



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CERTIFICATION

Test report file number : E043R-035

Applicant : KI RYUNG ELECTRONICS CO., LTD.
Address : 219-6 Gasan-Dong, Kumchun-Ku, Seoul, 153-023, KOREA

Manufacturer : KI RYUNG ELECTRONICS CO., LTD.
Address : 219-6 Gasan-Dong, Kumchun-Ku, Seoul, 153-023, KOREA

Type of Equipment : Home Digital Satellite Radio

FCC ID. : P3HCE-1000SR

Model Name : CE-1000SR

Multiple Model Name : N/A

Serial number : N/A

Total page of Report : 11 pages (including this page)

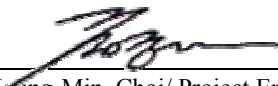
Date of Incoming : February 10, 2004

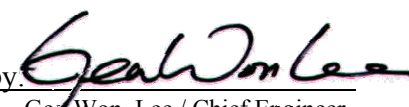
Date of Issuing : March 10, 2004

SUMMARY

The equipment complies with the regulation of **FCC CFR 47 PART 15 SUBPART B, SECTION 15.101.**

This test report contains only the results 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.

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**1. VERIFICATION OF COMPLIANCE**

- APPLICANT : KI RYUNG ELECTRONICS CO., LTD.
- ADDRESS : 219-6 Gasan-Dong, Kumchun-Ku, Seoul, 153-023, KOREA
- CONTACT PERSON : Mr. In-Kyoung, Kim / Q.C Assistant Manager
- TELEPHONE NO : +82-2-3282-2264
- FCC ID : P3HCE-1000SR
- MODEL NO/NAME : CE-1000SR
- SERIAL NUMBER : N/A
- DATE : March 10, 2004

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	Home Digital Satellite Radio
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4: 2001
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 (Class B)
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

- This device has shown compliance with the conducted emissions limits in 15.107 adopted under FCC 02-107 (ET Docket 98-80). The device may be marketed after July 11, 2005 affected by the 15.37(j) transition provisions.
- 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.



2. GENERAL INFORMATION

2.1 Product Description

The KI RYUNG ELECTRONICS CO., LTD., Model CE-1000SR (referred to as the EUT in this report) is Home Digital Satellite Radio that is a personal computer peripheral with RS232 port. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Metal
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	3.6864 MHz, 7.282 MHz, 16.384 MHz and 60 MHz
POWER REQUIREMENT	DC12V from AC/DC adapter
NUMBER OF LAYERS	4 Layers : Main Board, OM Digital Board, OM RF-IF Board 2 Layers : Front Board
DIMENSIONS	375mm (W) x 271mm (D) x 63mm (H)
EXTERNAL CONNECTOR	Ant. Input, Audio Out, DC In, Digital Out, RS232

2.2 Model Differences

-. The difference(s) compared to the EUT is as follows: none

2.3 Related Submittal(s) / Grant(s)

-. Original submittal only

2.4 Test System Details

The model numbers for all the equipments which were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
CE-1000SR	KI RYUNG ELECTRONICS CO., LTD.	P3HCE-1000SR	EUT	-
SIRIUS	KENWOOD	N/A	Satellite Radio ANT	EUT
NL20-120200-11	LEADER ELECTRONICS INC	N/A	AC/DC Adapter	EUT
PP05LC	DELL Computer Corp.	DoC	Notebook PC	EUT
MO56UO	-	DoC	Mouse	Notebook PC
SMS-015N	SUNGIL	N/A	Speaker	EUT

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2001. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on



ONETECH

Testing & Evaluation Lab.

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FCC ID. : P3HCE-1000SR

File No. : E043R-035

January 18, 2002. (Registration Number: 92819)

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FCC-003 (Rev.0)

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EMC Testing Dept : 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do, 464-860, Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

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	KI RYUNG ELECTRONICS CO., LTD.	CE1000SR(MAIN)	N/A
Front Board	KI RYUNG ELECTRONICS CO., LTD.	N/A	N/A
OM Digital Board	KI RYUNG ELECTRONICS CO., LTD.	Orion Module	N/A
OM RF-IF Board	KI RYUNG ELECTRONICS CO., LTD.	CE-OM-RF/IF-REV0	N/A

3.2 EUT exercise Software

- The EUT was connected to notebook PC via RS232 for control of the EUT.

3.3 Cable Description

Product Name	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
Home Digital Satellite Radio(EUT)	N	-	1.2(P)
Satellite Radio ANT	N/A	N	5.0(D)
AC/DC Adapter	N	N(DC Out)	1.5(P), 1.2(D)
Notebook PC	N	Y	1.5(P), 1.2(D)
Mouse	N/A	N	1.5(D)
Speaker	N/A	N	1.5(D)

* The marked “(D)” means the Data Cable and “(P)” means the Power Cable.

3.4 Noise Suppression Parts on Cable

Product Name	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
Home Digital Satellite Radio(EUT)	N	N/A	-	-
Satellite Radio ANT	N	N/A	Y	EUT END
AC/DC Adapter	N	N/A	Y	EUT END
Notebook PC	N	N/A	Y	BOTH END
Mouse	N	N/A	Y	Notebook PC
Speaker	N	N/A	Y	BOTH END



3.5 Equipment Modifications

To achieve compliance to FCC part 15 rules, the following change(s) was made by ONETECH Corp. during compliance testing:

“There were no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test: The EUT was connected to AC/DC adapter and power line of the adapter was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2001 7.2.3 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.4: 2001 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter open area test site.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The EUT was controlled via RS232 port by notebook PC.	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
The EUT was controlled via RS232 port by notebook PC.	X

**5. FINAL RESULT OF MEASUREMENT**

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

5.1 Conducted Emission Test

Humidity Level : 45 % Temperature: 21 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107(a)
 Type of Test : CLASS B
 Result : PASSED BY -3.05 dB at 8.87 MHz under average detector mode

EUT : Home Digital Satellite Radio Date: February 10, 2004

Operating Condition : The EUT was controlled via RS232 port by notebook PC.

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

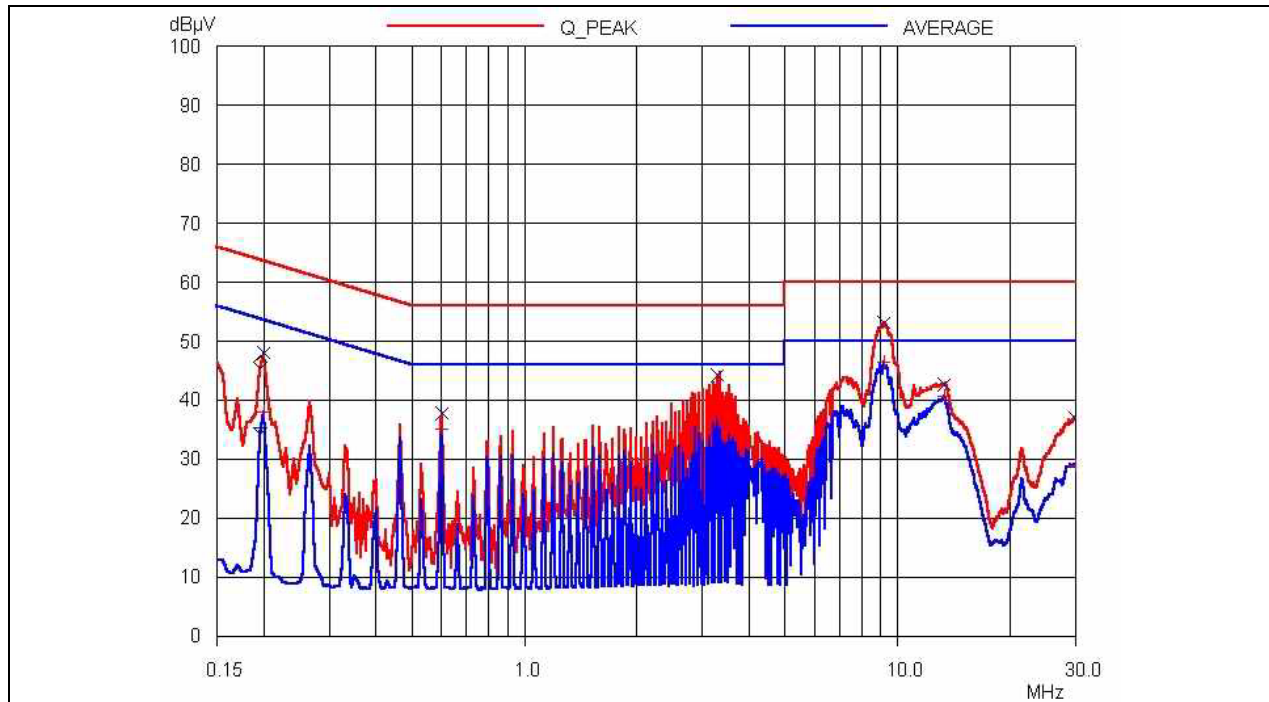
Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.20	H	48.01	63.61	-15.60
3.26	H	44.31	56.00	-11.69
8.87	N	53.88	60.00	-6.12
9.12	H	53.20	60.00	-6.80
13.25	H	42.65	60.00	-17.35
13.33	N	43.26	60.00	-16.74
Frequency (MHz)	Line	Average (dBuV)		Margin (dB)
		Emission level	Limits	
3.26	H	37.26	46.00	-8.74
8.87	N	46.95	50.00	-3.05
9.12	H	46.38	50.00	-3.62
13.33	N	40.85	50.00	-9.15

Line Conducted Emissions Tabulated Data

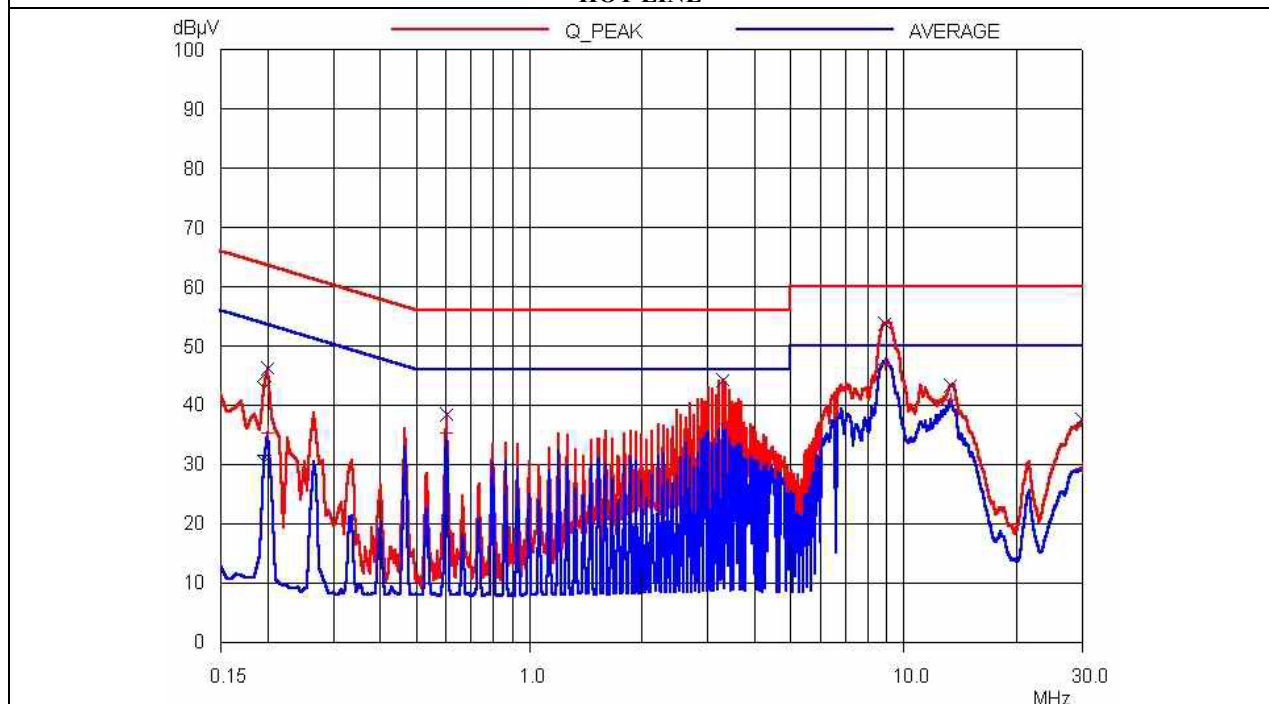
Remark : "H": Hot Line, "N": Neutral line

See next page for an overview sweep performed with peak and average detector.

Tested by: Sue-Young, Lee/ Test Engineer



HOT LINE



NEUTRAL LINE

**5.2 Radiated Emission Test**

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

Humidity Level : 50 % Temperature: 19 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109(a)
 Type of Test : CLASS B
 Result : PASSED BY – 4.87dB at 64.89 MHz

EUT : Home Digital Satellite Radio Date: February 20, 2004
 Operating Condition : The EUT was controlled via RS232 port by notebook PC.
 Frequency Range : 30 MHz – 1000 MHz
 Distance : 3 Meter

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)
64.89	25.60	V	8.53	1.00	35.13	40.00	-4.87
104.62	20.18	V	12.55	1.17	33.90	43.50	-9.60
127.87	17.17	V	13.07	1.26	31.50	43.50	-12.00
184.08	10.15	H	16.28	1.47	27.90	43.50	-15.60
319.74	13.42	H	14.36	2.12	29.90	46.00	-16.10
344.94	12.55	H	14.40	2.25	29.20	46.00	-16.80
431.18	11.23	H	15.87	2.50	29.60	46.00	-16.40
661.81	8.52	H	20.35	3.13	32.00	46.00	-14.00
874.99	9.14	V	22.28	3.88	35.30	46.00	-10.70

Radiated Emission Tabulated Data

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Sue-Young, Lee/ Test Engineer



6. 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)

**7. LIST OF TEST EQUIPMENT**

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	NOV/03	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR /03	12MONTH	■
3.	Spectrum analyzer	HP	8566B	3407A08547	MAY/03	12MONTH	
4.	Spectrum analyzer	HP	8568B	3109A05456	MAY/03	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	MAY/03	12MONTH	■
6.	Quasi-Peak Adapter	HP	85650A	3107A01542	MAY/03	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	FEB/04	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4443	MAY/03	12MONTH	
				9109-4444	JUL/03	12MONTH	■
		Schwarzbeck	VHA9103	91031852	JAN/04	12MONTH	
9.	Log Periodic antenna	EMCO	3146	9109-3214	JUL/03	12MONTH	■
				9109-3217	MAY/03	12MONTH	
		Schwarzbeck	9108-A(494)	62281001	JAN/04	12MONTH	
10.	LISN	EMCO	3825/2	9109-1867	AUG/03	12MONTH	■
				9109-1869	OCT/03	12MONTH	■
11.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
12.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
13.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■