FCC EVALUATION REPORT FOR CERTIFICATION

EMC TEST REPORT

KOREA Standard Technology

Test report No.: KST-EMC030001

Manufacturer's Name: **megavision Co., Ltd**

Manufacturer's Address: **Rm. 102, Pyungchon Plaza, 1605-2, Kwanyang-dong, Dongan-gu, Anyang-shi, Kyunggi-do, Korea**

EUT's:

FCC ID:	**QJSMV150**
Product Name:	**LCD Monitor**
Model Number(s):	**MV150**
Product Options:	**N/A**
Category:	**FCC Part 15 sub. part B Class B Digital Device**

Supplementary Information

The device bearing the brand name and FCC ID specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with measurement procedures specified in ANSI C63.4-1992.

I attest to the accuracy of data and all measurements reported herein were performed by or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Date: 2003.01.17

Tested by: 

Kim, Young-sik

Approved by: 

Lee, Woen-woo

Contents

1. Description of Device

1) Kind of equipment:	LCD Monitor
2) FCC ID:	QJSMV150
3) Model Name:	MV150
4) Serial No.:	None
5) Type of Sample Tested:	Pre-production
6) High Frequency Used:	14.318MHz 12.000MHz
7) Adapter	Model name: DTA-XGA03 Manufacturer: Display Technology Co., Ltd Serial no: 25003243
8) Power Rating:	1phase AC100-240V, 0.8A, 50/60Hz Output: DC 12V, 3A
9) Tested Power supply:	1phase AC120V, 60Hz
10) Date of Manufacture:	January, 2003
11) Manufacture:	Megavision Co., Ltd
12) Description of Operating:	Scroll All “H” Character Resolution 1024*768 Vertical Frequency: 75Hz
13) Dates of Test:	January 17, 2003
14) Place of Tests:	Korea Standard Technology EMC site
15) Test Report No:	KST-EMC030001

2. Test Facility

The open field test site and conducted measurement facility are used for these testing, where are located following address and drawing. This site was fully described in a report dated November 14, 2002, that was submitted to the FCC.

Korea Standard Technology (KOSTEC Co., Ltd)

Head office:
302 City Bild, 1600-3 Kwanyang-dong, Dongan-gu, Anyang-shi, Kyunggi-do, Korea
Telephone No : 82-31-388-2051
Facsimile No: 82-31-388-2052

Test Lab
:180-254, Annyung-Ri, Taean-Yup, Hwasung-shi, Kyunggi-do, Korea
Telephone No : 82-31-222-4251
Facsimile No: 82-31-222-4252

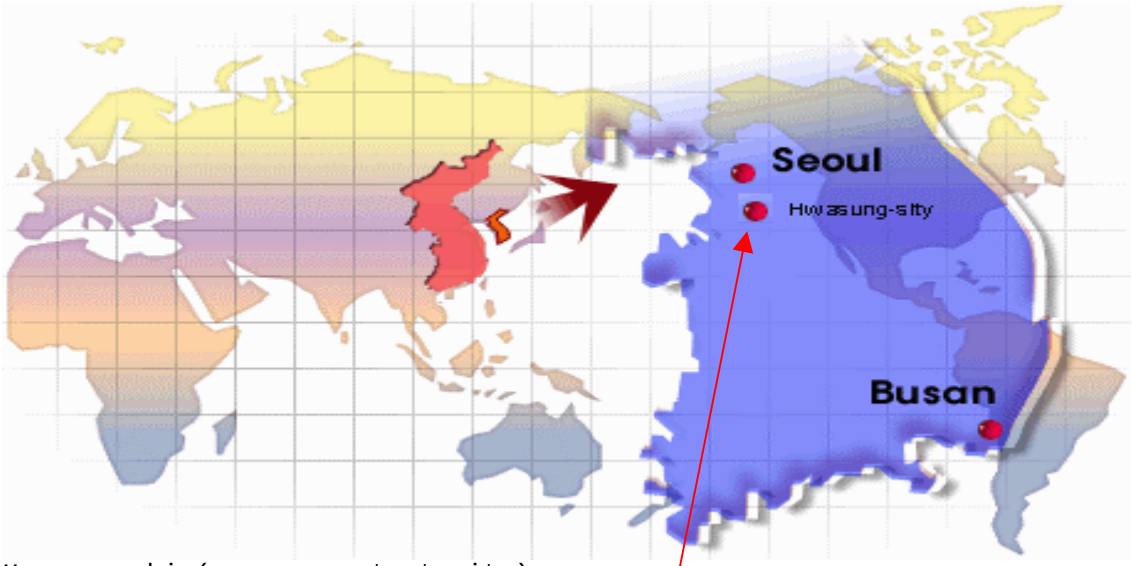
MIC(Ministry of Information and Communication) No: **KR0042**

FCC Filing No. : **525762**

VCCI Membership Number : **2005**

3. MAP

Korea



Hwasung-shi (open area test site)

4. TEST SYSTEM CONFIGURATION

Operation Environment

Ambient	Temperature (° C)	Humidity (%)	Pressure (hPa)
10m Open Area site	2	45	1020
Shielded room:	18	35	1021

Test site
These testing were performed following locations ;

Shielded room : Conducted Emission,

10m Open Area Site: Radiated Emission

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.
The factors contributing to uncertainties are test receiver, Cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, ite imperfection, mismatch, and system repeatability.
Based on NIS 80,81, The measurement uncertainty level with a 95% confidence level were applied.

sample calculation

Conducted emission

The field strength is calculated by adding the LISN factor, cable loss from the measured reading.
The sample calculation is as follows:

FS = MR + LF + CL
MR = Meter Reading
LF = LISN Factor
CL = Cable Loss

If MR is 30dB, LISN Factor 1dB, CL 1dB
The result (MR) is
30 + 1 + 1 = 32dBuV

5. Description of E.U.T.

Product Description

Manufactured By:	megavision Co., Ltd
Address:	Rm. 102, Pyungchon Plaza, 1605-2, Kwanyang-dong, Dongan-gu, Anyang-shi, Kyunggi-do, Korea
Model:	MV150
Serial Number:	15HTO280086

Description	Manufacturer	Model / Part #	Serial Number
LCD Panel	Hyundai	HT15X22-200	PIQ0290010000333
AD Board	none	NLX05M	None
Inverter Board	None	TM-501	NY02500
Ac/dc adapter	Display Technology Co., Ltd	DTA-XGA03	25003243

EUT Used cables

Cable Type	Shield	Length (m)	Ferrite	Connector	Connection Point 1	Connection Point 2
POWER Line	No	1.0	-	DC INLET	Ac/dc adapter	Main power source
VGA In	Yes	1.5	yes	D-sub	EUT	Personal computer

Operating conditions

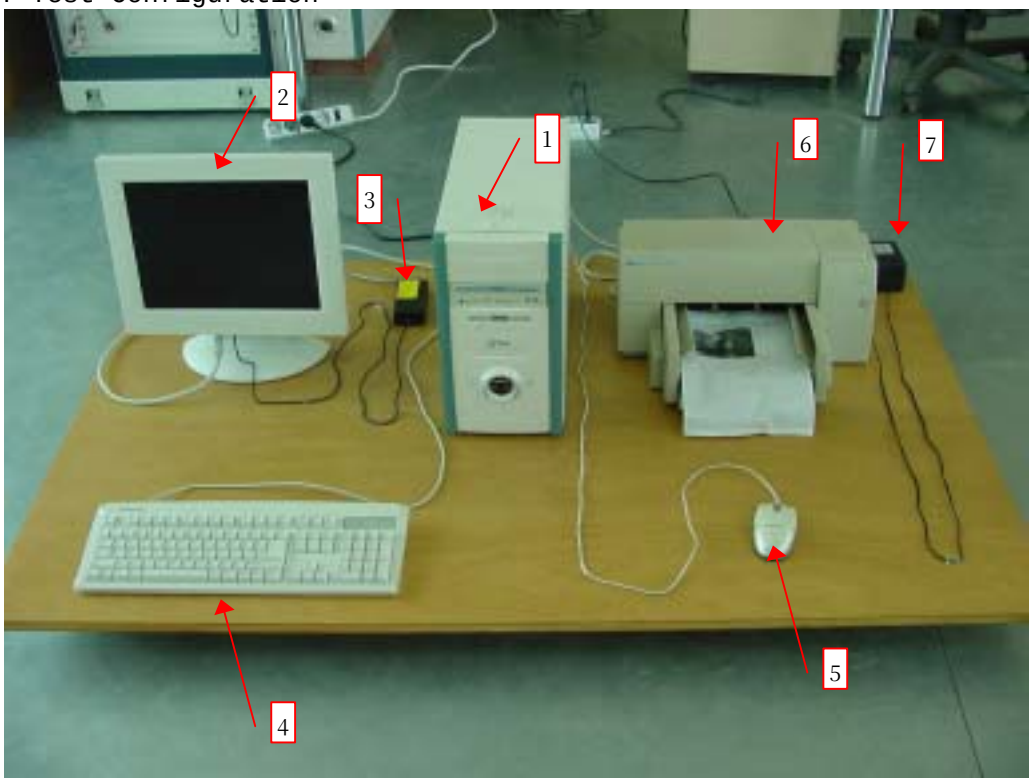
The operating mode/system were as follows in details:

Operating: Connected personal computer after ‘H’ pattern displayed on the LCD Monitor.

Peripherals

No	Description	Manufacturer	Model / Part #	Serial Number
1	Personal computer	none	nice	None
2	LCD MONITOR	megavision Co., Ltd	MV150	15HTO280086
3	Ac/dc adapter	Display Technology Co., Ltd	DTA-XGA03	25003243
4	Keyboard	samsung	SDl3520	28014888
5	Mouse	samsung	SMOP5000WX	none
6	Printer	hp	C2605A	SG42RIC05B
7	Ac/dc adapter	hp	Deskwriter	None

E.U.T Test Configuration



6. Summary of test results

Modification to the E.U.T.

- None

7. TEST RESULTS

7.1 Conducted emission

Measurement procedure

Mains
The measurements were performed in a shielded room. EUT was placed on a non-metallic table height of 0.4m above the reference ground plane. They were folded back and forth forming a bundle 30cm to 40Cm long and were hanged at a 40cm height to the ground plane.
Each EUT power lead, except ground (safety) lead, were individually connected through a LISN to input power source.
Both lines of power cord, hot and neutral, were measured.

Used equipment

Equipment	Model no.	Serial no.	Makers	Next cal date	Used
Test receiver	ESPI3	100109	R&S	2003.03.21	x
L.I.S.N.	ESH2-Z5	100044	R&S	2003.04.25	x
	ESH2-Z5	100147	R&S	2003.04.25	x

measurement uncertainty

Conducted Emission measurement : ± 2.4 (K=2)

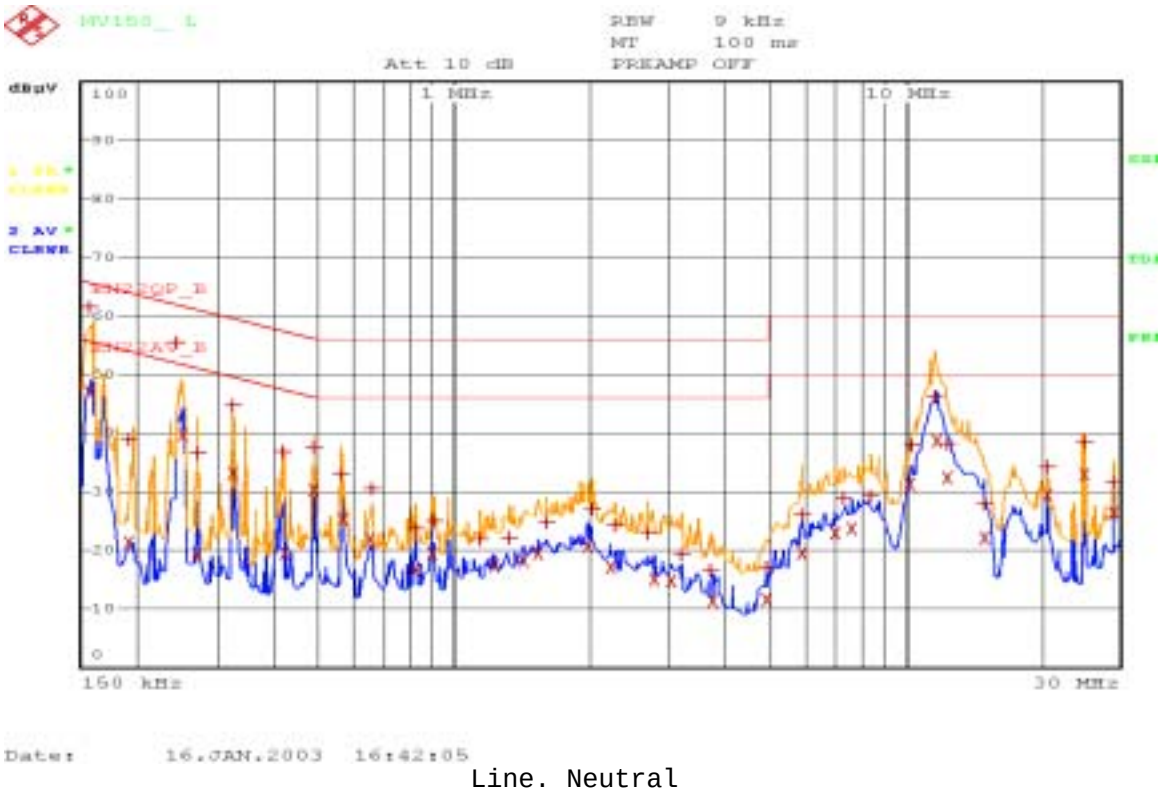
test data

FREQ. (MHz)	LEVEL(dBμV)		LINE Pol	Loss (dB)	LIMIT(dBμV)		MARGIN(dBμV)	
	QP	AV			QP	AV	QP	AV
0.158	61.63	47.06	L	0.08	65.57	55.57	4.02	8.59
0.246	55.43	39.87	L	0.29	61.89	51.89	6.75	12.31
0.322	44.84	33.12	L	0.29	59.66	49.66	15.11	16.83
0.562	33.02	25.37	L	0.90	56.00	46.00	23.88	21.53
10.258	45.60	40.06	N	1.33	60.00	50.00	15.73	11.27
11.666	46.28	38.78	L	1.43	60.00	50.00	15.15	12.65
24.950	38.45	33.05	L	2.20	60.00	50.00	23.75	19.15

* Level = test receiver reading value
* Loss = LISN insertion Loss + Cable Loss

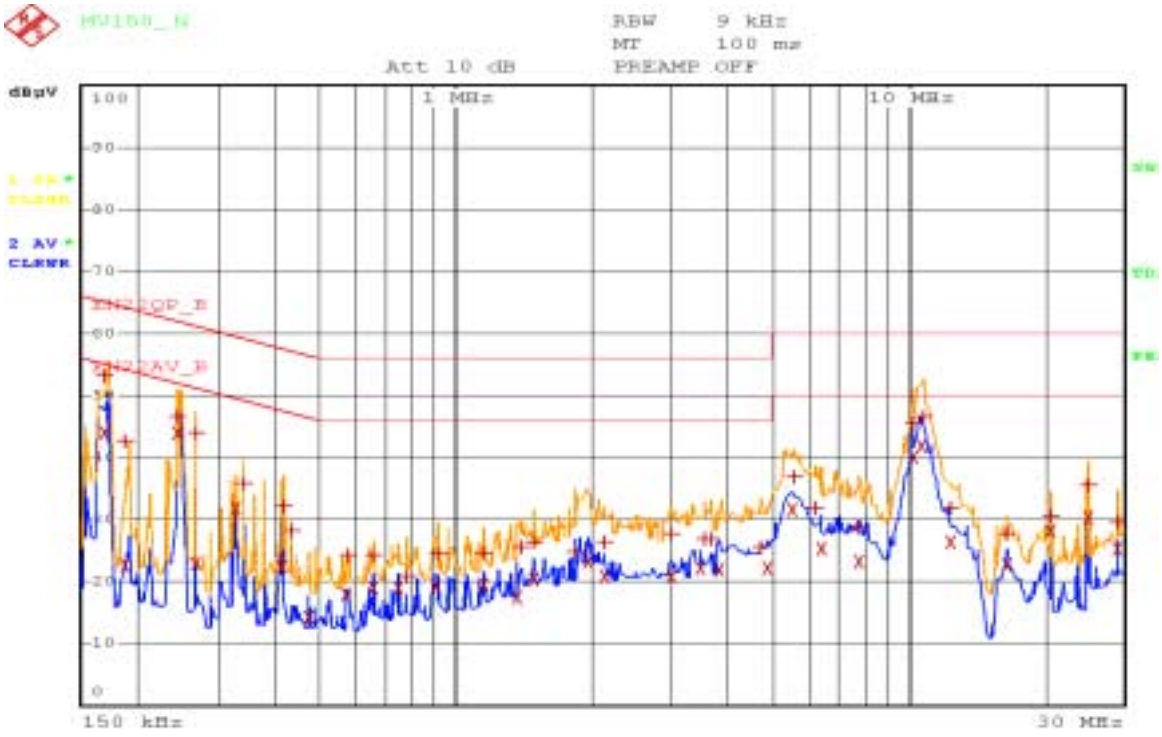
Conducted emission test graph

Line. Live



Date: 16.JAN.2003 16:42:05

Line. Neutral



Date: 16.JAN.2003 16:54:53

7.2 Radiated Emission

Measurement procedure

A pretest was performed at 3m distances in a semi-anechoic chamber for searching correct frequency.
The final test was done at a 10m open area test site with a quasi-peak detector.
EUT was placed on a non-metallic table height of 0.8m above the reference ground plane.
Cables connected to EUT were fixed to cause maximum emission.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.
The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Used equipment

Equipment	Model no.	Serial no.	Makers	Next cal date
Test receiver	ESCS30	100111	R&S	2002.03.18
Ultra broadband antenna	HL562	100075	R&S	2003.04.24
Antenna Mast	AT14	none	Daeil EMC	-
Turn Table	TT15	none	Daeil EMC	-
10m Open area site	none	none	KOSTEC Lab	-
chamber(3m)	none	none	FRANCONIA	-

measurement uncertainty

Radiated Emission measurement :

30-300MHz +3.96dB / -4.04dB
300-1000MHz +3.04dB / -3.00dB

test data

Freq (MHz)	Reading (dBuV/m)	P (H/V)	H (m)	A (.)	Antenna (dB)	Cable Loss (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
60.15	20.20	V	1.00	164	3.60	3.30	27.10	40.0	12.90
153.67	19.73	V	1.00	201	7.68	4.29	31.70	43.5	11.80
287.29	11.18	H	3.50	157	10.58	6.34	28.10	46.0	17.90
334.06	11.44	H	2.40	65	12.02	6.84	30.30	46.0	15.70
551.26	13.98	V	2.10	10	16.22	9.10	39.30	46.0	6.70
708.74	13.04	V	1.70	34	18.48	10.08	41.60	46.0	4.40

Reading = Test receiver reading
P= antenna Polarization
H=antenna Height
A=turn table Angle
Antenna = antenna factor
Cable loss = used cable loss
Result = reading + antenna + loss
Margin = Limit - result

* Receiving Antenna Mode: Horizontal, Vertical
* Test site: 3m Open area site