

FCC EVALUATION REPORT FOR CERTIFICATION

Korea Standard Technology

Test report No.: KST-FCC0405

Manufacturer's Name : Megavision Co., Ltd.
Manufacturer's Address: 799 Anyang Megavalley, Room 504 Kwangyang-Dong ,
Dongan-Gu, Anyang-Shi, Kyunggi-Do , KOREA

EUT's:

FCC ID : QJSMV152
Product Name : LCD TV & Monitor
Model Number(s) : MV152
Product Options : With Analog RGB (D-sub)
Category : FCC Part 15 subpart B
Class B Computing Digital Device &
TV interface devices

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.

Issue Date : February 14 , 2004

Tested by:



Kim, Ha-Hyoung

**Approved
by:**



Lee, Woen-Woo

Contents

1. Description of Device
2. Test Facility
3. MAP
4. Test system configuration
5. Description of E.U.T.
6. Summary of test results.
7. Test results.
8. Photographs.

Appendix. Sample Label

EMC TEST REPORT



Report reference No: KST-FCC0405

1. Description of Device

- | | |
|-------------------------------|--|
| 1) Kind of equipment: | LCD TV & Monitor |
| 2) FCC ID: | QJSMV152 |
| 3) Model Name: | MV152 |
| 4) Serial No.: | None |
| 5) Type of Sample Tested: | Pre-production |
| 6) High Frequency Used: | 27.000MHz / 24.576MHz
12.000MHz |
| 7) Adapter | Model name: LSE9901B1250
Manufacturer: LI SHIN INTERNATIONAL
ENTERPRISE CORP.
Serial no: A20333056148 |
| 8) Power Rating: | 1phase AC100-240V, 1.5A, 50/60Hz
Output: DC 12V, 4.16A |
| 9) Tested Power supply: | 1phase AC120V, 60Hz |
| 10) Date of Manufacture: | January 10, 2004 |
| 11) Manufacture: | Megavision Co., Ltd |
| 12) Description of Operating: | Scroll All "H" Character
Resolution 1024*768 , Vertical Frequency: 75Hz
& TV tuner mode |
| 13) Dates of Test: | February 4, 2004 |
| 14) Place of Tests: | Korea Standard Technology EMC site |
| 15) Test Report No: | KST-FCC0405 |

EMC TEST REPORT



Report reference No: KST-FCC0405

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, Taeon-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**

VCCI Registration Number : **R-1657 / C-1763**

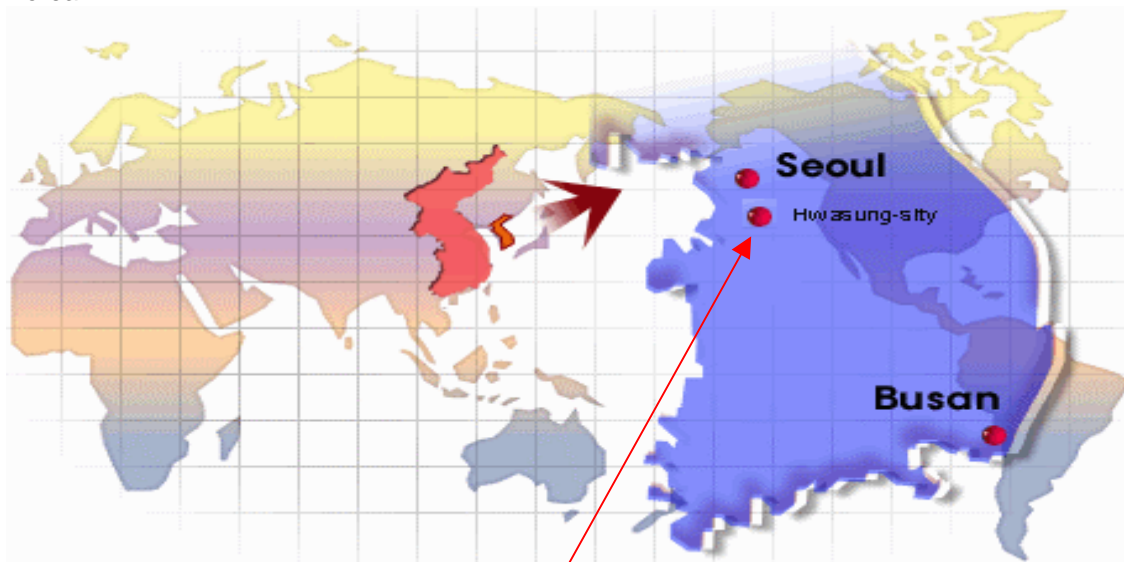
EMC TEST REPORT



Report reference No: KST-FCC0405

3. MAP

Korea



Hwasung-shi (open area test site)



EMC TEST REPORT



Report reference No: KST-FCC0405

4. TEST SYSTEM CONFIGURATION

Operation Environment

Ambient	<u>Temperature</u> (° C)	<u>Humidity</u> (%)	<u>Pressure</u> (hPa)
10m Open Area site	12.5	45	1016
Shielded room:	17.9	48	1015

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, its 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:

$$\begin{aligned}FS &= MR + LF + CL \\MR &= \text{Meter Reading} \\LF &= \text{LISN Factor} \\CL &= \text{Cable Loss}\end{aligned}$$

If MR is 30dB, LISN Factor 1dB, CL 1dB

The result (MR) is

$$30 + 1 + 1 = 32\text{dBuV}$$

EMC TEST REPORT



Report reference No: KST-FCC0405

5. Description of E.U.T.

Product Description

Manufactured By:	Megavision Co.,Ltd.
Address:	799 Anyang Megavalley,Room 504 Kwangyang-Dong , Dongan-Gu, Anyang-Shi, Kyunggi-Do , KOREA
Model:	MV152
Serial Number:	None

ConfigUration of EUT

Description	Manufacturer	Model/Part #	Serial Number
LCD Panel	Hyundai	HT15X15-D01	PVQ038D0132000194
AD Board	Megavision Co.,Ltd.	MV176TM	VM0012
Inverter Board	P.I.S. CORP	AT-0150XH	03-12-02
OSD Board	Megavision Co.,Ltd.	MV-176	CMV760020
TV Tuner	SAMSUNG	MV176TT	VM0013
Remote Control	Megavision Co.,Ltd.	None	None
Ac/dc adapter	LI SHIN INTERNATIONAL ENTERPRISE CORP.	LSE9901B1250	A20333056148

EUT Used cables

Cable Type	Shield	Length (m)	Ferrite	Connector	Connection Point 1	Connection Point 2
POWER Line	Yes	1.2	-	DC INLET	Ac/dc adapter	Main power source
VGA In	Yes	1.5	yes	D-sub	EUT	Personal computer
S-Video	Yes	1.0	-	Din	EUT	-
Audio	Yes	2.0	-	Jack	EUT	Headset

Operating conditions

The operating mode/system were as follows in details:

Operating : After Connected from personal comput to E.U.T by RGB cable(D-sub 15 pin).
And then use to "H" pattern program for data transmission and continuously 'H' pattern displayed on the LCD Monitor. And TV tuner mode.

EMC TEST REPORT

Report reference No: KST-FCC0405



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	2004.03.11	
L.I.S.N.	ESH2-Z5	100044	R&S	2004.04.25	
	ESH2-Z5	100147	R&S	2004.04.25	

measurement uncertainty

Conducted Emission measurement : $\pm 2.4\text{dB}$ (K=2)

Test data

< Without Ground >

FREQ. (MHz)	LEVEL(dB μ V)		LINE Pol	Loss (dB)	LIMIT(dB μ V)		MARGIN(dB μ V)	
	QP	AV			QP	AV	QP	AV
0.174	37.98	24.83	N	0.29	65.57	55.57	27.88	31.03
0.310	41.05	31.77	N	0.29	61.89	51.89	21.13	20.41
0.626	37.85	36.40	L	0.90	59.66	49.66	22.71	14.16
3.494	36.89	35.19	N	0.62	56.00	46.00	19.73	11.43
5.178	34.30	30.32	N	0.75	60.00	50.00	26.45	20.43
15.222	33.37	30.52	L	1.77	60.00	50.00	28.40	21.25
29.814	37.41	31.90	N	2.27	60.00	50.00	24.86	20.37

* Level = test receiver reading value

* Loss = LISN insertion Loss + Cable Loss

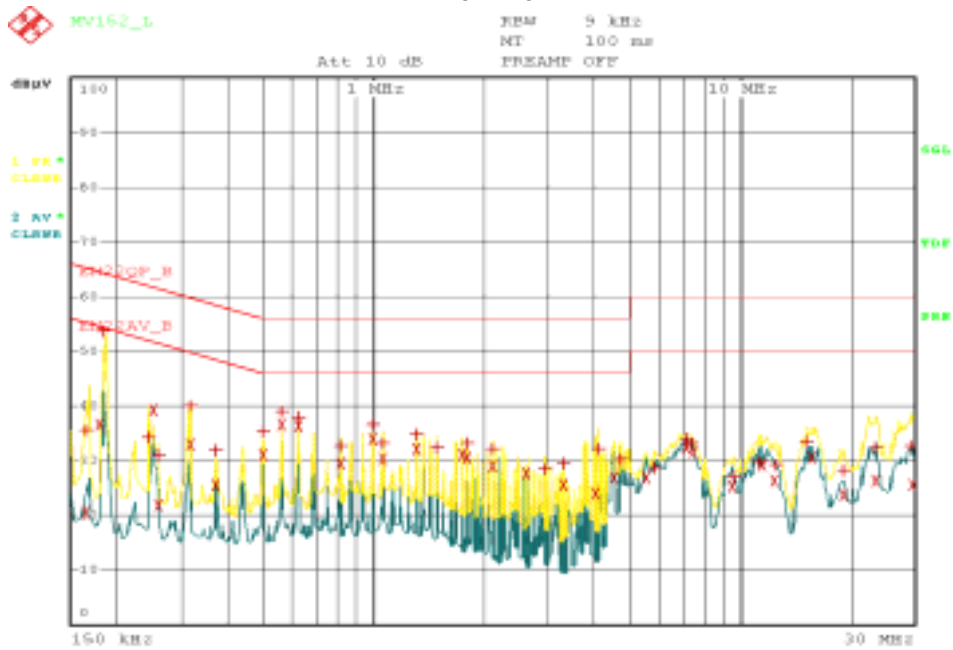
EMC TEST REPORT

Report reference No: KST-FCC0405



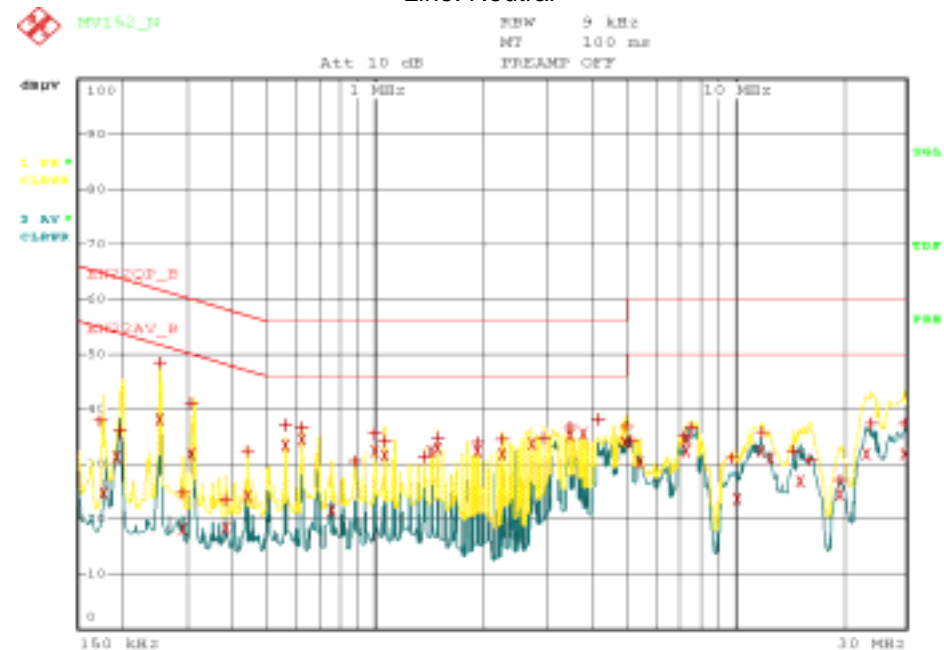
Conducted emission test graph

< Without Ground >
Line. Live



Date: 4.FEB.2004 10:19:15

Line. Neutral



Date: 4.FEB.2004 10:16:13

EMC TEST REPORT



Report reference No: KST-FCC0405

Test data

< With Ground >

FREQ. (MHz)	LEVEL(dB μ V)		LINE Pol	Loss (dB)	LIMIT(dB μ V)		MARGIN(dB μ V)	
	QP	AV			QP	AV	QP	AV
0.246	45.17	34.61	L	0.29	65.57	55.57	20.69	21.25
0.374	35.97	26.91	L	0.29	61.89	51.89	26.21	25.27
0.626	36.49	31.80	N	0.90	59.66	49.66	24.07	18.76
1.186	35.22	32.49	N	0.44	56.00	46.00	21.22	13.95
5.242	33.76	27.49	L	0.75	60.00	50.00	26.99	23.26
12.130	32.76	26.08	L	1.52	60.00	50.00	28.76	25.44
23.854	40.20	33.55	L	2.08	60.00	50.00	21.88	18.53

* Level = test receiver reading value

* Loss = LISN insertion Loss + Cable Loss

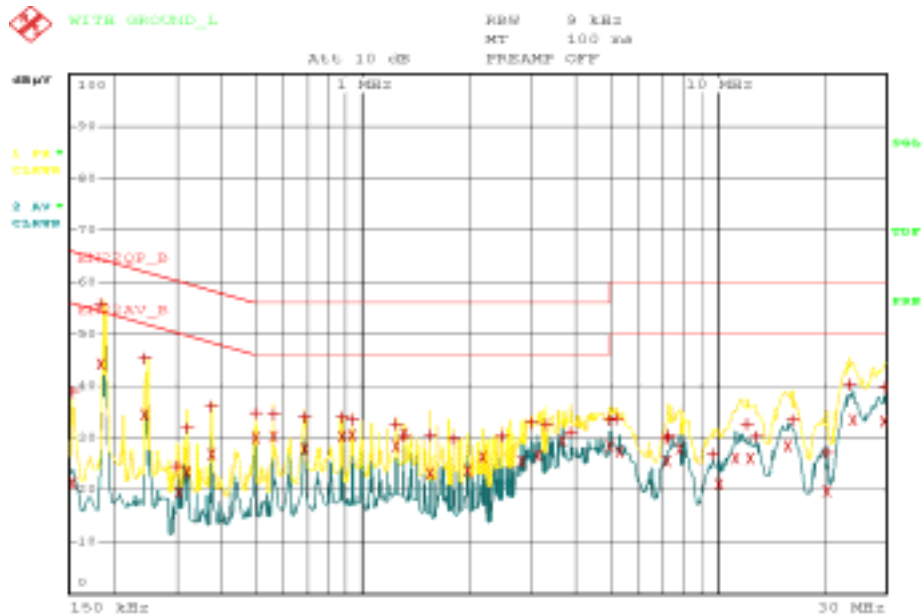
EMC TEST REPORT



Report reference No: KST-FCC0405

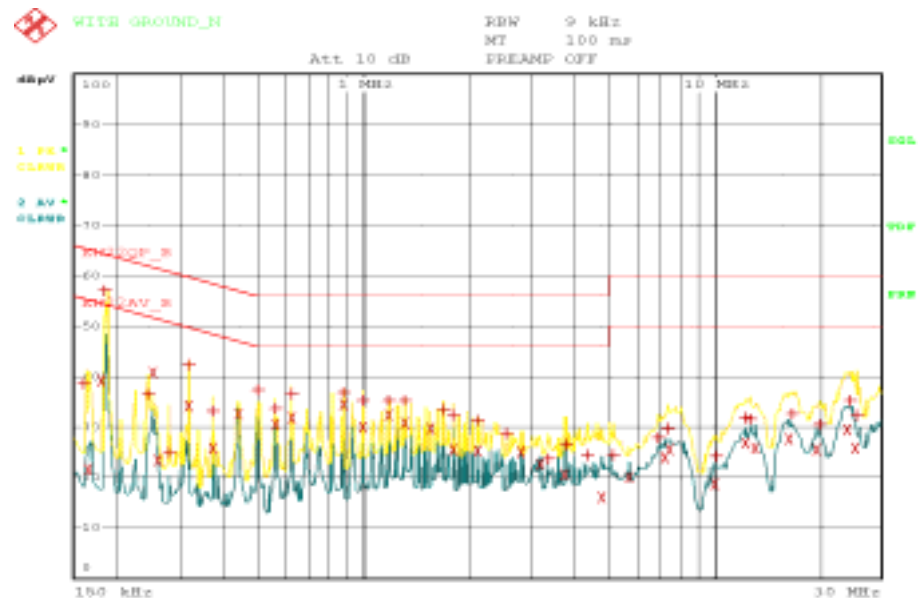
Conducted emission test graph

< With Ground >
Line. Live



Date: 4 . FEB . 2004 10:30:43

Line. Neutral



Date: 4 . FEB . 2004 10:26:53

EMC TEST REPORT



Report reference No: KST-FCC0405

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	Used
Test receiver	ESCS30	100111	R&S	2004.3.17	
Ultra broadband antenna	HL562	100075	R&S	2004.3.18	
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 : Other Frequency ("H" pattern scroll) – PC Mode

Freq (MHz)	Reading (dBuV/m)	P (H/V)	H (m)	A (.)	Antenna (dB)	Cable Loss (dB)	Result (dBuV/m)	Limit (dB)	Margin (dB)
76.84	14.32	V	1.50	250	7.80	3.08	25.20	40.0	14.80
110.45	11.10	V	1.50	100	9.20	3.80	24.10	43.5	19.40
114.23	10.94	V	1.50	90	9.40	3.76	24.10	43.5	19.40
196.19	11.94	V	1.50	250	7.22	4.94	24.10	46.0	21.90
220.72	11.00	H	1.50	270	8.20	4.90	24.10	46.0	21.90
570.82	2.61	H	1.50	100	16.60	9.19	28.40	46.0	17.60
600.08	7.50	V	1.50	270	17.00	9.30	33.80	46.0	12.20
633.96	5.52	V	1.50	250	17.46	9.42	32.40	46.0	13.60

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

EMC TEST REPORT



Report reference No: KST-FCC0405

Disturbance radiation due to local oscillator (TV tuner mode)

Channel	Frequency (MHz)	Reading (dBuV)	Pol (H/V)	Total Loss (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
2 (55.25MHz)	101.0			12.8		43.5	
	202.0			12.5		43.5	
	303.0			17.6		46.0	
	404.0			21.0		46.0	
	505.0	8.1	H	23.4	31.5	46.0	14.5
	606.0			26.4		46.0	
	707.0			28.5		46.0	
	808.0			30.5		46.0	
4 (67.25MHz)	909.0			32.7		46.0	
	108.5	28.1	H	12.9	41.0	43.5	2.5
	217.0	17.5	H	13.0	30.5	46.0	15.5
	325.5			18.5		46.0	
	434.0			22.0		46.0	
	542.5	13.7	H	25.0	38.7	46.0	7.3
	651.0			27.5		46.0	
	759.5	12.5	H	29.8	42.3	46.0	3.7
6 (83.25MHz)	868.0			31.5		46.0	
	976.5			33.7		54.0	
	129.0	20.8	H	12.9	33.7	43.5	9.8
	258.0	15.0	V	15.7	30.7	46.0	15.3
	387.0	19.7	V	20.5	40.2	46.0	5.8
	516.0	18.4	V	24.0	42.4	46.0	3.6
	645.0			27.2		46.0	
	774.0	11.4	V	30.0	41.4	46.0	4.6
7 (175.25MHz)	903.0			32.6		46.0	
	221.0	19.1	V	13.2	32.3	46.0	13.7
	442.0			22.3		46.0	
	663.0			27.9		46.0	
10 (193.25MHz)	884.0			32		46.0	
	239.0	16.1	H	14.3	30.4	46.0	15.6
	478.0			22.9		46.0	
	717.0	14.8	V	28.9	43.7	46.0	2.3
13 (211.25MHz)	956.0			33.4		46.0	
	257.0	19.1	H	15.7	34.8	46.0	11.2
	514.0			23.9		46.0	
14	771.0	12.1	H	29.9	42.0	46.0	4.0
19	517.0	20.1	H	24.1	44.2	46.0	1.8
28	547.0	15.1	H	25.2	40.3	46.0	5.7
36	601.0	17.4	H	26.3	43.7	46.0	2.3
44	649.0	16.1	H	27.4	43.5	46.0	2.5
53	697.0	14.2	H	28.3	42.5	46.0	3.5
61	751.0	11.2	V	29.8	41.0	46.0	5.0
69	799.0	12.8	H	30.4	43.2	46.0	2.8
	847.0	11.1	H	31.1	42.2	46.0	3.8