 04, 2010

Date of Test : June 14, 2010 to June 16, 2010

Date of Issue : June 18, 2010

Test Results : Complied

Tested by :



Jerry Jeong

Reviewed by :



Julia Choi

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 may only be reproduced and distributed in full. 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. Any mention of SGS International Electrical Approvals or Testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS international Electrical Approvals in writing.

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1. General Information

1.1 Client Information

Applicant : iRevo, Inc.
Address of Applicant : iRevo Bldg., 459-7, Gasan-dong, Geumcheon-gu, Seoul,
153-803, Korea
Manufacturer : iRevo, Inc.
Address of Manufacturer : iRevo Bldg., 459-7, Gasan-dong, Geumcheon-gu, Seoul,
153-803, Korea

1.2 Test Laboratory

Name and Address : SGS Testing Korea Co., Ltd.
705, Dongchun-Dong, Yongin-City, Gyeonggi-Do,
Korea 449-840
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea
435-041

1.3 General Information of E.U.T.

Product Name : SAFE LOCK
Model Name : YFM/310/FG2
Alt. Model Name : YFM/420/FG2, YFM/520/FG2, YDM/420/FG3
Serial No. : None
Power Supply : DC 1.5 * 4 Battery

1.4 Operating Modes and Conditions

Operating mode	Operating condition
-	Ready state(idle)

1.5 Peripheral Equipments

Description	Model	Serial No.	Manufacturer
-	-	-	-

1.6 Cable List

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	-	-	-	-	-

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Front BD	SafeLock Front PV02	SS1D04F01169	-
MAIN BD	SafeLock MAIN PV02	SS1D04M00605	-

1.8 Test System Layout

EUT

1.9 Applicable Standards for Testing

Standards	Status	Deviation
EN 55022:2006/A1:2007	Applicable	No Deviation
EN 50130-4: 1995/A1:1998/A2:2003	Applicable	No Deviation

1.10 Summary of Test Results

Test Item	Standards	Results
Conducted Emission	EN 55022:2006/A1:2007	N/A
Radiated Emission	EN 55022:2006/A1:2007	Complied
Electrostatic Discharge	EN 61000-4-2 :1995/A1:1998/A2:2001	Complied
Radiated Immunity	EN 61000-4-3 :2006	Complied
Fast Transients	EN 61000-4-4 :2004	N/A
Surges	EN 61000-4-5 :2006	N/A
Conducted Immunity	EN 61000-4-6 :2007	N/A
Voltage dips and Interruptions	EN 61000-4-11 :2004	N/A

* Conducted Emission, Fast Transients, Surges, Conducted Immunity, Voltage dips and Interruptions test items are excepted from test, because EUT uses DC 12V power.

EMISSION

2.1 Test Results

Test Items	Standards	Test Results
Conducted Emission	EN 55022:2006/A1:2007	N/A
Radiated Emission	EN 55022:2006/A1:2007	Complied

2.2 Test Equipments

Equipment	Model	Manufacturer	Last Cal. Date
Test Receiver	ESVS 30	Rohde & Schwarz	2010.01.15
Bilog Antenna	CBL6111C	SCHAFFNER	2009.04.24
Open Site	-	K.E.S	2010.04.17
RF Select S/W	CX-210N	DIAMOND Antenna	-
RF Amplifier	8447F	HEWLETT PACKARD	2009.09.29

Note : Only the calibration period of Bilog Antenna is 2 years but the period of every equipment is 1 year.

2.3 Test Site

Radiated Emission : 10m Open Area Test Site in Yongin Laboratory.

2.4 Radiated Emission Test Data

The initial preliminary exploratory scans were performed at a 3 meter distance chamber using a max hold mode incorporating a Peak detector. The final test data was measured using a Quasi-Peak detector, at a test measurement distance of 10 meters.

Temperature : 24.1 ~ 24.3

Humidity : 40.0 % RH ~ 41.0 % RH

Atmospheric Pressure : 99.2 ~ 99.2 kPa

Measurement Uncertainty of Radiated Emission : ± 4.21 dB($k=2$)

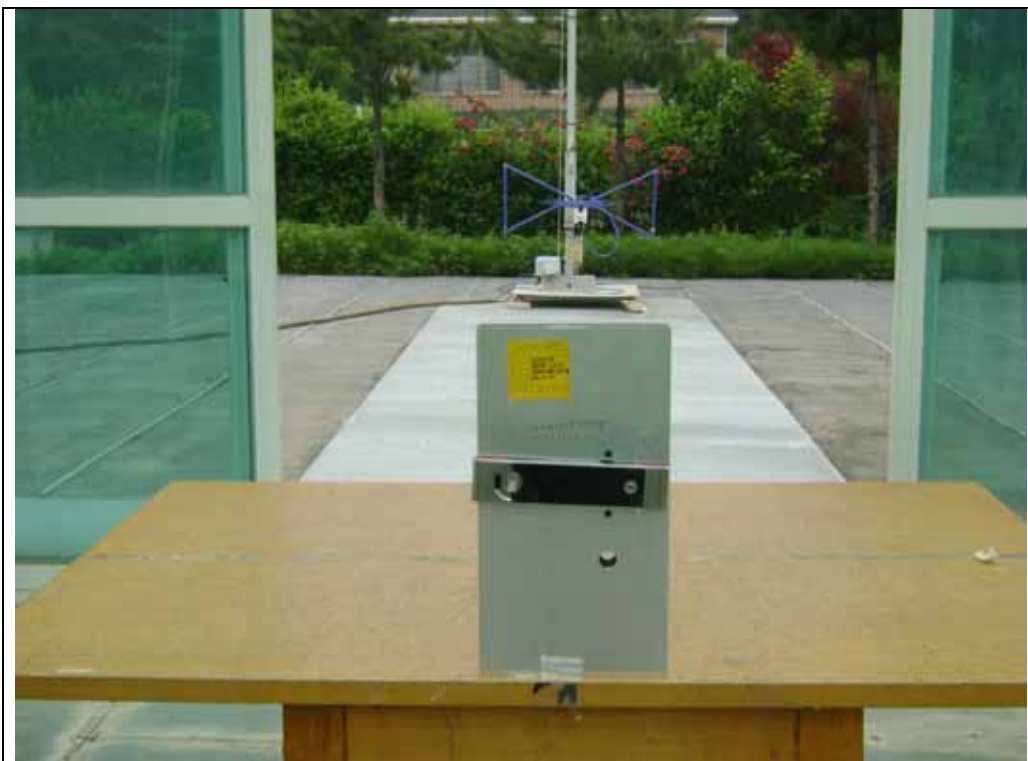
FREQ. (MHz)	LEVEL (dB μ V)	POL (H/V)	AF (dB)	CL (dB/m)	AMP (dB)	F/S (dB μ V/m)	LIMIT (dB μ V/m)	MARGIN (dB)
The radiated emission level is very lower than the limit by 20 dB.								

Note : • AF = Antenna Factor • CL = Cable Loss • F/S = Field Strength
 • POL H = Horizontal • POL V = Vertical
 • Margin = Limit – F/S • F/S = Level + AF + CL - AMP

2.5 Modifications

There was no modified item during the test.

2.6 Photographs of Radiated Emission



IMMUNITY

3.1 Test Results

Test Items	Standards	Test Results
Electrostatic Discharge	EN 61000-4-2 :1995/A1:1998/A2:2001	Complied
Radiated Immunity	EN 61000-4-3 :2006	Complied
Fast Transients	EN 61000-4-4 :2004	N/A
Surges	EN 61000-4-5 :2006	N/A
Conducted Immunity	EN 61000-4-6 :2007	N/A
Voltage dips and Interruptions	EN 61000-4-11 :2004	N/A

* Fast Transients, Surges, Conducted Immunity, Voltage dips and Interruptions test items are excepted from immunity test, because EUT uses DC 12V power.

3.2 Electrostatic Discharge

3.2.1 Test Equipments

Description	Model	Manufacturer	Last Cal. Date
ESD Generator	NSG435	SCHAFFNER	2009.07.08
HCP / VCP	-	K.E.S	-

3.2.2 Test Site

Shield Room in Yongin Laboratory

3.2.3 Environment Conditions

Temperature : 20.7 ~ 20.7

Humidity : 38.0 % RH ~ 38.0 % RH

Atmospheric Pressure : 99.6 ~ 99.6 kPa

3.2.4 Test Points

No.	Test Points
	HCP & VCP
1	Enclosure(Top, Bottom, Front)
2	Enclosure(Front)
3	Enclosure(Control Box)

3.2.5 Test Results


Direct Application			
Level(kV)	Test Point	Discharge Method	Results
±2, ±4, ±6	1	Contact	Complied
±2, ±4, ±8	2,3	Air	Complied
Indirect Application			
Level(kV)	Test Point	Discharge Method	Results
±2, ±4, ±6	HCP / VCP	Contact	Complied


There is no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of the discharge is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipments as a change.

The EUT meets the acceptance criteria for the functional test, after the conditioning.

3.2.6 Test Points

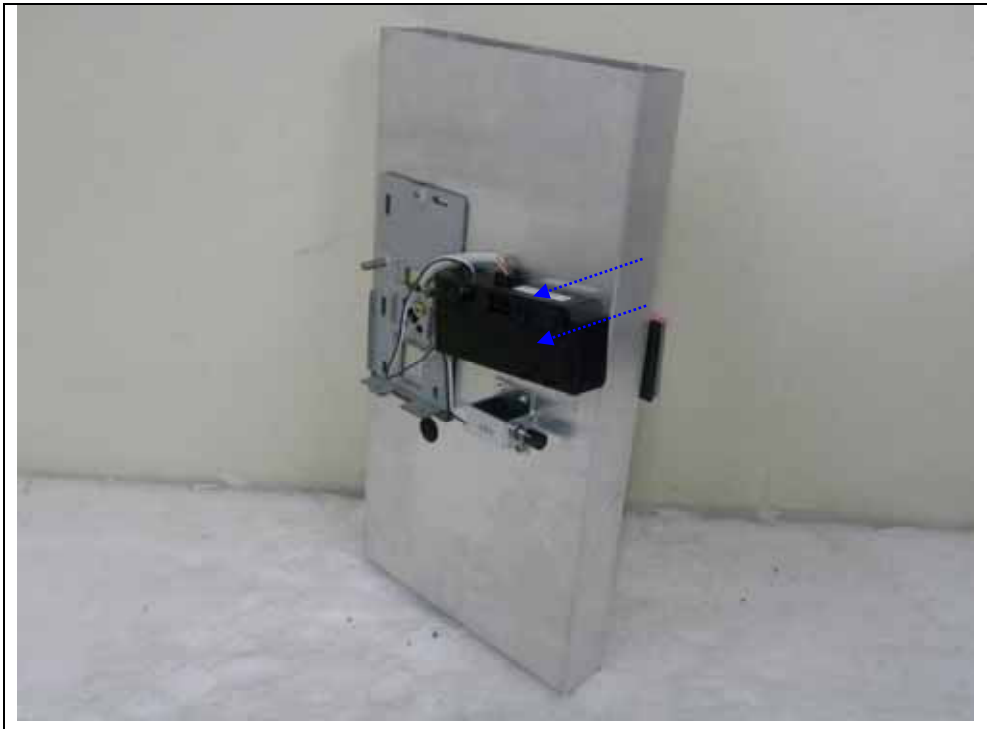

 Contact


 Air

- Front View



- Rear View



3.2.7 Photograph of Electrostatic Discharge



3.3 Radiated RF Electromagnetic Field

3.3.1 Test Equipments

Description	Model No.	Manufacturer.	Last Cal. Date
Log-Periodic Antenna	AT1080	AR	2010.01.13
Horn Antenna	AT4002A	AR	2010.01.13
Signal Generator	SML03	R & S	2010.01.08
Voltage Sensor	URV5-Z2	R & S	2010.01.06
Milli voltmeter	URV5	R & S	2010.01.06
Amplifier	60S1G3	AR	2010.01.13
Amplifier	250W100A	AR	2010.01.13
Dual Directional Coupler	DC6180M1	AR	2010.01.13
Dual Directional coupler	DC7144M1	AR	2010.01.13

3.3.2 Test Site

RS Chamber in Gunpo Laboratory

3.3.3 Environment Conditions

Temperature : 21.0 ~ 21.9

Humidity : 42.0 % RH ~ 45.0 % RH

Atmospheric Pressure : 99.5 ~ 99.5 kPa

3.3.4 Test Results

Frequency Range (MHz)	Position	Polarity	Field Strength	Modulation	Results
80 ~ 2 000	Front	Horizontal, Vertical	10 V/m	80 %AM(1 kHz)	Complied
				50 %PM(1 Hz)	
80 ~ 2 000	Rear	Horizontal, Vertical	10 V/m	80 %AM(1 kHz)	Complied
				50 %PM(1 Hz)	
80 ~ 2 000	Left	Horizontal, Vertical	10 V/m	80 %AM(1 kHz)	Complied
				50 %PM(1 Hz)	
80 ~ 2 000	Right	Horizontal, Vertical	10 V/m	80 %AM(1 kHz)	Complied
				50 %PM(1 Hz)	

There is no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the field strength is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipments as a change, and no such flickering of indicators occurs at a field strength of 10 V/m.

a) there is no permanent damage or change to the EUT (e.g.no corruption of memory or changes to programmable settingsetc.);

b) at 3V/m, any deterioration of the picture is so minor that the system could still be used; and

c) there is no observable deterioration of the picture at 1V/m.

The EUT meets the acceptance criteria for the functional test, after the conditioning.

3.3.5 Photograph of Radiated RF Electromagnetic Field (below 1 GHz)



3.3.6 Photograph of Radiated RF Electromagnetic Field (Above 1GHz)



4. Photographs of EUT

- Front View



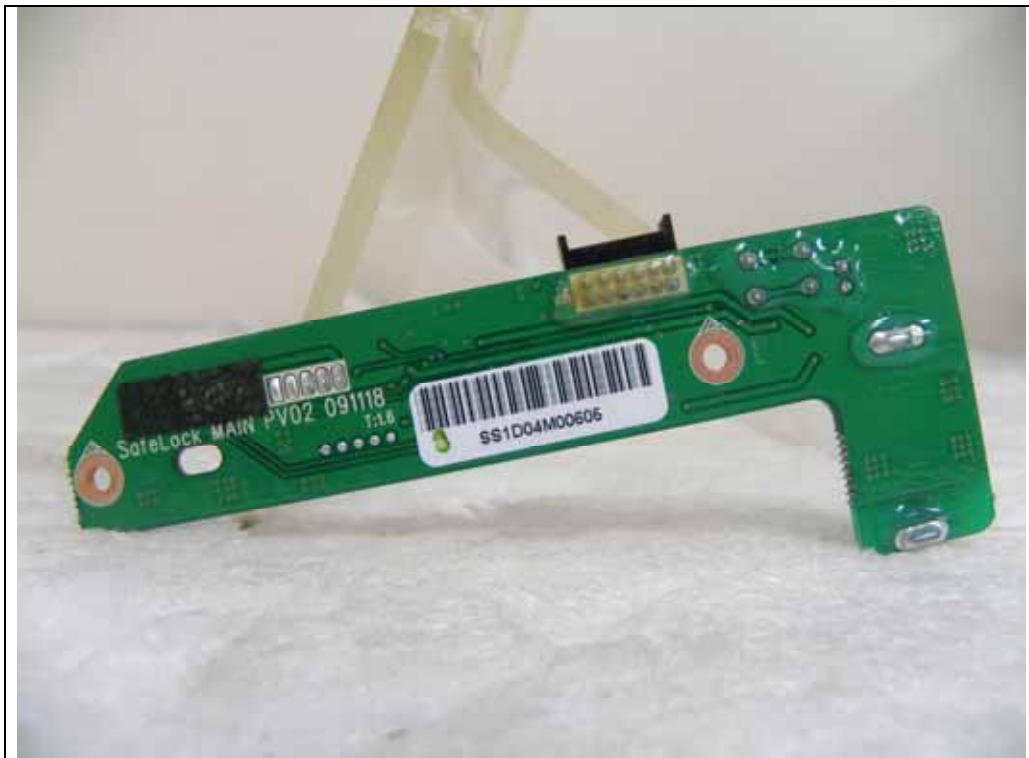
- Rear View



- Front BD



- MAIN BD



● Inside

