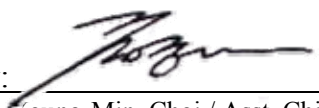
ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR SUPERHETRODYNE RECEIVER

Test Report No.	**: E103R-027**
AGR No.	**: A103A-017**
Applicant	**: Shinchang Electrics Co., Ltd.**
Address	**: 734-2, Wonshi-dong, Danwon-gu, Ansan-si, Kyungki-do, 425-090, Korea**
Manufacturer	**: Shinchang Electrics Co., Ltd.**
Address	**: 734-2, Wonshi-dong, Danwon-gu, Ansan-si, Kyungki-do, 425-090, Korea**
Type of Equipment	**: Remote Keyless Entry System**
FCC ID	**: NYOSEKSAM11ARX**
Model No.	**: SEKS-AM11ARx**
Serial number	**: N/A**
Total page of Report	**: 9 pages (including this page)**
Date of Incoming	**: March 03, 2010**
Date of issuing	**: March 10, 2010**

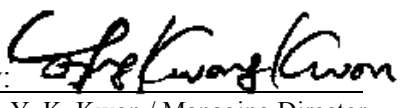
SUMMARY

The equipment complies with the regulation; **FCC PART 15 SUBPART B §15.101**

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: 

Young-Min, Choi / Asst. Chief Engineer
EMC/RF Center
ONETECH Corp.

Reviewed by: 

Y. K. Kwon / Managing Director
EMC/RF Center
ONETECH Corp.

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EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289 FAX: 82-31-766-2904)

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1. VERIFICATION OF COMPLIANCE

APPLICANT : Shinchang Electrics Co., Ltd.
ADDRESS : 734-2, Wonshi-dong, Danwon-gu, Ansan-si, Kyungki-do, 425-090, Korea
CONTACT PERSON : Mr. Hak-Su, Khim / Test Section Assistant Manager
TELEPHONE NO : +82-41-901-0551
FCC ID : NYOSEKSAM11ARX
MODEL NAME : SEKS-AM11ARx
BRAND NAME : KIA
SERIAL NUMBER : N/A
DATE : March 10, 2010

EQUIPMENT CLASS	CYY - Communications Receiver used w/ Pt 15 Tx
E.U.T. DESCRIPTION	Remote Keyless Entry System - SUPERHETRODYNE RECEIVER
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.4: 2003
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 § 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m open area test site

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. GENERAL INFORMATION

2.1 Product Description

The SHINCHANG ELECTRICS CO., LTD., Model SEKS-AM11ARx (referred to as the EUT in this report) is a receiver that is fixed inside the vehicle and receives the signal from the transmitter, Model: SEKS-AM11ATx and FCC ID: NYOSEKSAM11ATX, which was manufactured by Shingchang Electrics Co., Ltd. and then decided locking and unlocking the door of the vehicle. The product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
RECEIVING FREQUENCY	315.00 MHz
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>= 1 MHz)	9.850 MHz
ANTENNA TYPE	External Antenna
RATED SUPPLY VOLTAGE	DC 12 V
OPERATING VOLTAGE	DC 9 V ~ 16 V
NUMBER OF LAYERS	2 Layers

2.2 Model Differences:

-. None

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in section 15.101.

2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4: 2003 at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862, Korea. Description details of test facilities were submitted to the Commission on August 21, 2008. (Registration Number: 340658)

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3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	AM BCM (US FOLDING) V8.0S1	N/A
RF Board	N/A	RFM_T _ V1.0	N/A

3.2 Peripheral equipment

The EUT was tested with the following all equipment used in the tested systems are:

Model	Manufacturer	FCC ID	Description	Connected to
SEKS-AM11ARx	Shinchang Electrics Co., Ltd.	NYOSEKSAM11ARX	Receiver (EUT)	Battery
N/A	N/A	N/A	Battery	EUT
E4432B	HP	N/A	Signal Generator	N/A

3.3 Mode of operation during the test

-. Set the signal generator to transmit at 315.00 MHz and then the EUT receives the signal during the test. Used battery for the EUT was fully charged.

3.4 Equipment Modifications

-. None

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3.5 Configuration of Test System

Line Conducted Emission Test:

It is not need to test this requirement, because the power of the EUT supplies from a car battery.

Radiated Emission Test:

Preliminary radiated emissions tests were conducted using the procedure in ANSI C63.4: 2003, 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meters open area test site.

Coherent Test:

During Radiated Emission Tests, H.P. signal generator model no: E4432B was used to radiate an unmodulated CW signal to EUT at 315.00 MHz in order to cohere the individual components of the characteristic broadband emissions from EUT.

Antenna Power Conduction Test:

This equipment was only with a permanently attached antenna, so the radiated emission measurement was performed with the antenna attached.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
It is not need to test this requirement, because the power of the EUT is supplied from a car battery.	

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
RX mode	X

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5. FINAL RESULT OF MEASURMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level.

5.1 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 38 % R.H. Temperature: 16 °C
Limits apply to : FCC CFR 47, Part 15, Subpart B (Section: 15.109)
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Type of Test : Unintentional Radiator
Result : PASSED BY –17.03 dB at 496.87 MHz

EUT : Remote Keyless Entry System Date: March 08, 2010
Operating Condition : RX mode
Distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
51.33	7.50	H	1.00	230.00	10.89	1.69	20.08	40.00	-19.92
103.72	7.20	V	1.70	70.00	10.75	2.17	20.12	43.52	-23.40
208.10	7.10	H	1.80	190.00	11.92	3.20	22.22	43.52	-21.30
352.44	8.20	H	2.00	110.00	15.50	3.62	27.32	46.02	-18.70
423.75	6.40	H	2.00	120.00	16.09	4.14	26.63	46.02	-19.39
441.20	7.20	H	1.20	290.00	16.46	4.25	27.91	46.02	-18.11
496.87	6.80	H	1.50	300.00	17.61	4.58	28.99	46.02	-17.03
Other frequencies were not observed any emissions up to 2 GHz.									

Radiated Emission Tabulated Data

Tested by: In-Sub, Youn / Project Engineer

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6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+	Meter reading	(dBμV)
+	Cable Loss	(dB)
+	Antenna Factor (Loss)	(dB/m)
=	Corrected Reading	(dBμV/m)
-	Specification Limit	(dBμV/m)
=	dB Relative to Spec	(± dB)

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7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVD	838453/018	NOV/09	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/09	12MONTH	
3.	Spectrum analyzer	HP	8566B	3407A08547	JUN/09	12MONTH	■
4.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 202	APR/08	24MONTH	
5.	Biconical antenna	EMCO	3110	9003-1121	FEB/09	24MONTH	■
		Schwarzbeck	VHA9103	91031852	FEB/08		
6.	Log Periodic antenna	EMCO	3146	9001-2614	FEB/09	24MONTH	■
		Schwarzbeck	9108-A(494)	62281001	FEB/08		
7.	LISN	EMCO	3825/2	9109-1867	JUN/09	12MONTH	
				9109-1869	JUN/09		
		Schwarzbeck	NSLK 8128	8128-216	JUN/09		
8.	Position Controller	HD GmbH	HD100	N/A	N/A	N/A	■
9.	Turn Table	HD GmbH	DS420S	N/A	N/A	N/A	■
10.	Antenna Master	HD GmbH	MA240	N/A	N/A	N/A	■
11.	RF Amplifier	HP	8447D	2944A06539	JUN/09	12MONTH	■
12.	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D294	JUN/09	24MONTH	■
13.	Spectrum Analyzer	HP	8564E	3650A00756	JUN/09	12MONTH	■
14.	Isolation Transformer	Digitek Power	DPT	DPF-22027	N/A	N/A	■
15.	Isolation Transformer	Digitek Power	DPT	DPF-22028	N/A	N/A	■
16.	Frequency Converter	Digitek Power	VFS/DEFC	N/A	N/A	N/A	■

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