

## FCC COMPLIANCE REPORT

Order No. : SKE-02-0891/E  
Test Report No. : 2003KESEMC-II-100.FCC  
Applicant : Hyojin Contec Co., Ltd.  
Address of Applicant : Ki-im Bldg 399 Shindorim-Dong, Kuro-Gu, Seoul, Korea

**Equipment Under Test (EUT) :**

Name : LCD PC  
Model No. : QREX-X150

**Standards** : FCC Part 15, Subpart B, Class B  
ANSI C63.4:1992

**Date of Receipt** : 27 February 2003  
**Date of Test** : 16 March 2003 to 21 March 2003  
**Date of Issue** : 24 March 2003

<b>Test Result :</b>	<b>PASS</b>
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In the configuration tested, the EUT complied with the standards specified above.

**Remarks :**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.



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**EMC DIV. Manager**  
**SGS KES CO., LTD. EMC Laboratory**

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# 1. General Information

## 1.1 Manufacturer Information

Manufacturer : Hyojin Contec Co., Ltd.

Address : Ki-im Bldg 399 Shindorim-Dong, Kuro-Gu, Seoul, Korea

## 1.2 General Description of EUT

Name : LCD PC

Model No. : QREX-X150

Serial No : N/A

FCC ID : P6JQREX-X150

## 1.3 Details of EUT

Tested Power Supply : AC 110V, 60Hz

Port : AC IN, Video, Parallel, Game, Serial, USB, IEEE1394  
MIC/Headphone, Line IN, Keyboard, PS/2 Mouse, LAN,  
Video Out

Description of Operating : Display "H" Pattern.

Modifications to the EUT : None

## 1.4 Description of Support Units

Product	Model No.	Serial No.	Manufacturer
Monitor	950P(T)	P029H3NR703017	SAMSUNG
Printer	BJC-2100SP	CME010503120	CANON
USB Mouse	M-BE58	LZA10709229	Logitech
Serial Mouse	MSW-5	N/A	A-FOUR TECH
PS/2 Mouse	OK-520	N/A	TECH
Keyboard	SEM-DT35	05068271	SAMSUNG
GAME	DHA-2000	N/A	DA Hun
PC Camera	MPC-M20 PLUS	00020919	Niztech
MIC/Headphone	CD-2MVs	N/A	Hi-Sonic
External HDD	FW1260	90943203111A	VST Technologies
Hub	Ethernet Hub 8	N/A	3COM
TV	CT-1413	933432FH801353	SAMSUNG
MP3 Play	SM-320VH1	N/A	PINE TECH

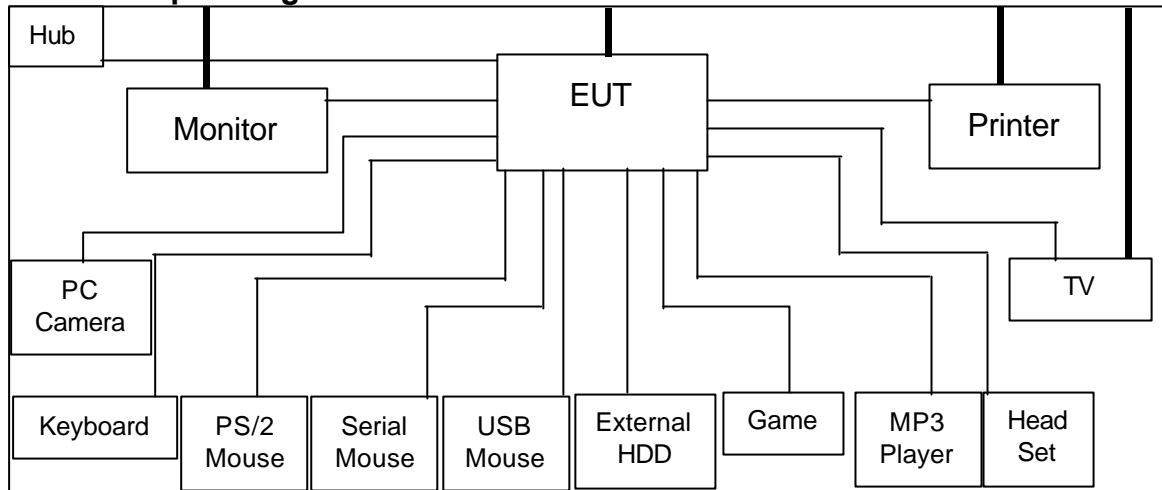
**1.5 Cable List**

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Lenth	Shield
EUT	AC IN	LISN	-	1.0	Unshielded
	Video	Monitor	-	1.8	Shielded
	Parallel	Printer	-	1.8	Shielded
	Game	Game	-	2.5	Unshielded
	Serial	Serial Mouse	-	1.8	Shielded
	USB	PC Camera	-	1.5	Shielded
	USB	USB Mouse	-	1.5	Shielded
	IEEE 1394	External HDD	-	1.5	Shielded
	MIC/Headphone	MIC/Headphone	-	2.5	Unshielded
	LINE IN	MP3 Player	-	1.5	Unshielded
	Keyboard	Keyboard	-	1.8	Shielded
	PS/2 Mouse	PS/2 Mouse	-	1.8	Shielded
	LAN	Hub	-	4.0	Unshielded
	Video Out	TV	-	1.8	Unshielded

**1.6 System Configuration**

Description	Model	Serial No.	Manufacturer
I/O Board 2	REAR2X	N/A	N/A
I/O Board 1	REAR1X	N/A	N/A
A/D Board	NVIDIA INF	N/A	Hyojin Contec
HDD	WD400(40G)	WMAAT5215957	Western Digital
FDD	SFD-321X	P4YM6032931	SAMSUNG
LCD Panel	LTM150XH-L01	4F1F02118F	SAMSUNG
Touch Screen Board	N/A	N/A	SENA
Power Supply	ENP-2120H	460539268	Enhance Electronics
Inverter	GH027A	N/A	GREEN C&C Tech
AMP Board	X170	N/A	N/A
CPU	Pentium 4(1.6GHz)	N/A	INTEL
CD-ROM	SN-124	N/A	SAMSUNG
Sound Board	SIDE	N/A	N/A
Video Board	MA-LTC	N/A	N/A
Main Board	LPC-845G	N/A	Hyojin Contec

### 1.7 Test Set-Up Configuration



### 1.8 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:1192 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:1992 at the open field test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 10meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

### 1.9 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart B, CLASS B

Test Standards	Status
FCC Part 15,Subpart B, Class B	Applicable
Deviation from Standard	No Deviation

### **1.10 Summary of Results**

The data collected shows that Model **QREX-X150** complies with Part 15.109 and 107 of FCC Technical Rules.

The highest emission level observed was at 1.31MHz for Q/P mode conducted emission with a margin of 11.2dB and at 1.16MHz for AV mode conducted emission with a margin of 4.2dB and at 1498.52MHz radiated emission with a margin of 4.04dB in RGB Mode.

The highest emission level observed was at 0.96MHz & 1.63MHz for Q/P mode conducted emission with a margin of 15.2dB and at 1.22MHz for AV mode conducted emission with a margin of 5.2dB and at 1256.96MHz radiated emission with a margin of 4.45dB in Video Mode.

# Radio Disturbance

## 2.1 Test Results

	Results
Conducted Emission	<b>PASS</b>
Radiated Emission	<b>PASS</b>

## 2.2 Frequency Range

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : 30 MHz - 1000 MHz, Above 1000MHz

## 2.3 Limits Of Conducted And Radiated Emission

### 2.3.1 Limit Of Conducted Emission Of FCC Part 15, Subpart B, CISPR22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

### 2.3.2 Limit Of Radiated Emission Of FCC Part 15, Subpart B, CISPR22

FREQUENCY (MHz)	Class A (at 10m)*	Class B (at 10m)*
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

\* Detector Function : Quasi - Peak

**2.4. Test of Conducted Emission****2.4.1 Test Equipments**

Equipment	Manufacturer	Model No.	Date of Calibration
Test Receiver	R & S	ESPC	Nov. 2002
LISN	EMCO	3825/2	Nov. 2002
LISN	EMCO	3825/2	Dec. 2002
Pulse Limiter	PMM	PL-01	Jul. 2002
Shielded Room	Daeil	N/A	Aug. 2002

**2.4.2 Test Site**

**Name and address : SGS KES Co., Ltd.**

705, Dongchun-Dong, Yongin, Korea 449-840

**2.4.3 Operating Environment**

Temperature : 21.3 degree C

Humidity : 31.5 %RH

Atmospheric Pressure : 1011 mBar

**2.4.4 Measurement Data**

**Measurement Bandwidth : 9kHz**

**Date of Test : March 21 2003**

**Mode : RGB**

FREQ. (MHz)	LEVEL(dB $\mu$ V)		LINE	LIMIT(dB $\mu$ V)		MARGIN(dB $\mu$ V)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.20	44.1	43.6	H	63.6	53.6	19.5	10.0
0.29	37.2	37.2	H	60.5	50.5	23.3	13.3
0.87	42.2	38.2	H	56.0	46.0	13.8	7.8
1.16	42.3	41.8	N	56.0	46.0	13.7	4.2
1.31	44.8	40.8	H	56.0	46.0	11.2	5.2
1.32	44.3	40.3	H	56.0	46.0	11.7	5.7

Mode : Video

FREQ. (MHz)	LEVEL(dB $\mu$ V)		LINE	LIMIT(dB $\mu$ V)		MARGIN(dB $\mu$ V)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.23	40.6	40.6	H	62.4	52.4	21.8	11.8
0.26	36.6	37.6	H	61.4	51.4	24.8	13.8
0.99	40.8	38.8	H	56.0	46.0	15.2	7.2
1.22	40.3	40.8	N	56.0	46.0	15.7	5.2
1.23	41.3	40.3	N	56.0	46.0	14.7	5.7
1.63	40.8	36.8	H	56.0	46.0	15.2	9.2




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 See – Ho, Lee / Test Engineer

**2.5 Test of Radiated Emission****2.5.1 Test Instruments**

Description	Manufacturer	Model No.	Date of Calibration
Test Receiver	R & S	ESVS30	Nov. 2002
Spectrum Analyzer	H.P	E4411A	Oct. 2002
RF Amplifier	H.P	8447F	May. 2002
Bilog Antenna	EMCO	CBL6111C	Apr. 2002
RF Select s/w	DAIWA	CS201	Oct. 2002

**2.5.2 Test Site****Name and address : SGS KES Co., Ltd.**

705, Dongchun-Dong, Yongin, Korea 449-840

**2.5.3 Operating Environment**

Temperature : 8 degree C      Humidity : 23 %RH

Atmospheric Pressure : 994 mBar

**2.5.4 Measurement Data****Measurment Bandwidth : 120kHz / 1MHz(at frequencies above 1GHz)****Date of Test : March 16 2003****Mode : RGB**

Freq. (MHz)	Level (dB $\mu$ V )	AF* (dB)	CL** (dB)	POL (H/V)	Limit (dB)	Result (dB $\mu$ V )	Margin*** (dB)
122.65	11.20	11.67	2.18	H	30.0	25.05	4.95
715.82	3.60	21.37	7.92	H	37.0	32.89	4.11
1123.26	11.20	24.37	3.22	H	43.5	38.79	4.71
1369.52	9.60	25.33	3.47	H	43.5	38.40	5.10
1498.52	10.10	25.76	3.60	H	43.5	39.46	4.04
2133.21	7.90	26.08	4.51	H	43.5	38.49	5.01

\* AF = Antenna Factor.      \*\* CL = Cable Loss.


\*\*\* Margin=Each Frequency Limit Level(dBuV) - (Level+AF+CL)

## Mode : Video

Freq. (MHz)	Level (dB $\mu$ V)	AF* (dB)	CL** (dB)	POL (H/V)	Limit (dB)	Result (dB $\mu$ V)	Margin*** (dB)
122.36	11.30	11.67	2.18	V	30.0	25.15	4.85
586.23	5.20	19.78	6.89	H	37.0	31.86	5.14
601.23	5.20	19.84	7.01	H	37.0	32.05	4.95
715.23	3.20	21.37	7.92	H	37.0	32.49	4.51
1123.33	11.20	24.37	3.22	H	43.5	38.79	4.71
1256.96	10.80	24.90	3.35	H	43.5	39.05	4.45

\* AF = Antenna Factor.    \*\* CL = Cable Loss.

\*\*\* Margin=Each Frequency Limit Level(dBuV) - (Level+AF+CL)



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