TEST REPORT

Ref. Report No.
01-341-030-02

Name and address of the applicant

Young Jin Electronics Co., Ltd.
335-151, Sangdo-3dong, Dongjak-ku,
Seoul, 156-033, Korea

Standard / Test regulation

FCC Part 15, Subpart B

Test result

Pass

Incoming date : July 01, 2001

Test date : July 30, 2001

Test item(s) ;

Superregenerative Receiver
(Car Parking Safety System)

Model/type ref. ;

YPS-300M

Manufacturer ;

Young Jin Electronics Co., Ltd.

Additional information ;

-Required Authorization : Certification
-FCC ID. : NTUPS-300R

Issue date : July 31, 2001

Tested and reported by

Jeong-Min Kim , Senior Engineer

Reviewed by

Won-Seo Cho , EMC Team Leader

KOREA TESTING LABORATORY

TABLE OF CONTENTS

. GENERAL INFORMATION

1. Grantee's Name and Mailing Address : Young Jin Electronics Co., Ltd.
335-151, Sangdo-3dong, Dongjak-ku, Seoul, 156-033, Korea

2. Manufacturer's Name and Mailing Address : Young Jin Electronics Co., Ltd.
335-151, Sangdo-3dong, Dongjak-ku, Seoul, 156-033, Korea

3. Equipment Descriptions

3.1 Tunning Frequency : 315 MHz
3.2 Detect Method : Superregenerative Detector
3.3 Power Supply : DC 12 V(Car Battery)

4. Rules and Regulations : FCC Part 15, Subpart B

5. Measuring Procedure : ANSI C63.4-1992

6. Date of Measurement

6.1 Line Conducted : Not Applicable
6.2 Radiated Emission : July 30, 2001

. 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 interface, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1.1 Location of Label : User's Guide Manual
1.2 How Applied : Printed

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, [x] 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

. RADIATED EMISSION MEASUREMENT (Section 15.109)

1. Test Procedure

1.1 Preliminary Testing for Reference

Preliminary testing was performed in a KTL 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 300 MHz, Log-periodic antenna : 200 to 1000 MHz or Horn Antenna : 1 to 18 GHz) 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 EUT. 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 it's polarization.

Radiated and spurious emissions were checked from 30 MHz to 3000 MHz according to section 15.33.

1.2 Final Radiated Emission Test at an Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KTL 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(for above 1 GHz) with a 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 emission level.

The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

2. Photograph of the test configuration

3. Sample Calculation

The emission level measured in decibels above one microvolt (dB∂) was converted into microvolt per meter (∂/m) as shown in following sample calculation.

For example :

Measured Value at	315.9 MHz	17.7 dB∂
+ Antenna Factor		14.0 dB/m
+ Cable Loss		3.3 dB
- Preamplifier	0.0 dB	
- Distance Correction Factor *		0.0 dB
= Radiated Emission		35.0 dB∂/m
	(= 56.2 ∂/m)	

* Extrapolated from the measured distance to the specified distance by an inverse linear distance extrapolation.

4. Measurement Data

- Resolution Bandwidth : CISPR Quasi-Peak (6 dB Bandwidth : 120 kHz)
- Measurement Distance : 3 Meter

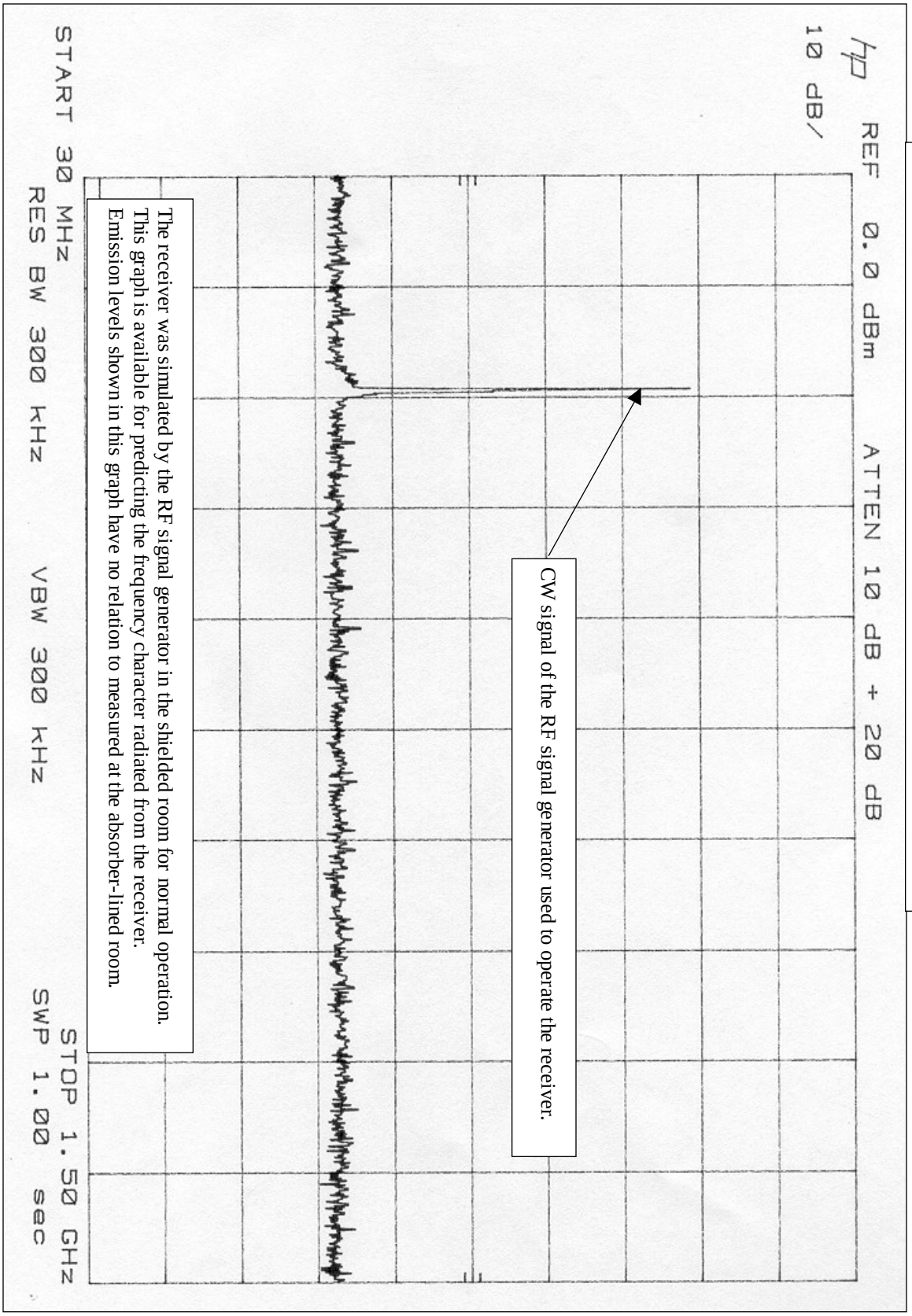
Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB∂)	* A.F. + C.L (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level (dB∂/m)	Emission Level (∂/m)	Limit (∂/m)	** Margin (dB)
315.9	Q	V	17.7	17.3	-	-	35.0	56.2	200	- 11.0
316.3	Q	V	16.4	17.3	-	-	33.7	48.4	200	- 12.3
316.7	Q	V	17.2	17.3	-	-	34.5	53.1	200	- 11.5
-	-	-	-	-	-	-	-	-	-	-

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
< : Less than

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

5. Reference Data (Frequency spectrum data on radiated emission form the receiver.)



. TEST EQUIPMENT USED FOR MEASUREMENTS

Equipment	Model No.	Manufacturer	Serial No.	Effective Cal. Duration
[x] EMI Receiver (20MHz-1GHz)	ESVS30	R & S	830516/002	06/13/01-06/13/02
[x] Spectrum Analyzer (9kHz-26.5GHz)	8563A	H. P.	3222A02069	03/27/01-03/27/02
[ ] Spectrum Analyzer (100Hz-22GHz)	8566B	H. P.	3014A07057	05/26/01-05/26/02
[ ] Quasi-Peak Adapter (10kHz-1GHz)	85650A	H. P.	3107A01511	05/26/01-05/26/02
[ ] RF-Preselector (20Hz-2GHz)	85685A	H. P.	3010A01181	05/26/01-05/26/02
[ ] Test Receiver (9kHz-30MHz)	ESH3	R & S	860905/001	06/13/01-06/13/02
[x] Pre-Amplifier (0.1-3000MHz, 30dB)	8347A	H. P.	2834A00543	05/26/01-05/26/02
[x] Pre-Amplifier (1 - 26.5 GHz, 35 dB)	8449B	H. P.	3008A00302	05/26/01-05/26/02
[ ] LISN(50ohm , 50μH) (10kHz-100MHz)	3825/2	EMCO	9011-1720	05/26/01-05/26/02
[x] Plotter	7470A	H. P.	3104A21292	-
[ ] Active Loop Ant. (10 kHz – 30 MHz)	6502	EMCO	9009-2532	05/03/01-05/03/02
[ ] Tuned Dipole Ant. (30 MHz – 300 MHz)	VHA 9103	Schwarzbeck	-	05/16/01-05/16/02
[ ] Tuned Dipole Ant. (300 MHz – 1 GHz)	UHA 9105	Schwarzbeck	-	05/16/01-05/16/02
[x] Biconical Ant. (30 MHz – 300 MHz)	BBA 9106	Schwarzbeck	-	05/16/01-05/16/02
[x] Log Periodic Ant. (200 MHz – 1 GHz)	3146	EMCO	-	05/17/01-05/17/02
[x] Horn Ant. (1 GHz – 18 GHz)	3115	EMCO	-	05/12/01-05/12/02
[ ] Shielded Room (5.0 m x 4.5 m)	-	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).