ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR FCC CLASS B CERTIFICATION

Test Report No.	**: E058R-036**
Applicant	**: KTV GLOBAL CORPORATION**
Address	**: 149, Gongdan 1-Dong, Gumi-City, Kyungbuk, 730-031, Korea**
Manufacturer	**: KTV GLOBAL CORPORATION**
Address	**: 149, Gongdan 1-Dong, Gumi-City, Kyungbuk, 730-031, Korea**
Type of Equipment	**: 12.1" LCD TV (FM Transmitter)**
FCC ID	**: BRFLTD121AB**
Model Name	**: LTD121AB**
Multiple Model Name	**: LSMD-121**
Serial number	**: N/A**
Total page of Report	**: 14 pages (including this page)**
Date of Incoming	**: June 27, 2005**
Date of Issuing	**: August 22, 2005**

SUMMARY

The equipment complies with the regulation; ***FCC CRF 47 PART 15, SUBPART C, SECTION 15.239***.

This test report contains only the result 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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1. VERIFICATION OF COMPLIANCE

APPLICANT	: KTV GLOBAL CORPORATION
ADDRESS	: 149, Gongdan 1-Dong, Gumi-City, Kyungbuk, 730-031, Korea
CONTACT PERSON	: Mr. Eui-Yeun, Kim / Team Leader
TELEPHONE NO	: +82-54-467-3550
FCC ID	: BRFLTD121AB
MODEL NO/NAME	: LTD121AB
SERIAL NUMBER	: N/A
DATE	: August 22, 2005

EQUIPMENT CLASS	DXX - Low Power Communication Device Transmitter
E.U.T. DESCRIPTION	12.1" LCD TV (FM Transmitter)
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	Chapter 13 of ANSI C63.4: 2003
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 15.239
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	Yes
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 KTV GLOBAL CORPORATION, Model LTD121AB (referred to as the EUT in this report) is a 12.1" LCD TV that is used in the car. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	7.6 MHz, 14.432 MHz and 24 MHz on the Main Board
NUMBER OF LAYERS	2 Layers: Control Board, 4 Layers: Main Board
TX FREQUENCY RANGE	88.3 ~ 90.3 MHz
ELECTRICAL RATING	DC 12V from a car battery
EXTERNAL TERMINALS	ANT EXT SPK Jack, A/V IN OUT Jack, FM ANT., RCA

2.2 Model Differences

The difference(s) compared to the EUT is as follows:

	Model	Model Differences
Basic Model	LTD121AB	-
Multiple Model	LSMD-121	Only type designation because of buyer's request.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

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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
LTD121AB	KTV GLOBAL CORPORATION.	BRFLTD104DD	12.1" LCD TV (EUT)	-
GHV-S9990	GoldStar	N/A	VCR	EUT
N/A	N/A	N/A	Battery	EUT
LT 416	Leader	N/A	Pattern Generator	EUT
-	-	N/A	External Antenna	EUT

2.5 Test Methodology

The radiated testing was performed according to the procedures in ANSI C63.4: 2003. 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-Eup, Kwangju-City, Kyunggi-Do, 464-080, Korea. Description details of test facilities were submitted to the Commission on April 04, 2003. (Registration Number: 340658)

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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	KTV	PLDM05	N/A
Tuner	SAMSUNG	TCMN3080DA29A(H)	N/A
LCD	AU OPTRONICS CORP	B121EW02	N/A
Inverter	P.L.S Corp	AT-0104HD (BIT)	N/A
DVD Loader	N/A	DVD-C01WA1	N/A
Sub Board	KTV	PLBZ03-2	N/A
Switch Board	KTV	PLBZ03-1	N/A

3.2 EUT exercise Software

The Model, LTD121AB is included a FM transmitter designed to operate on function in the 88.3 ~ 90.3 MHz.
The EUT has audio input port, so the input port was connected to an audio generator and the generator supplied the audio signal with 1 kHz modulation and then the EUT was transmitted with maximum audio level. The frequency, 90.3 MHz was measured as the highest output power. Data from this channel was determined to be worst case.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
12.1" LCD TV	N	N	1.5(P), 1.5(D)
VCR	N	N	1.5(P), 1.5(D)
BATTERY	N/A	N	1.5(D)
EXTERNAL NATENNA	N/A	N	1.5(D)
PATTERN GENERATOR	N	Y	1.5(P), 1.5(D)

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

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3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
12.1" LCD TV	N	N/A	-	-
VCR	N	N/A	Y	BOTH END
BATTERY	N	N/A	N	N/A
EXTERNAL ANTENNA	N	N/A	N	N/A
PATTERN GENERATOR	N	N/A	N	N/A

3.5 Equipment Modifications

-. The shield plate was added to the under side of main PCB and DVD loader.

-. The shield case was added to the top side of main PCB, top and under side of DVD loader.

-. The ferrite cores were added to the cable of LVDS, inverter and control board.

-. The connected wire between DVD loader and main PCB was changed to shield type.

-. The EMI tape was added to between DVD loader and main PCB shield.

3.6 Configuration of Test System

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

Radiated Emission Test: Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2003 8.3.1.1 and 13.1.4.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

Occupied Bandwidth Measurement: This measurement is performed with the antenna located close enough to give

a full-scale deflection of the modulated carrier on the spectrum analyzer.

3.7 Antenna Requirement

For intentional device, according to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

FM transmitter antenna of the EUT is fixed inside the EUT, no consideration of replacement by the user.

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

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmit the RF Signal continuously	X

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5. FINAL RESULT OF MEASURMENT

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

5.1 Radiated Emission Test (Within the permitted 200 kHz band)

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

Humidity Level : 44 % Temperature: 21 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (b)
Type of Test : Low Power Communication Device Transmitter
Result : PASSED BY – 16.52 dB at 88.30 MHz

EUT : 12.1" LCD TV Date: July 22, 2005
Operating Condition : Transmit the RF signal.
Distance : 3 Meter

Radiated Emission			Ant	Correction Factors		Total	Limit	Margin
Freq. (MHz)	Amp. (dBuV)	Detect Mode	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	(dBuV/m)	(dB)
88.30	21.80	Peak	V	7.95	1.73	31.48	48.00	-16.52
88.30	17.90	Peak	H	7.95	1.73	27.58	48.00	-20.42
90.30	21.20	Peak	V	8.25	1.71	31.16	48.00	-16.84
90.30	17.80	Peak	H	8.25	1.71	27.76	48.00	-20.24

Radiated Emission Tabulated Data

Remark: Per 15.31(m), because the EUT's frequency range is between 1 MHz to 10 MHz, two channels(near top and near bottom) were tested.
Average detector mode was not measured, because peak emission values were under average limit.

Tested by: In-Sub, Youn / Test Engineer

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5.2 Radiated Emission Test (Outside of the specified 200 kHz band)

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

Humidity Level : 44 % Temperature: 21 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209 (c)
Type of Test : Low Power Communication Device Transmitter
Result : PASSED BY –6.05 dB at 180.58 MHz

EUT : 12.1" LCD TV Date: July 22, 2005
Operating Condition : Transmit the RF signal.
Frequency range : 30MHz – 1000MHz
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Distance : 3 Meter
Remark : Other emissions

Radiated Emission		Ant	Correction Factors		Total	FCC	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
180.58	18.70	V	15.97	2.80	37.47	43.52	-6.05
270.88	13.60	H	17.80	3.48	34.88	46.02	-11.14
361.21	8.60	H	14.59	4.24	27.43	46.02	-18.59
451.53	6.80	H	16.78	4.53	28.11	46.02	-17.91

Tested by: In-Sub, Youn / Test Engineer

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5.3 Bandwidth of the operating frequency

Humidity Level	: 44 %	Temperature: 21 °C
Limits apply to	: FCC CFR 47, PART 15, SUBPART C, SECTION 15.239 (a)	
Result	: PASSED	

EUT	: 12.1" LCD TV
Date: July 22, 2005	
Operating Condition	: Transmit the RF signal.
Minimum Resolution Bandwidth	: 10 kHz
Remark	: Refer to test data in next page.

Tested by: In-Sub, Youn / Test Engineer

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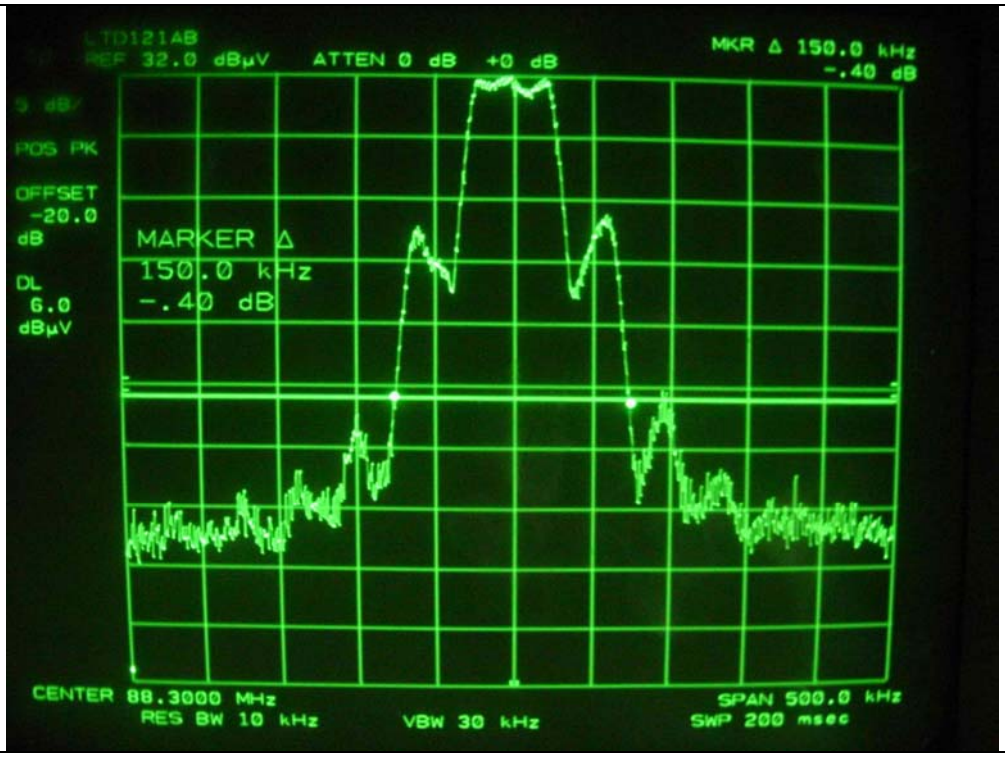
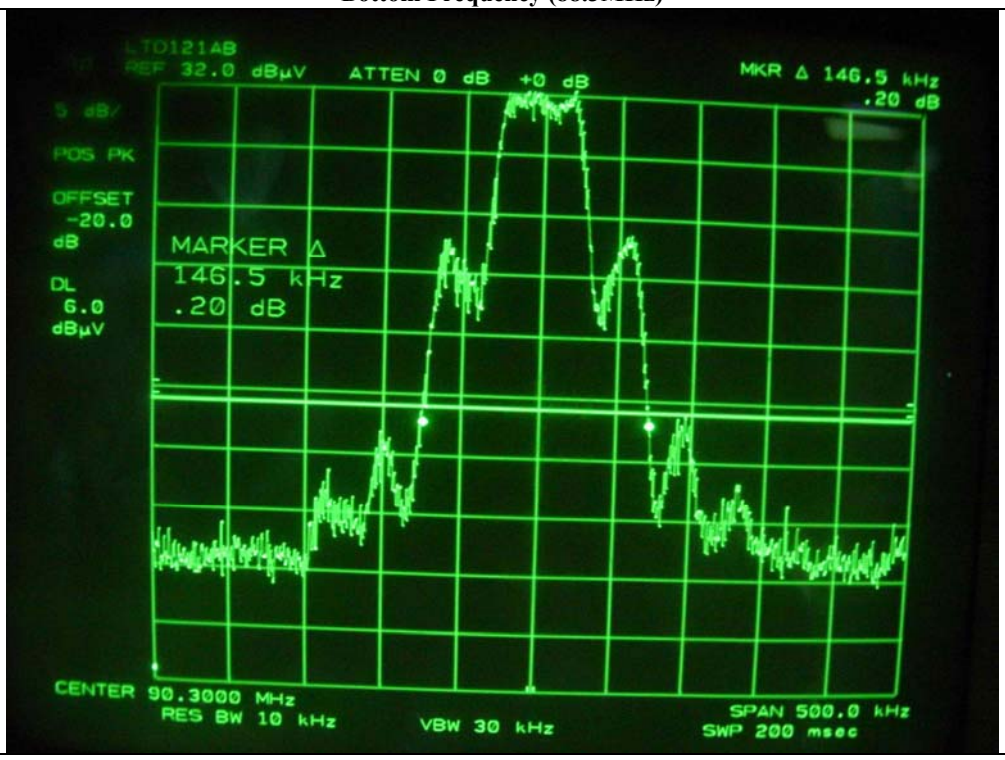


Bottom Frequency (88.3MHz)



Top Frequency(90.3 MHz)

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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	ESVS10	827864/005	DEC/04	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/05	12MONTH	
3.	Spectrum analyzer	HP	8566B	3407A08547	JUL/05	12MONTH	
4.	Spectrum analyzer	HP	8568B	3109A05456	APR/05	12MONTH	■
5.	RF preselector	HP	85685A	3107A01264	APR/05	12MONTH	■
6.	Quasi-Peak Adapter	HP	8574B	2811A01432	APR/05	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 166	APR/05	12MONTH	
8.	Biconical antenna	EMCO	3110	9003-1121	FEB/05	12MONTH	
		Schwarzbeck	VHA9103	91031852	JAN/05		■
9.	Log Periodic antenna	EMCO	3146	9001-2614	FEB/05	12MONTH	
		Schwarzbeck	9108-A(494)	62281001	FEB/05		■
10.	LISN	EMCO	3825/2	9109-1867	JUL/04	12MONTH	
				9109-1869	NOV/04		
		Schwarzbeck	NSLK 8128	8128-216	JUN/05		
11.	Position Controller	HD GmbH	HD100	N/A	N/A	N/A	■
12.	Turn Table	HD GmbH	DS420S	N/A	N/A	N/A	■
13.	Antenna Master	HD GmbH	MA240	N/A	N/A	N/A	■

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