



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

TEST REPORT For FCC

Test Report No. : 2009040040
Date of Issue : April 22, 2009
Model/Type No. : SHS-7120XMS/EN
FCC ID : WQRSHS-7120XMS/EN
Kind of Product : DIGITAL DOORLOCK
Applicant : SEOUL COMMTECH Co., Ltd.
Applicant Address : 448-11, Seongnae 3-dong, Gangdong-gu, Seoul, Korea
Manufacturer 1 : ORIENTAL INTERGRATED ELECTRONICS Co., Ltd.
Manufacturer Address 1: 281-34, Dodang-dong, Wonmi-gu, Buchun-si, Gyeonggi-do, Korea
Manufacturer 2 : JE TECHNOLOGY Co., Ltd.
Manufacturer Address 2: Dasong B/D 5F 694-29, Gumjung-dong, Kunpo-si, Gyeonggi-do, Korea
Contact Person : Dong Yeol Kim / Engineer
Telephone : +82-2-2225-6804
Received Date : March 20, 2009
Test Period : Start : March 20, 2009 End : April 22, 2009
Test Results : In Compliance Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by

Eun-Won, Lee
Test Engineer
Date: April 22, 2009

Reviewed by

Young-Joon, Park
Technical Manager
Date: April 22, 2009



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

REPORT REVISION HISTORY

Date	Revision	Page No
April 22, 2009	Issued (2009040040)	All

This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. will constitute fraud and shall nullify the document.



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
1.0 General Product Description	4
1.1 Model Differences	4
1.2 Device Modifications	4
1.3 EUT Configuration(s)	5
1.4 Test Software	5
1.5 EUT Operating Mode(s)	5
1.6 Configuration	6
1.7 Calibration Details of Equipment Used for Measurement	7
1.8 Test Facility	7
1.9 Measurement Procedure	7
1.10 Laboratory Accreditations and Listings	8
2.0 Emissions Test Regulations	9
2.1 Radiated Electric Field Emissions – 15.209	10
2.2 Conducted Voltage Emissions – 15.207	11
APPENDIX A – TEST DATA	12
Radiated Electric Field Emissions (Quasi-Peak reading)	12
Conducted Voltage Emissions (AC ADAPTOR Mode)	14
APPENDIX B - Test Setup Photos and Configuration	16
Radiated Electric Field Emissions (9 kHz ~ 30 MHz) : Battery	16
Radiated Electric Field Emissions (30 MHz ~ 1000 MHz) : Battery	17
Radiated Electric Field Emissions (9 kHz ~ 30 MHz) : AC ADAPTOR	18
Radiated Electric Field Emissions (30 MHz ~ 1000 MHz) : AC ADAPTOR	19
APPENDIX C – EUT Photographs	20
EUT External Photographs	21
EUT Internal Photographs	26
PCB	27
FCC ID label and location	33



1.0 General Product Description

1.0.1 Tested Equipment

- Unless otherwise indicated, all tests were conducted on Model SHS-7120XMS/EN.
- Tests performed on Model _____ were considered to be representative of Model(s) _____.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: 86(W) by 222(H) by 69(D) mm (Outdoor Unit)
 86(W) by 222(H) by 69(D) mm (Indoor Unit)

Mobility: Hand-held Table-top Built-in
 Traveling Floor-standing

Serial No.: Prototype

1.0.3 Electrical Ratings

Input 1: 7.5 Vdc (5 AA Alkaline 1.5 V Batteries (LR6))
 Output 1: -

Input 2: 12 Vdc (AC ADAPTOR) Input: 100-230 Vac, 50/60 Hz, 1.0 A
 Output: 12 Vdc, 2.5 A

Output 2: -

1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage 1: 7.5 Vdc (Battery)
 Frequency 1: -

Voltage 2: 120 Vac (AC ADAPTOR)
 Frequency 2: 60 Hz

1.0.5 Clock & Other Frequencies Utilized

0.125 MHz, 7.3728 MHz

1.1 Model Differences

Not applicable

1.2 Device Modifications

Not applicable



1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
AC ADAPTOR	Sin Sung Electronics Co., Ltd.	SHT-PS1250X	-	-

Cable Description

#	Description	Ferrite Core	Length (m)	Other Details
1	AC Power Cable, Unshielded	No	1.8	Connect to AC Power
2	DC IN Cable, Unshielded	Yes	1.6	Between the EUT and an AC ADAPTOR

1.4 Test Software

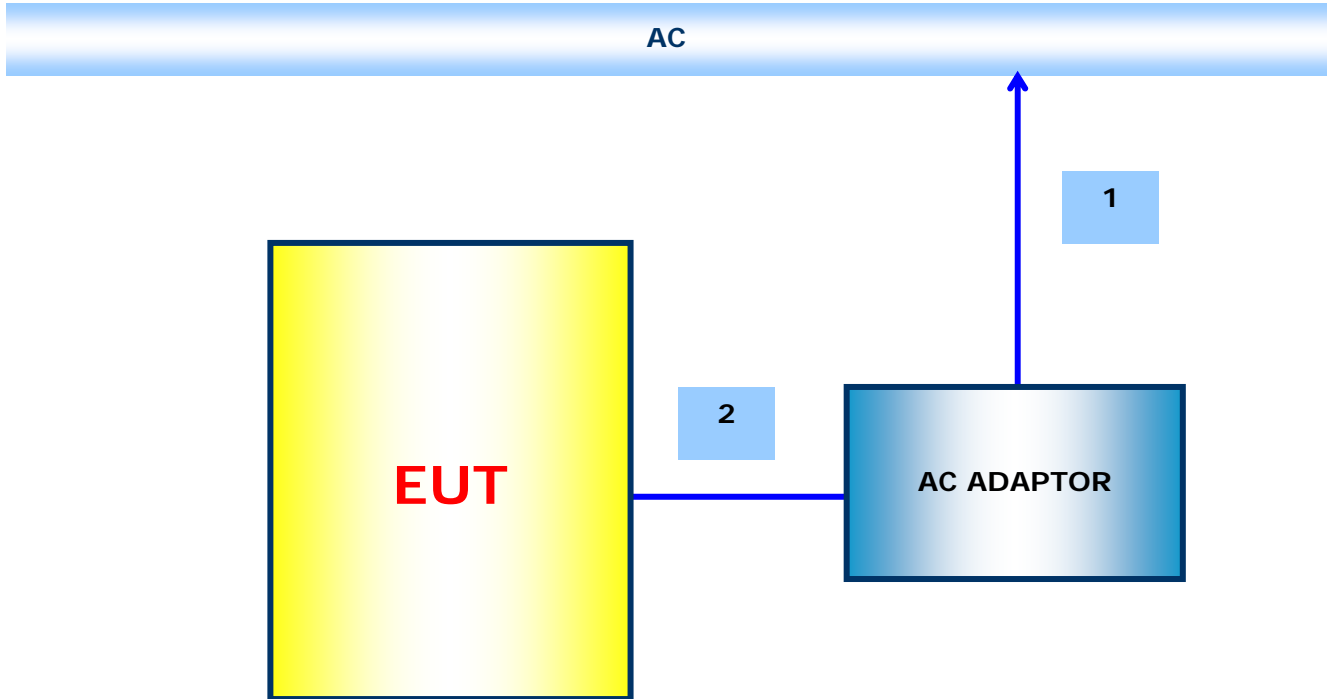
- EMC Test V 1.0
- Display Test Patterns – V1.5
- Ping.exe
- Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

- Standby
- Display circles pattern
- Practice operation – EUT transmitting at 0.125 MHz continuously
- Scrolling 'H'
- Read / Write

1.6 Configuration





CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2003 7.2.3, 7.2.4, 8.3.1.1, 8.3.1.2



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification





CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	 R-948, C-986
KOREA	KCC	EMI (10 meter Open Area Test Site and two conducted sites) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 No. 51, KR0025
International	KOLAS	EMC	



2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

- EN 61000-6-3:2007
- EN 61000-6-4:2007
- EN 55011:2007 +A2:2007 Group 1 Group 2
 Class A Class B
- EN 55013:2001 +A1:2003 +A2:2006
- EN 55014-1:2006
- EN 55015:2006
- EN 61204-3:2000 Class A Class B
- EN 61131-2:2003
- EN 61326-1:2006 Class A Class B
- EN 55022:2006 Class A Class B
- EN 61000-3-2:2006
- EN 61000-3-3:1995 +A1:2001 +A2:2005
- VCCI V-3/2008.04 Class A Class B
- AS/NZS CISPR22:2006 Class A Class B
- FCC Part 15 Subpart C
- CISPR 22:2006 Class A Class B



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

2.1 Radiated Electric Field Emissions – 15.209

Reference Standard

FCC Part 15.209

Test Date

April 7, 2009

Test Location

EMI-OATS: Testing was performed at a test distance of 3 m

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input checked="" type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESVS30	826638/008	2009-06-10
<input checked="" type="checkbox"/>	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2010-06-20
<input checked="" type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESHS30	828144/002	2010-02-27
<input checked="" type="checkbox"/>	Loop Antenna	EMCO	6502	9107-2652	2010-10-13

Frequency Range of Measurement

9 kHz to 1000 MHz

Instrument Settings

IF Band Width: 10 kHz (9 kHz to 30 MHz)

IF Band Width: 120 kHz (30 MHz to 1000 MHz)

Radiated emission limits

Frequency (MHz)	Field Strength of Fundamental uV/m	Field Strength of Fundamental dBuV/m (3 m)
0.009-0.490	2400/F (kHz)	128.5-93.8
0.490-1.705	24000/F (kHz)	73.8-63.0
1.705-30.0	30	49.5
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Results

The requirements are:

- MET
 NOT MET
 NOT APPLICABLE

Remarks

See Appendix A for test data



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

2.2 Conducted Voltage Emissions – 15.207

Reference Standard

FCC Part 15.207

Test Date

April 10, 2009

Test Location

Shielded Room

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESHS30	828144/002	2010-02-27
<input type="checkbox"/>	LISN	EMCO	3825/2	9607-2575	2009-08-19
<input type="checkbox"/>	LISN	EMCO	3825/2	9409-2246	2009-08-19
<input checked="" type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESHS30	862024/001	2010-03-04
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ESH3-Z5	100207	2009-12-12
<input checked="" type="checkbox"/>	LISN	EMCO	3825/2	9206-1971	2009-12-12

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Conducted Emission limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test Results

The requirements are:

MET

Frequency (MHz)	Measured Data (dBuV)	Margin (dB)	Remark
0.44	38.2	8.9	Average

NOT MET

NOT APPLICABLE

Remarks

See Appendix A for test data.



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

APPENDIX A – TEST DATA

Radiated Electric Field Emissions (Quasi-Peak reading)

#1 Battery Mode

1) Fundamental Frequency Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
0.125	52.9	H	1.0	10.7	0.1	105.7	63.7	42.0
0.125	52.4	V	1.0	10.7	0.1	105.7	63.2	42.5

2) Frequency Range from 9 kHz to 30 MHz Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
0.250	24.6	H	1.0	10.0	0.1	99.6	34.7	64.9
0.250	23.9	V	1.0	10.0	0.1	99.6	34.0	65.6

3) Frequency Range from 30 MHz to 1000 MHz Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
41.47	23.0	V	1.2	12.9	0.2	40.0	36.1	3.9
87.37	25.8	V	1.6	8.7	0.7	40.0	35.2	4.8
101.55	29.6	V	1.0	9.6	0.9	43.5	40.1	3.4
116.40	25.1	V	1.0	9.9	1.0	43.5	36.0	7.5
130.57	26.5	V	1.2	9.1	1.1	43.5	36.7	6.8
879.25	12.2	H	3.4	20.7	4.6	46.0	37.5	8.5



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

#2 AC ADAPTOR Mode

1) Fundamental Frequency Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
0.125	53.8	H	1.0	10.7	0.1	105.7	64.6	41.1
0.125	51.5	V	1.0	10.7	0.1	105.7	62.3	43.4

2) Frequency Range from 9 kHz to 30 MHz Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
0.250	25.0	H	1.0	10.0	0.1	99.6	35.1	64.5
0.250	23.6	V	1.0	10.0	0.1	99.6	33.7	65.9

3) Frequency Range from 30 MHz to 1000 MHz Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
41.47	23.5	V	1.4	12.9	0.2	40.0	36.6	3.4
87.37	25.6	V	1.8	8.7	0.7	40.0	35.0	5.0
101.55	29.7	V	1.0	9.6	0.9	43.5	40.2	3.3
116.40	25.0	V	1.2	9.9	1.0	43.5	35.9	7.6
130.57	26.4	V	1.0	9.1	1.1	43.5	36.6	6.9
879.25	12.0	H	3.6	20.7	4.6	46.0	37.3	8.7



CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

Conducted Voltage Emissions (AC ADAPTOR Mode)

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
				[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
0.15	0.1	0.2	N	66.0	46.9	47.2	18.8	56.0	32.9	33.2	22.8
0.19	0.1	0.2	N	64.0	44.7	45.0	19.0	54.0	37.3	37.6	16.4
0.24	0.1	0.2	N	62.1	41.4	41.7	20.4	52.1	37.2	37.5	14.6
0.29	0.1	0.2	N	60.5	38.7	39.0	21.5	50.5	35.1	35.4	15.1
0.34	0.1	0.2	N	59.2	36.3	36.6	22.6	49.2	33.0	33.3	15.9
0.44	0.1	0.3	N	57.1	39.7	40.1	17.0	47.1	37.8	38.2	8.9

H : Hot, N : Neutral



CTK Co., Ltd.

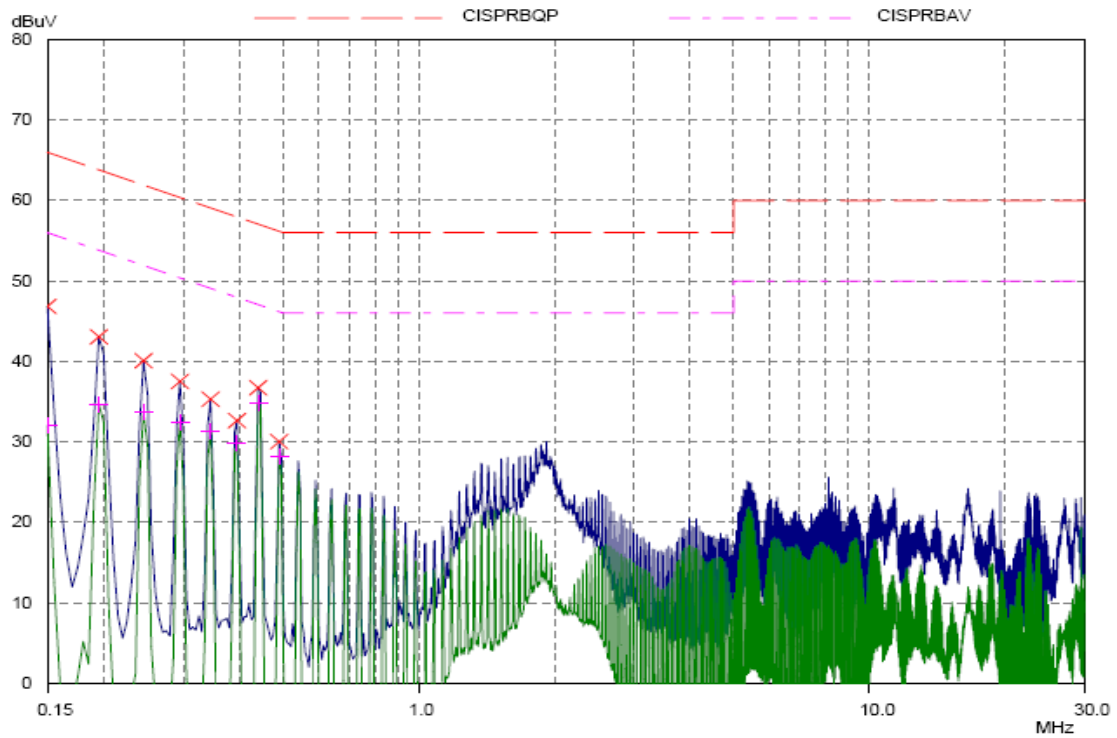
386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

[HOT]



[NEUTRAL]

