



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test report file number : E022R-033

Applicant : KEC Corp.

Address : 275-7, Yangjae-Dong, Seocho-Gu, Seoul 137-130 Korea

Manufacturer : KEC Corp.

Address : 149 Gongdan1-Dong, Gumi-City, kyungbuk, 730-031 Korea

Type of Equipment : 29" FLAT TYPE TV BROADCAST RECEIVER

FCC ID : BRF29GG

Model / Type No. : 29GG

Serial number : N/A

Total page of Report : 13 pages (including this page)

Date of Incoming : January 25, 2002

Date of issuing : February 19, 2002

SUMMARY

The equipment complies with the regulation; FCC 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

Prepared by:

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Reviewed by:

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EMC Dept.



ONETECH

Testing & Evaluation Lab.

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1. VERIFICATION OF COMPLIANCE

APPLICANT : KEC Corp.
 ADDRESS : 275-7, Yangjae-Dong, Seocho-Gu, Seoul 137-130 Korea
 CONTACT PERSON : Eui-Yeun Kim / Senior Engineer
 TELEPHONE NO : 82-54-467-3552
 FCC ID : BRF29GG
 MODEL NO/NAME : 29GG
 SERIAL NUMBER : N/A
 DATE : February 19, 2002

DEVICE TYPE	Peripheral Device for Class B Computing Device - Unintentional Radiator
E.U.T. DESCRIPTION	29" FLAT TYPE TV BROADCAST RECEIVER
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)	FCC PART 15, SECTION 15.101 (Class B)
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER 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 KEC Corp., Model 29GG (referred to as the EUT in this report) is a 29" FLAT TYPE TV BROADCAST RECEIVER, which has a D-SUB Video Input Terminal for a personal computer. The Verification report for the TV broadcast receiver part shall be issued with another test report numbers. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE		Plastic	
PICTURE TUBE		29” Flat Type (68cm)	
DOT PITCH		0.79mm	
MAX RESOLUTION		640 X 480	
PC CONNECTION		15 PIN D-SUB TYPE	
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)		8.0, 13.5, 18.0, 20.25 and 27MHz	
TV TUNER	Type NO. / MFR	TCLN318PA09A, TCPN3081PC09A / SAMSUNG	
	Channel Frequency	VHF	2 ~ 13CH
		UHF	14 ~ 69CH
		CATV	1~125CH.
ANTENNA IMPEDANCE		75 ohm Unbalanced Coaxial Cable	
NUMBER OF LAYERS		2 Layers (Main B’d), 1 Layer (Power B’d and SUB B’d)	
POWER REQUIREMENT		AC 120V, 60Hz, 210W	
EXTERNAL CONNECTOR	FRONT PANEL	Headphone, L/R Sound Input, Video Input, S-VHS Input	
	REAR PANEL	Antenna Input, Video/Audio Output, 2 Video/Audio Input, S-VHS Input, Component Video Input for DVD IN, Audio Input for DVD, RGB, PC Mode, RGB Input and Personal Computer Input Terminal	

Model Differences:

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

2.2 Related Submittal(s) / Grant(s)

Original submittal only



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2.3 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
29GG	KEC Corp.	BRF29GG	29" FLAT TYPE TV BROADCAST RECEIVER (EUT)	NOTE PC
S690	SAMGSUNG	DoC	NOTEBOOK PC	EUT
GHV-S9990	LG ELECTRONCIS	DoC	VCR	EUT
DVD2000	TAEYOUNG TELSTA	N/A	DVD PALYER	EUT
HM700V	ROCKY	N/A	HEAD-MICROPHONE SET	EUT
AD-6019	SAMSUNG	N/A	AC/DC ADAPTER FOR PC	NOTE PC

2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 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 January 18, 2002. (Registration Number: 92819)



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 LOGIC BOARD	KEC Corp.	PTGM0429GG	N/A
POWER BOARD	KEC Corp.	PTGP02	N/A
AV BOARD	KEC Corp.	N/A	N/A
CRT BOARD	KEC Corp.	PTGZ-01-01	N/A
CRT	LG	A68QCU259X V4	N/A

3.2 EUT exercise Software

The windows program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. This program was included into HOST. Once loaded, this program sequentially exercises each system component in turn. The series of H characters are printed on the EUT until the screen is completely full. Other input/output cables for video/audio signals are connected for other peripherals.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
29" FLAT TYPE TV BROADCAST RECEIVER (EUT)	N	N	1.2(P), 1.5(D)
AC/DC ADAPTER	N	N	1.5(P), 1.2(D)
NOTEBOOK PC	N	Y	1.5(P), 1.2(D)
VCR	N	N	1.5(P), 1.2(D)
DVD PLAYER	N	N	1.5(P), 1.2(D)
HEAD-MICROPHONE	N/A	N	1.5(D)

* The marked "(P)" means the Power Cable.



3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
29" FLAT TYPE TV BROADCAST RECEIVER (EUT)	Y	BOTH END	Y	BOTH END
AC/DC ADAPTER	Y	NOTE PC END	Y	NOTE PC END
NOTE PC	Y	BOTH END	Y	BOTH END
VCR	N	N/A	Y	BOTH END
DVD PALYER	N	N/A	Y	BOTH END
HEAD-MICROPHONE	N	N/A	Y	EUT END

3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“There was no Modified items during EMI test”

3.6 Configuration of Test System

Line Conducted Test: The EUT was connected to AC/DC adapter and 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 C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

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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)
Video Mode	
PC Mode at resolution 640 X 480	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)
Video Mode	
PC Mode at resolution 640 X 480	X



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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 : 19°C

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107

Type of Test : CLASS B

Result : PASSED BY -5.93 dB at 0.72 MHz

EUT : 29" FLAT TYPE TV BROADCAST RECEIVER

Date: February 5, 2002

Operating Condition : PC Mode at resolution 640 X 480

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

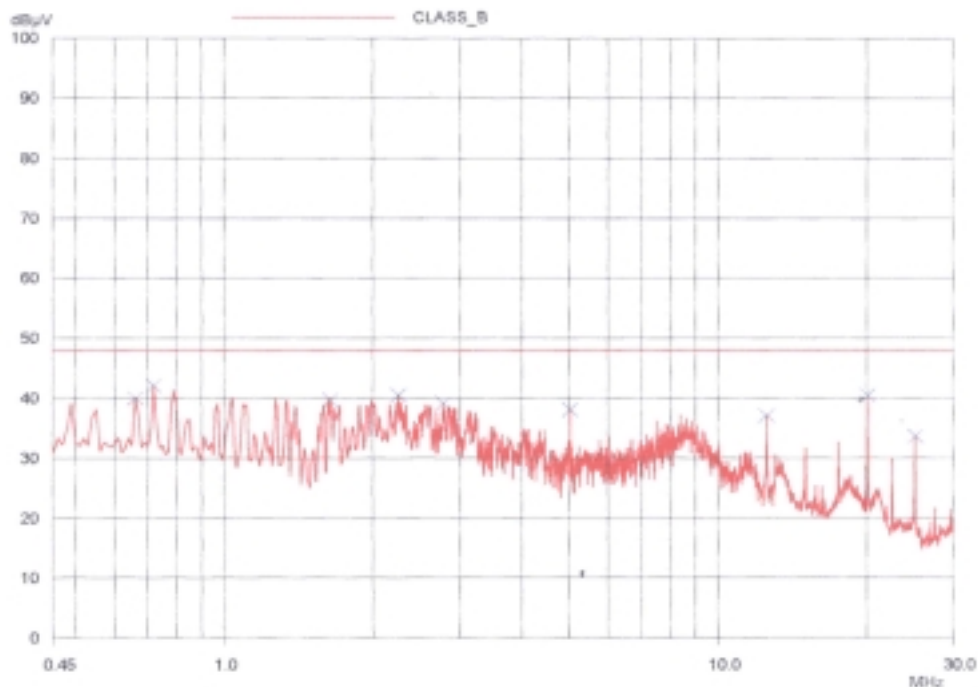
Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
0.49	39.62	NEUTRAL	48.00	-8.38
0.72	42.07	HOT	48.00	-5.93
1.04	42.01	NEUTRAL	48.00	-5.99
1.34	41.86	NEUTRAL	48.00	-6.14
2.25	40.45	NEUTRAL	48.00	-7.55
20.04	40.41	HOT	48.00	-7.59

Line Conducted Emission Tabulated Data

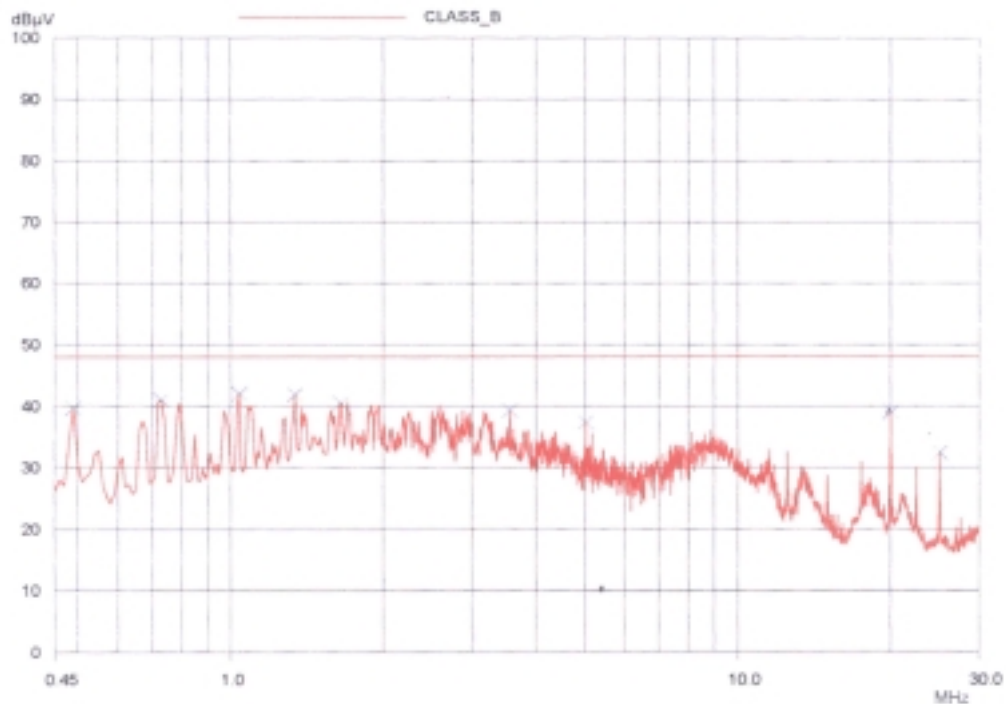
Measuring by: Seung Hyun, Nam / Test Engineer



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HOT LINE





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NEUTRAL LINE



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5.2 Radiated Emission Test

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

Humidity Level : 46 % Temperature : 12°C
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -5.30 dB at 40.00 MHz

EUT : 29" FLAT TYPE TV BROADCAST RECEIVER Date: February 5, 2002
 Operating Condition : PC Mode at resolution 640 X 480
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 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)
40.00	23.40	V	10.48	0.82	34.70	40.00	-5.30
58.37	18.90	V	10.16	0.98	30.04	40.00	-9.96
80.33	21.20	V	6.43	1.01	28.64	40.00	-11.36
129.45	16.50	V	13.22	1.26	30.98	43.50	-12.52
161.07	15.20	H	15.10	1.39	31.69	43.50	-11.81
202.40	18.20	H	11.24	1.58	31.02	43.50	-12.48
298.60	18.30	V	14.50	1.99	34.79	46.00	-11.21
348.20	17.60	H	14.57	2.27	34.44	46.00	-11.56
363.20	19.50	H	14.71	2.34	36.55	46.00	-9.45
443.00	19.10	H	16.33	2.53	37.96	46.00	-8.04
798.40	11.20	V	21.18	3.70	36.08	46.00	-9.92

Radiated Emissions Tabulated Data



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Measuring by: Seung Hyun, Nam / Test 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 (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= 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	ESVS 10	827864/005	SEP/00	12MONTH	■
2.	Test receiver	R/S	ESHS10	834467/007	APRIL/00	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3026A0226	SEP/00	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	SEP/00	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/00	12MONTH	■
6.	Dipole Antenna	EMCO	3121C	9107-745	JUN/00	12MONTH	
7.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/00	12MONTH	■
8.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	MAR/00	12MONTH	■
9.	LISN	EMCO	3825/2	9109-1867 9109-1869	FEB/00	12MONTH	■
10.	RF Amplifier	HP	8447F	3113A04554	JUN/00	N/A	
11.	Spectrum Analyzer	HP	8591A	3131A02312	APR/00	12MONTH	
12.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
13.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
14.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
15.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
16.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■