

FCC EVALUATION REPORT FOR CERTIFICATION

EMC TEST REPORT

KOREA Standard Technology

Test report No.: KST-EMC030025

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 : QJSMV140
Product Name : LCD Monitor
Model Number(s) : MV140
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: May 21, 2003

Tested by:



Kim, Ha-Hyoung

**Approved
by:**



Lee, Woen-Woo

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Appendix. Sample Label

1. Description of Device

- | | |
|-------------------------------|--|
| 1) Kind of equipment: | LCD Monitor |
| 2) FCC ID: | QJSMV140 |
| 3) Model Name: | MV140 |
| 4) Serial No.: | None |
| 5) Type of Sample Tested: | Pre-production |
| 6) High Frequency Used: | 14.318MHz
12.000MHz |
| 7) Adapter | Model name: LSE0107A1240
Manufacturer: LI SHIN INTERNATIONAL
ENTERPRISE CORP.
Serial no: A20312134913 |
| 8) Power Rating: | 1phase AC100-240V, 0.8A, 50/60Hz
Output: DC 12V, 3.3A |
| 9) Tested Power supply: | 1phase AC120V, 60Hz |
| 10) Date of Manufacture: | May 20, 2003 |
| 11) Manufacture: | Megavision Co., Ltd |
| 12) Description of Operating: | Scroll All "H" Character
Resolution 1024*768
Vertical Frequency: 75Hz |
| 13) Dates of Test: | May 20, 2003 |
| 14) Place of Tests: | Korea Standard Technology EMC site |
| 15) Test Report No: | KST-EMC030025 |

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**

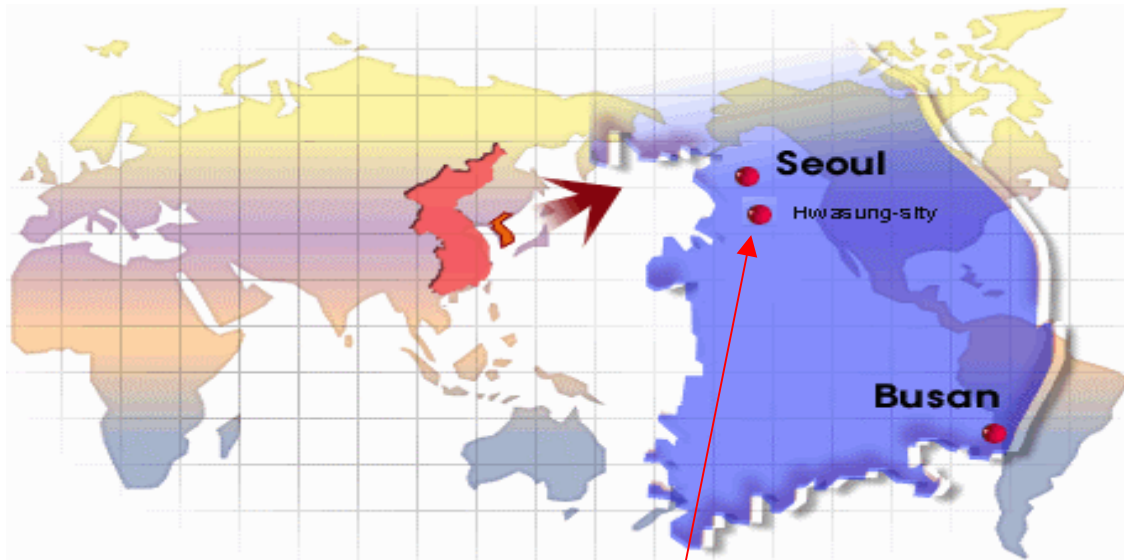
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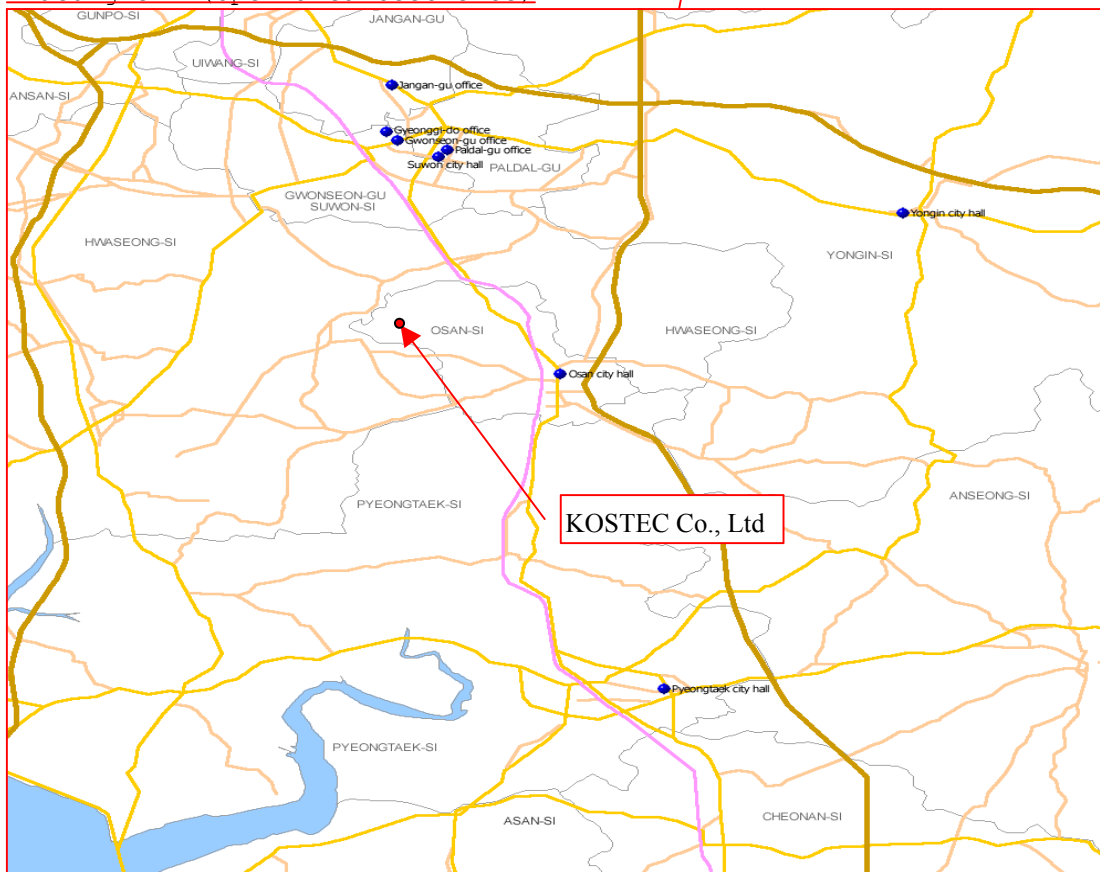
Report reference No: KST-EMC030025

3. MAP

Korea



Hwasung-shi (open area test site)



KOSTEC Co.,Ltd.
180-254,Anyung-Ri, Taeon-Yup, Hwasung-shi, Kyunggi-do, Korea
Tel : +82-31-222-4251 Fax: +82-31-222-4252
<http://www.kostecclab.com>

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4. TEST SYSTEM CONFIGURATION

Operation Environment

Ambient	<u>Temperature</u> (° C)	<u>Humidity</u> (%)	<u>Pressure</u> (hPa)
10m Open Area site	22.1	51	1008
Shielded room:	20	50	1007

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

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

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:	MV140
Serial Number:	None

Configuration of EUT

Description	Manufacturer	Model/Part #	Serial Number
LCD Panel	Hyundai	HT14X14-201	40T013201SL200044
AD Board	None	NLX05M	S030301401
Inverter Board	None	AT0104HD(BF)	None
Ac/dc adapter	LI SHIN INTERNATIONAL ENTERPRISE CORP.	LSE0107A1240	A20312134913

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

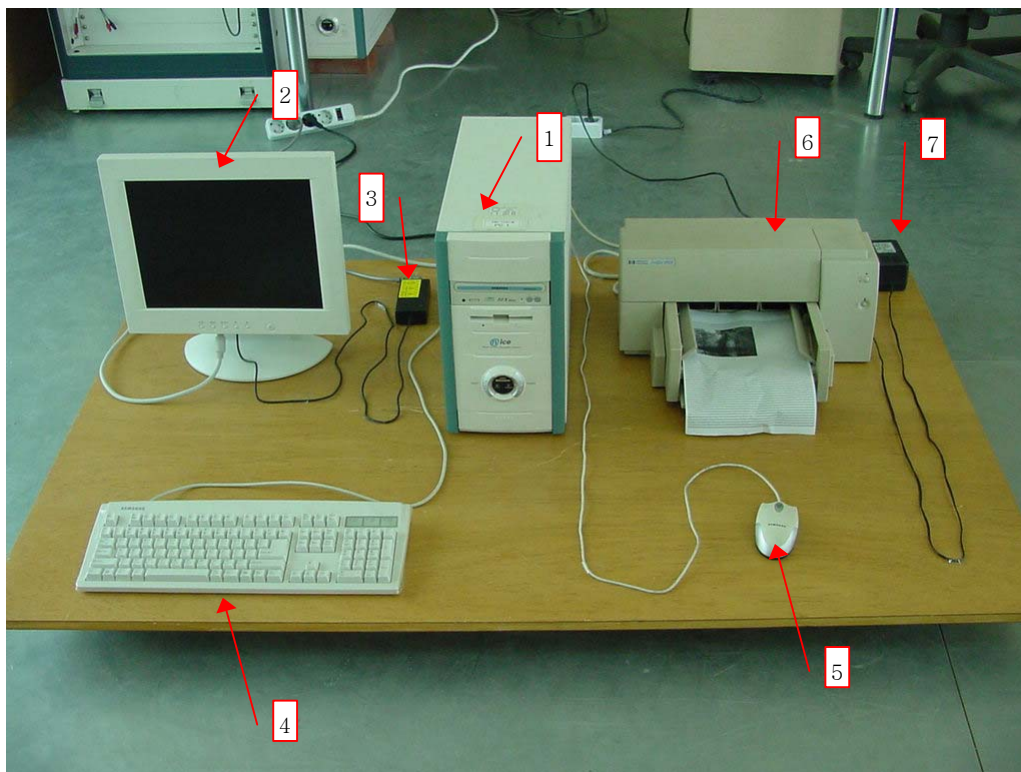
The operating mode/system were as follows in details:

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	MV140	None
3	Ac/dc adapter	LI SHIN INTERNATIONAL ENTERPRISE CORP.	LSE0107A1240	A20312134913
4	Keyboard	Samsung	SEM-DT35	2B021387
5	Mouse	Samsung	SMOP5000WX	none
6	Printer	hp	C2644A	SG55M1B0RN
7	Ac/dc adapter	Samsung	YK-30083K	None

E.U.T Test Configuration (example)



6. Summary of test results

Modification to the E.U.T.

- None

- **PASS**

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

FREQ. (MHz)	LEVEL(dB μ V)		LINE PoI	Loss (dB)	LIMIT(dB μ V)		MARGIN(dB μ V)	
	QP	AV			QP	AV	QP	AV
0.190	45.64	33.40	L	0.08	65.57	55.57	20.01	22.25
0.246	46.62	35.57	N	0.29	61.89	51.89	15.56	16.61
0.494	35.59	29.65	N	0.29	59.66	49.66	24.36	20.30
1.414	32.33	26.77	L	0.44	56.00	46.00	24.11	19.67
12.910	35.04	25.91	L	1.52	60.00	50.00	26.48	25.61
20.830	34.33	30.07	L	1.77	60.00	50.00	27.44	21.70
25.022	33.32	27.39	N	2.32	60.00	50.00	29.00	24.93

* Level = test receiver reading value

* Loss = LISN insertion Loss + Cable Loss

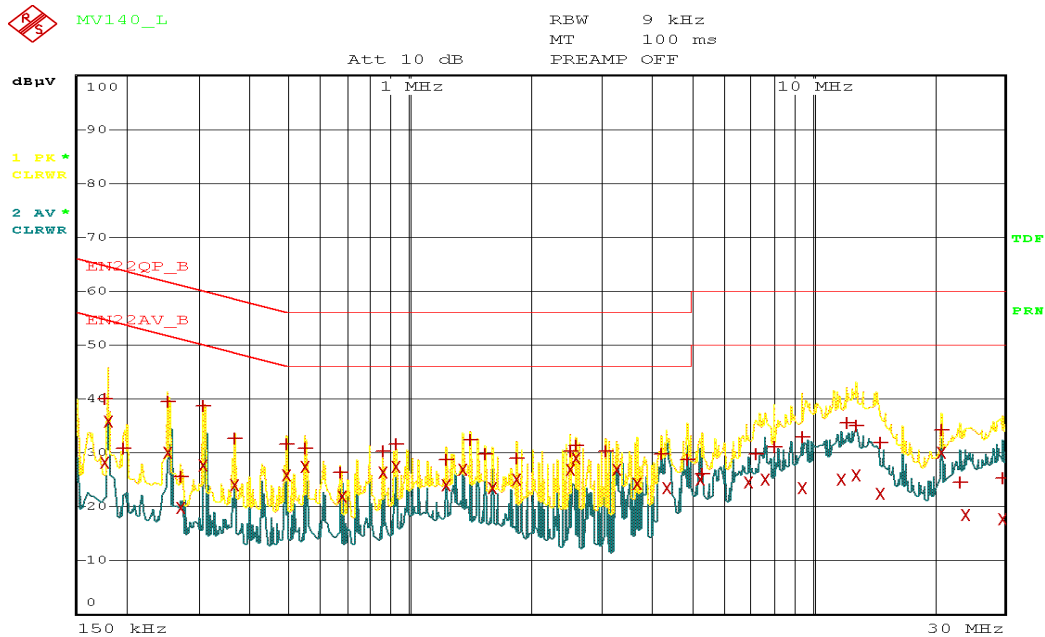
Conducted emission test graph

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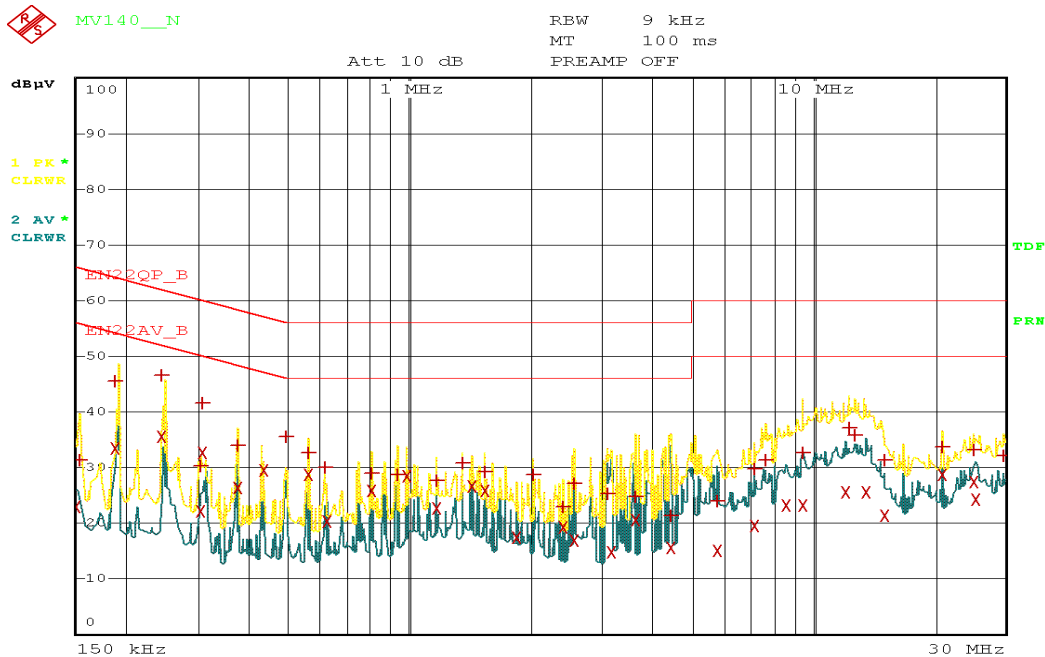
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Line. Live



Date: 20.MAY.2003 09:40:50

Line. Neutral



Date: 20.MAY.2003 09:37:09

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	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

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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)
66.13	19.49	V	1.50	180	5.25	3.26	28.00	40.0	12.00
160.64	16.80	H	3.50	160	7.50	4.50	28.80	43.5	14.70
217.36	18.55	V	1.70	180	8.02	4.93	31.50	46.0	14.50
264.61	18.30	H	3.40	150	9.88	6.12	34.30	46.0	11.70
302.39	19.32	H	3.30	200	11.06	6.52	36.90	46.0	9.10
311.87	18.26	H	3.40	110	11.33	6.61	36.20	46.0	9.80
586.89	9.68	V	2.00	150	16.86	9.26	35.80	46.0	10.20
614.25	8.37	V	1.90	150	17.18	9.35	34.90	46.0	11.10

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

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