

REPORT OF MEASUREMENT

CERTIFICATION

Product : Superregenerative Receiver (Car Alarm)

Applicant : Young Jin Electronics Co., Ltd.

Grantee Name : Young Jin Electronics Co., Ltd.

FCC ID. : NTUP-700RX

Trade Name : Passenger

Model No. : P-700

Report No. : 341-017

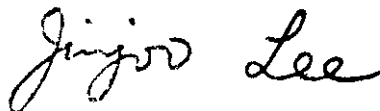
Date : April 20, 1998

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ATTACHMENTS

1. Statement for Section 15.37 of the Rules
2. Proposed FCC ID, Label and Marking
3. Manual for Installation and Operating Instruction
4. Block Diagram & Schematic Diagram
5. Description of Circuit Function
6. Photographs: See the illustration of photographs attached

I. GENERAL INFORMATION

1. Applicant's Name and Mailing Address : Young Jin Electronics Co., Ltd.
Young Jin B/D, 335-151, Sang Do-3 Dong, Dong Jak-Ku, Seoul, Korea
2. Manufacturer's Name and Mailing Address : Young Jin Electronics Co., Ltd.
Young Jin B/D, 335-151, Sang Do-3 Dong, Dong Jak-Ku, Seoul, Korea
3. Equipment Descriptions
- 3.1 Tuning Frequency : 310MHz
3.2 Detect Method : Superregenerative Detector
3.3 Used Oscillator : 4.0MHz(Resonator)
3.4 Power Supply : DC 12.0V (Car Battery)
4. Rules and Regulations : FCC Part 15, Subpart B
5. Measuring Procedure : ANSI C63.4-1992
6. Place of Measurement : Absorber-lined room(3-Meter) of KAITECH
7. Date of Measurement
- 7.1 Line Conducted : Not Applicable
7.2 Radiated Emission : April 16, 1998
8. Statement of Compliance

We, KAITECH, HEREBY STATE THAT the measurements shown in this report were made in accordance with the procedures indicated and the emission emitted by this equipment was found to be within the limits applicable.

Measured by ;

S. J. Kim

Seok-Jin Kim
Senior Engineer

Reviewed by ;

Chang Ho Ko

Chang-Ho Ko
Team Leader
EMI/EMC Team

II. GENERAL REQUIREMENTS OF THE EUT

1. Labelling Requirement (Section 15.19)

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 operation.

1.1 Location on Enclosure : Bottom Side

1.2 How Applied : By Ink-Printing on Adhesive Label

2. Information to User (Section 15.21)

The following or similar statements were provided in the manual for user instruction.
Please refer page 2 of the attached manual for details.

CAUTION : Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3. Special Accessories (Section 15.27)

3.1 Were the special Accessories provided? [] yes, [☒] no

3.2 If yes, details for the special accessories are as follows :

3.3 If yes, were the appropriate instructions provided on the first page of the text concerned with the device?

[] yes, [] no

3.4 Are these accessories provided of the type which can be readily obtained from multiple retail outlets?

[] yes, [] no

And therefore does the manual specify what additional components or accessories are required to used in order to comply with the Rules?

[] yes, [] no

III. RADIATED EMISSION MEASUREMENT (Section 15.109)

1. Test Procedure

1.1 Preliminary Testing for Reference

Preliminary testing was performed in a KAITECH absorber-lined room to determine the emission characteristics of the EUT. The EUT was placed on the wooden table which has dimensions of 0.8 meters in height, 1 meter in length and 1.5 meters in width. Receiving antenna(Biconical antenna : 30 to 300MHz, Log-periodic antenna : 200 to 1000MHz or Horn Antenna : 1 to 18GHz) was placed at the distance of 1 meter from the EUT.

In order to cohere the individual components of the characteristic broadband emission from the receiver(EUT), a RF generator(CW signal) and a log-periodic antenna were used. The frequency and output level of the generator were adjusted for highest observed coherent receiver emissions on the spectrum analyzer with RF Amplifier.

An attempt was made to maximize the emission level with the various configurations of the test sample. The effect of changing the position of the cable was observed to find the worst case configuration while rotating the table and varying antenna height and its polarization.

Radiated and spurious emissions were checked from 25 MHz to 3000 MHz according to section 15.33.

1.2 Final Radiated Emission Test at a Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KAITECH Absorber-Lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

Based on the test results in preliminary test, measurement was made in same test set up and configuration which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an EMI receiver or spectrum analyzer with RF amplifier.

Turntable was rotated through 360 degrees and receiving antenna height was varied from 1 to 4 meters above the ground plane to read maximum level.

Maximum emission occurred at the configuration as shown in the following photograph.

4. Measurement Data

- Resolution Bandwidth : Peak (3dB Bandwidth : 100kHz for 1GHz below)
Peak (3dB Bandwidth : 300kHz for 1GHz over)
- Measurement Distance : 3 Meter

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB μ W)	* A.F. + C.L (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level		Limit (μ V/m)	** Margin (dB)
							(dB μ V/m)	(μ V/m)		
312.1	P	H	50.9	21.5	-30.0	-	42.4	131.8	200	-3.6
624.2	P	H/V	*** <32.0	29.9	-30.0	-	<31.9	<39.4	200	<-14.1
936.3	P	H/V	*** <32.0	35.4	-30.0	-	<37.4	<74.1	200	<-8.6
1248.4	P	H/V	*** <32.0	31.9	-30.0	-	<33.9	<49.5	500	<-20.1
-	-	-	-	-	-	-	-	-	-	-

Note

- * D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor

** Margin (dB) = Emission Level (dB) - Limit (dB)

*** < means less than. The observed spectrum analyzer noise floor levels with RF preamplifier were 32.0 dB μ V/m. And Refer to frequency spectrum data on radiated emission from the receiver in next page.

IV. TEST EQUIPMENT USED FOR MEASUREMENTS

<u>Equipment</u>	<u>Model No.</u>	<u>Manufacturer</u>	<u>Serial No.</u>	<u>Effective Cal. Duration</u>
[x] EMI Receiver (20MHz-1GHz)	ESVS30	R & S	830516/002	07/04/97-07/04/98
[x] Spectrum Analyzer (9kHz-26.5GHz)	8563A	H. P.	3222A02069	01/30/97-01/30/98
[] Spectrum Analyzer (100Hz-22GHz)	8566B	H. P.	3014A07057	05/29/97-05/29/98
[] Quasi-Peak Adapter (10kHz-1GHz)	85650A	H. P.	3107A01511	05/29/97-05/29/98
[] RF-Preselector (20Hz-2GHz)	85685A	H. P.	3010A01181	05/29/97-05/29/98
[] Test Receiver (9kHz-30MHz)	ESH3	R & S	860905/001	07/04/96-07/04/98
[x] Pre-Amplifier (0.1-3000MHz, 30dB)	8347A	H. P.	2834A00543	05/29/97-05/29/98
[] Pre-Amplifier (1-26.5GHz, 35dB)	8449B	H. P.	3008A00302	06/30/97-06/30/98
[] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9010-1710	-
[] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9011-1720	-
[x] Plotter	7470A	H. P.	3104A21292	-
[x] Tuned Dipole Ant. (30MHz-300MHz)	VHA 9103	Schwarzbeck	-	*
[x] Tuned Dipole Ant. (300MHz-1GHz)	UHA 9105	Schwarzbeck	-	*
[x] Biconical Ant. (30MHz-300MHz)	BBA9106	Schwarzbeck	-	*
[x] Log Periodic Ant. (200MHz-1GHz)	3146	EMCO	-	*
[x] Horn Ant. (1GHz-18GHz)	3115	EMCO	-	*
[x] DC Power Supply	6260B	H.P.	1145A04822	-
[x] Shielded Room (5.0m x 4.5m)	SIN-MYUNG		-	-

* Each set of antennas has been calibrated to ensure correlation with ANSI C63.5 standard.
The calibration of antennas is traceable to Korea Standard Research Institute(KSRI).