ONETECH Corp.

#505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea. (TEL: 82-31-746-8500 FAX: 82-31-746-8700)

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

REMOTE CONTROL SECURITY RECEIVER
CERTIFICATION TO FCC PART 15 REQUIREMENT

PRODUCT	VEHICLE SECURITY SYSTEM		
FCC ID	OARRXAM2000		
MODEL NO.	RXAM2000	SERIAL NO.	N/A
APPLICANT & ADDRESS	PRECISION ENGINEERING IND., INC. 11627 CANTARA STREET NORTH HOLLYHOOD, CA 91605 U.S.A.		

REPORT NO.	E007R-027	ISSUE DATE	July 19, 2000
PREPARED BY: ONETECH CORP. #505 SK APT. FACTORY 223-28, SANGDAEWON 1 DONG, JUNGWON-GU, SEONGNAM-CITY, KYUNGGI-DO, 462-121, KOREA. (TEL: 82-31-746-8500 FAX: 82-31-746-8700)			

LIST OF EXHIBITS

FCC ID : OARRXAM2000

MODEL : RXAM2000

EXHIBIT 1. IDENTIFICATION LABEL

2. AGENT AUTHORIZATION

3. TECHNICAL INFORMATION:
ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

4. PHOTO REPORT

5. USER'S MANUAL & SCHEMATIC (BLOCK DIAGRAM)

PREPARED BY : ONETECH CORP.
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Seongnam-City, Kyunggi-Do, 462-121, Korea.
(TEL: 82-31-746-8500 FAX: 82-31-746-8700)

EXHIBIT 1. IDENTIFICATION LABEL:

PROPOSED FCC LABEL (Part15 sec. 15.19)

The label included following statement will be attached on bottom side of product.

FCC ID : OARRXAM2000

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

Made in Korea

"Please find an ID Label for EUT at ID Label/Location Info in Exhibit Type"

EXHIBIT 2. AGENT AUTHORIZATION:

"Please find an Agent Authorization Letter at Cover Letters in Exhibit Type"

EXHIBIT 3. TECHNICAL INFORMATION:

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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1. VERIFICATION OF COMPLIANCE

APPLICANT : PRECISION ENGINEERING IND., INC.
ADDRESS : 11627 CANTARA STREET NORTH HOLLYHOOD, CA 91605 U.S.A.
CONTACT PERSON : JOHN JOUNGHOON KIM / MANAGER
TELEPHONE NO : (818) 767-8593
FCC ID : OARRXAM2000 MODEL NO/NAME: RXAM2000
SERIAL NUMBER : N/A
DATE : July 19, 2000

DEVICE TYPE	UNINTENTIONAL RADIATOR (SUPERREGENERATIVE RECEIVER)
E.U.T. DESCRIPTION	VEHICLE SECURITY SYSTEM
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	PART 15 SUBPART B ♣15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	NO
FINAL TESTS WERE CONDUCTED ON	3 METER OPEN 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.

YONG KWANG, KWON / CHIEF ENGINEER
EMC TESTING DEPARTMENT
ONETECH Testing & Eval. Lab.
SEOUL KOREA

2. GENERAL INFORMATION

2.1 Product Description

The PRECISION ENGINEERING IND., INC., Model RXAM2000 (referred to as the EUT in this report) is a Remote Control Security Receiver for using vehicle security alarm system. The product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
RX FREQUENCY RANGE	303 MHz
MODULATION	A1 (ASK)
RECEIVER TYPE	SUPERREGENERATIVE RECEIVER
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	4 MHz
POWER REQUIREMENTS	DC12V supplied from a car battery
NUMBER OF LAYERS	2 Layers

Model Differences:

No other model differences have been mentioned.

2.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

2.3 Test System Details

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

Model	Manufacturer	FCC ID	Description	Connected to
RXAM2000	PRECISION ENGINEERING IND., INC.	OARRXAM2000	RECEIVER	N/A
N/A	N/A	N/A	ZIG	EUT

2.4 Test Methodology

Radiated emission testing was performed at an antenna to EUT distance of 3 meters according to the procedures in ANSI C63.4/1992.

2.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Detailed description of test facility was submitted to the Commission on January 12, 1999. (Registration Number: 92819)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the following components inside the EUT were installed.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	PRECISION ENGINEERING IND., INC.	N/A	N/A

3.2 Equipment Modifications

To achieve compliance to FCC part 15 rules, the following change(s) were made by PRECISION ENGINEERING IND., INC. during compliance testing:

"There was no Modified items during EMI test"

3.3 Mode of operation during the test

After connecting the EUT to a car battery, the EUT was received the RF signal from the transmitter.

3.4 Configuration of Test System

Line Conducted Emission Test:

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

Radiated Emission Test:

Preliminary radiated emissions tests were conducted using the procedure in ANSI C63.4/1992, 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: 8657A was used to radiate an unmodulated CW signal to EUT at 303.02MHz in order to cohere the individual components of the characteristic broadband emissions from EUT.

Antenna Power Conduction Test:

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

4. PRELIMINARY TESTS

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)
N/A	N/A

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
Standby Mode	

5. CONDUCTED MEASUREMENT PHOTOS

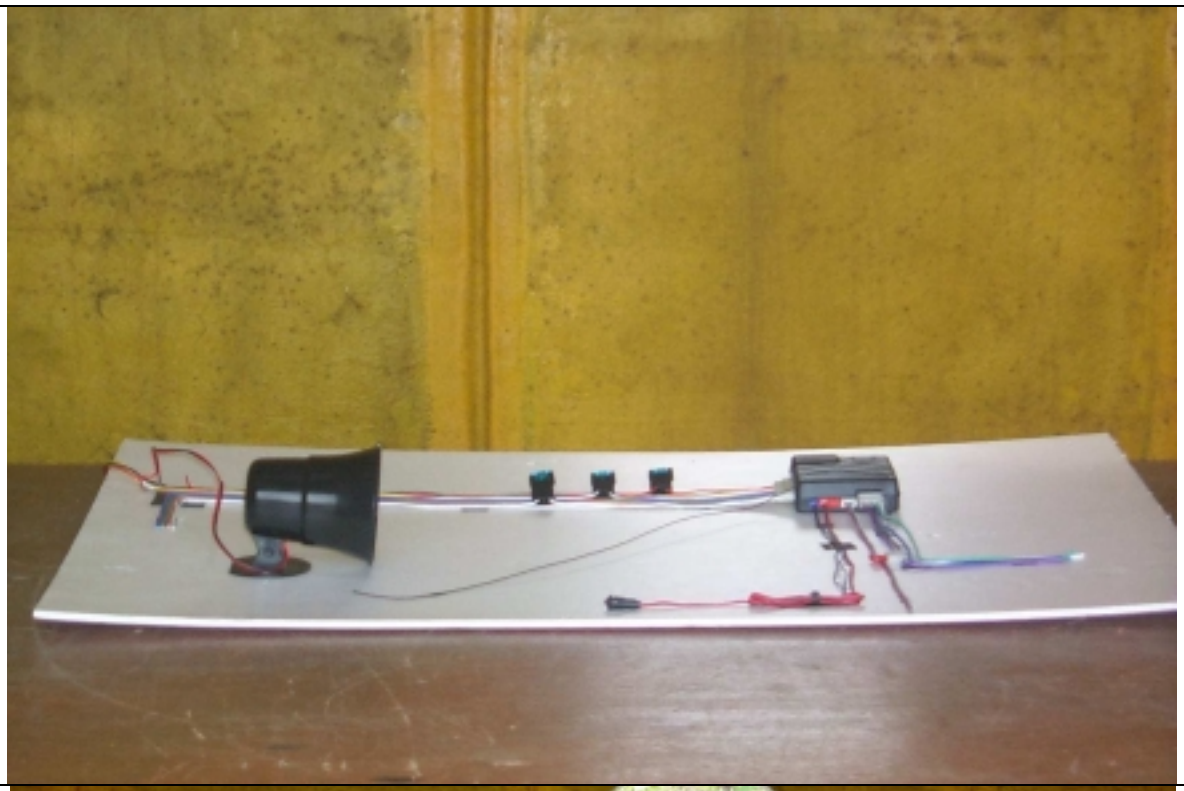
<Conducted Measurement Photos>

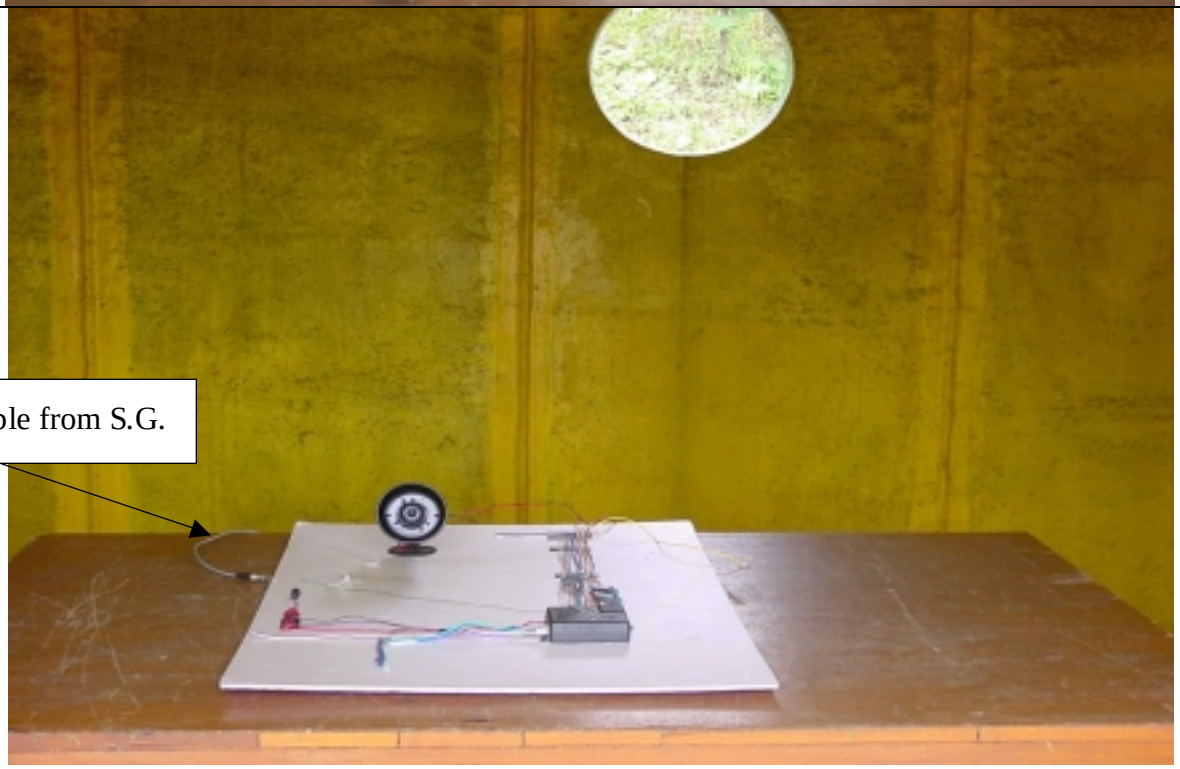
Not Applicable

Not Applicable

6. RADIATED MEASUREMENT PHOTOS

<Radiated Measurement Photos>





7. FINAL RESULT OF MEASUREMENT

Per preliminary tests, the following RX mode of operations were selected which shown the maximum emissions level.

7.1 Conducted Emissions Tests

Humidity Level : % Temperature :

Limits apply to : FCC CFR 47, PART 15, SUBPART B

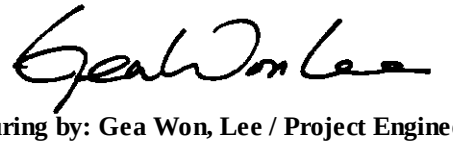
Result : PASSED BY dB

Operating Condition : Date:

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Power Line Conducted Emissions			FCC Limit	
Frequency (MHz)	**Amplitude (dBuV)**	**Conductor**	**Limit (dBuV)**	**Margin (dB)**
It is not need to test this requirement, because the EUT supplies from a DC battery.				

Line Conducted Emissions Tabulated Data



Measuring by: Gea Won, Lee / Project Engineer

7.2 Radiated Emission Tests

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

To get the highest levels of above testing, the test was performed using a new battery.

Humidity Level : 54 % Temperature : 27

Limits apply to : FCC CFR 47, PART 15, SUBPART B

Result : PASSED BY –10.27 dB at 302.20 MHz

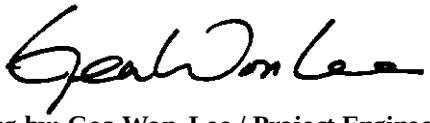
Operating Condition : RX mode Date: June 30, 2000

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

Distance : 3 Meters

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
293.72	19.60	H	14.95	1.97	36.52	46.00	-9.48
295.58	19.60	H	15.03	1.98	36.61	46.00	-9.39
300.24	20.00	H	15.22	2.00	37.22	46.00	-8.78
301.16	22.80	H	15.22	2.01	40.03	46.00	-5.97
302.10	24.00	H	15.22	2.01	42.23	46.00	-4.77
303.94	22.60	H	15.22	2.02	40.84	46.00	-6.16
304.88	21.20	H	15.22	2.03	38.45	46.00	-7.55
Other frequencies are more than 20dB below the limit up to 2GHz.							

Line Radiated Emissions Tabulated Data



Measuring by: Gea Won, Lee / Project Engineer

8. FIELD STRENGTH CALCULATION

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

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)

9. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	SEP/99	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/00	12MONTH	
3.	Spectrum analyzer	HP	8568B	3026A0226	SEP/99	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	SEP/99	12MONTH	■
5	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/99	12MONTH	■
6.	Signal Generator	Philips	PM5518-TX	N/A	APR./99	12MONTH	
7.	Pattern generator	N/A	LCG-401	SG-0010126	N/A	N/A	
8.	Dipole Antenna	EMCO	3121C	9107-745	FEB/99	12MONTH	
9.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/2000	12MONTH	■
10.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	MAR/2000	12MONTH	■
11.	Conical Log spiral Antenna	EATON	93491-2	340	FEB/99	12MONTH	
12.	LISN	EMCO	3825/2	9109-1867 9109-1869	MAR/2000	12MONTH	
13.	RF Amplifier	HP	8447F	3113A04554	AUG/99	N/A	
14.	Spectrum Analyzer	ADVANTEST	R4131BN	91520070	FEB/99	12MONTH	■
15.	Computer System Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	N/A N/A	■ ■
16.	Plotter	HP	7475A	30052 22986	N/A	N/A	
17.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
18.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
19.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■
20	Signal Generator	HP	8657A	3104a-03919	Nov./99	12MONTH	■

EXHIBIT 4. PHOTO REPORT

REMOTE CONTROL SECURITY RECEIVER
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"Please find in/outside photos of EUT at External Photos in Exhibit Type"

EXHIBIT 5. USER'S MANUAL & SCHEMATIC (BLOCK DIAGRAM)

REMOTE CONTROL SECURITY RECEIVER
CERTIFICATION TO FCC PART 15 REQUIREMENT

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"Please find a manual and block diagram for EUT at User Manual in Exhibit Type"