



FCC EVALUATION REPORT FOR CERTIFICATION

KOREA Standard Technology

Test report No.: KST-FCC-070027

Applicant's Name : Megavision Co., Ltd.
Applicant's Address : 799 Anyang Megavalley, Room 504 Kwangyang-Dong ,
Dongan-Gu, Anyang-Shi, Kyunggi-Do , KOREA
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 : QJSMV191SN
Product Name : TFT LCD Monitor
Model Number(s) : MV191SN
Product Options : Request for a additional model name by manufacturer;
caused by a change of EUT's enclosure color.
:MV191SB
Category : FCC Part 15 subpart B (Class B Computing 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 C63.4-2003.

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.

Test Date : April 26, 2007

Issued Date : April 28, 2007

Tested by:

Jeong, seok-jin

Approved by:

Lee, Weon-woo

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1. Description of E.U.T

- | | |
|-------------------------------|---|
| 1) Kind of equipment: | TFT LCD Monitor |
| 2) FCC ID: | QJSMV191SN |
| 3) Model Name: | MV191SN |
| 4) Serial No.: | Proto Type |
| 5) Type of Sample Tested: | Pre-production |
| 6) High Frequency Used: | 14.31818 MHz |
| 7) Adapter: | Model name: LSE0107A1240 Manufacturer: LI SHIN INTERNATIONAL ENTERPRISE CORP. Serial no: A30647053310 |
| 8) Power : | Input: 100 ~ 240 V, 50/60 Hz 1 A Output: 12V, 3.33 A |
| 9) Tested Power supply: | 1phase AC120 V, 60 Hz |
| 10) Date of Manufacture: | December, 2006 |
| 11) Manufacture: | Megavision Co., Ltd. |
| 12) Description of Operating: | Scroll "H" Character |
| 13) Dates of Test: | April 26, 2007 |
| 14) Place of Tests: | KOSTEC Co., Ltd. EMC site |
| 15) Test Report No: | KST-FCC-070027 |

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.

KOSTEC CO., LTD. (Korea Standard Technology)

Head office & Test Lab ;

:180-254, Annyung-dong, Hwasung-shi, Gyeonggi-do, Korea

Telephone Number : 82-31-222-4251

Facsimile Number: 82-31-222-4252

MIC(Ministry of Information and Communication) Number: **KR0041**

FCC Filing Number. : **525762**

VCCI Membership Number : **2005**

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

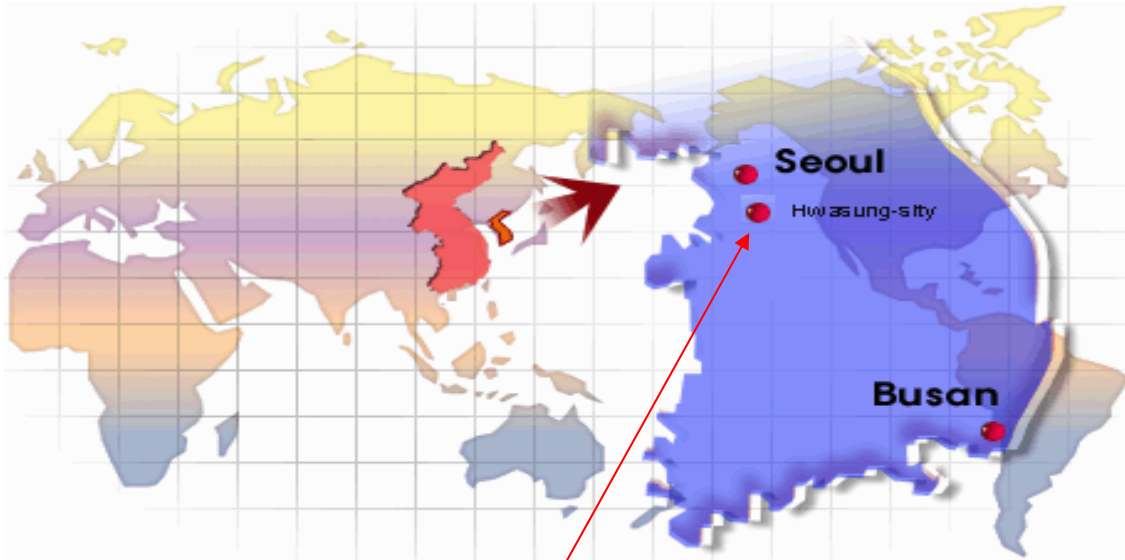
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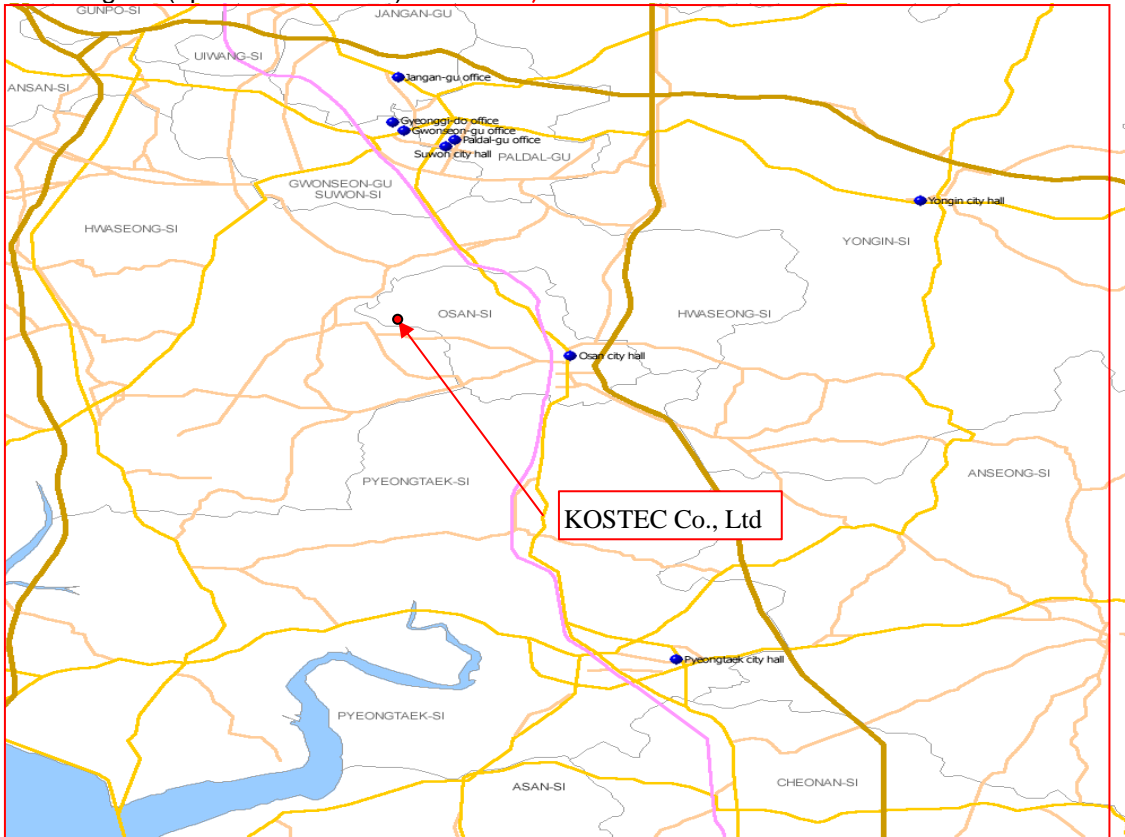
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3. MAP

Korea



Hwasung-shi (open area test site)



4. TEST SYSTEM CONFIGURATION

Operation Environment

| Ambient | <u>Temperature</u> (° C) | <u>Humidity</u> (%) | <u>Pressure</u> (hPa) |
|---------------------|-------------------------------|--------------------------|-------------------------|
| 10 m Open Area site | 13 | 41 | 1008 |
| Shielded room: | 22 | 40 | 1008 |

Test site

These testing were performed following locations ;

Shielded room : Conducted Emission,

10 m 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 30 dB, LISN Factor 1 dB, CL 1 dB

The result (MR) is

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

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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: | MV191SN |
| Serial Number: | Proto Type |

Configuration of EUT

| Description | Manufacturer | Model/Part # | Serial Number |
|-------------|----------------------|-----------------|-------------------|
| LCD Panel | B.O.E | HT190E01-100 | 9BSA0675611008309 |
| OSD board | Megavision Co., Ltd. | MV191 OSD | None |
| AD board | Megavision Co., Ltd. | MV179-AD BOARD | 2006102255 |
| Inverter | Megavision Co., Ltd. | MV-179&MV190S-T | 2006141854 |
| | | | |
| | | | |

EUT Used cables

| Cable Type | Shield | Length (m) | Ferrite | Connector | Connection Point 1 | Connection Point 2 |
|------------|--------|------------|---------|-----------|--------------------|--------------------|
| POWER | Yes | 1.5 | No | AC INLET | AC/DC adapter | Main power source |
| DC IN | Yes | 1.2 | Yes | Jack | EUT | AC/DC adapter |
| VGA | Yes | 1.5 | Yes | D-sub | EUT | PC |
| Audio IN | Yes | 1.5 | No | Jack | EUT | PC |
| Audio OUT | No | 1.8 | No | Jack | EUT | Headset |
| Audio OUT | No | 1.0 | No | Jack | EUT | Earphone |
| DVI | Yes | 1.5 | No | - | EUT | - |

Operating conditions

The operating mode/system were as follows in details:

Operating: After setting, Connected from PC to E.U.T by VGA Cable and audio cable. E.U.T was tested in state of data transmission and continuously 'H' pattern displayed on the **TFT LCD Monitor(EUT)** for video & audio signal From PC.

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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 0.4 m above the reference ground plane. They were folded back and forth forming a bundle 30 Cm to 40 Cm long and were hanged at a 40 Cm 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 | 2008.03.03 | ● |
| L.I.S.N. | ESH2-Z5 | 100044 | R&S | 2007.05.01 | ● |
| | ESH3-Z5 | 100147 | R&S | 2007.08.11 | - |

Measurement uncertainty

Conducted Emission measurement : ± 2.4 dB (K=2)

Test Data

< Class B >

| FREQ. (MHz) | LEVEL(dB μ V) | | LINE Pol | Loss (dB) | LIMIT(dB μ V) | | MARGIN(dB μ V) | |
|----------------|-------------------|-------|-------------|--------------|-------------------|-------|--------------------|-------|
| | QP | AV | | | QP | AV | QP | AV |
| 0.150 | 34.46 | 23.87 | N | 0.08 | 66.00 | 56.00 | 31.46 | 32.05 |
| 0.198 | 47.63 | 35.75 | N | 0.08 | 63.69 | 53.69 | 15.98 | 17.86 |
| 0.266 | 41.99 | 33.33 | L | 0.29 | 61.24 | 51.24 | 18.96 | 17.62 |
| 0.662 | 33.08 | 31.49 | N | 0.90 | 56.00 | 46.00 | 22.02 | 13.61 |
| 1.326 | 33.15 | 32.45 | N | 0.44 | 56.00 | 46.00 | 22.41 | 13.11 |
| 4.106 | 34.99 | 13.62 | L | 0.68 | 56.00 | 46.00 | 20.33 | 31.70 |
| 12.322 | 36.46 | 28.56 | N | 1.52 | 60.00 | 50.00 | 22.02 | 19.92 |
| 16.626 | 35.05 | 29.44 | N | 1.77 | 60.00 | 50.00 | 23.18 | 18.79 |
| 19.146 | 34.81 | 28.43 | N | 1.77 | 60.00 | 50.00 | 23.42 | 19.80 |

* Level = test receiver reading value

* Loss = LISN insertion Loss + Cable Loss



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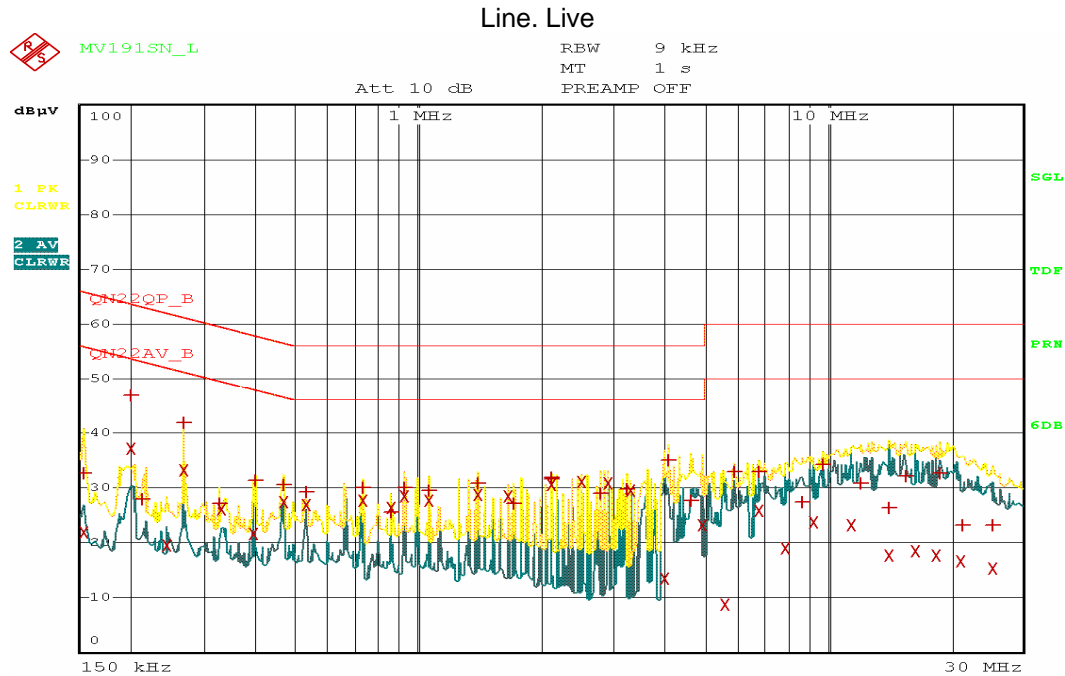
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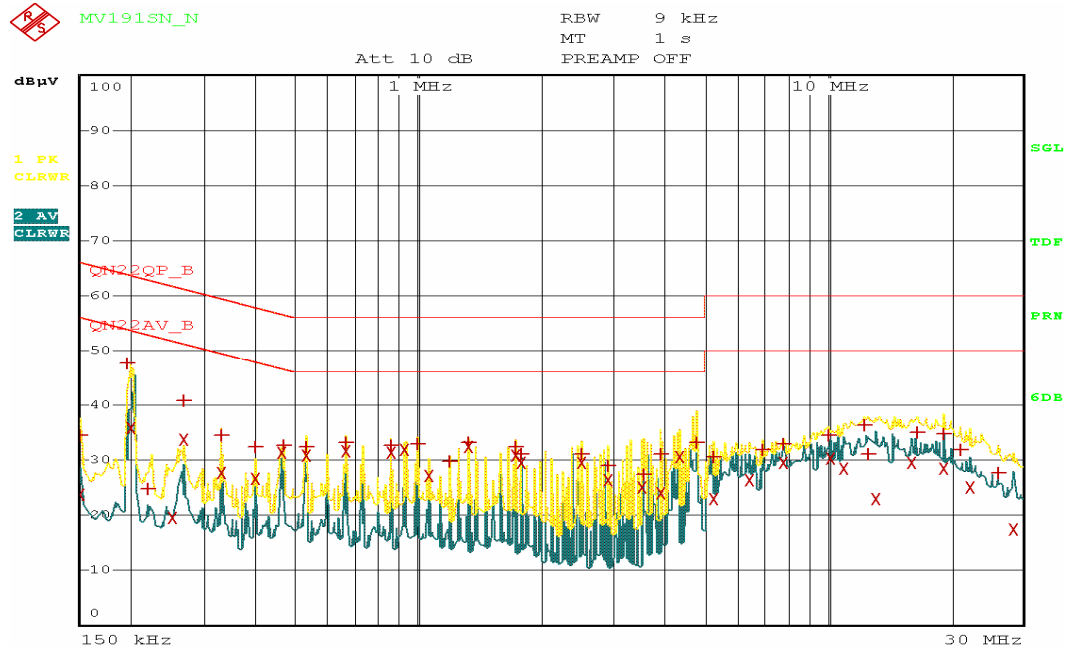
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Conducted emission test graph



Date: 26.APR.2007 13:18:40

Line. Neutral



Date: 26.APR.2007 13:21:35

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7.2 Radiated Emission

Measurement procedure

A pretest was performed at 3 m distances in a semi-anechoic chamber for searching correct frequency. The final test was done at a 10 m open area test site with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.8 m 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 | 2008.03.07 | ● |
| Ultra broadband antenna | HL562 | 100075 | R&S | 2008.03.23 | ● |
| 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 :

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

Test Data

<Class B >

| Freq (MHz) | Reading (dBuV/m) | P (H/V) | H (m) | A (.) | Antenna (dB) | Cable Loss (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---------------|---------------------|------------|----------|-----------|-----------------|--------------------|--------------------|-------------------|----------------|
| 69.55 | 17.83 | V | 1.50 | 270 | 6.23 | 3.14 | 27.20 | 40.0 | 12.80 |
| 128.87 | 17.48 | V | 1.50 | 270 | 8.90 | 4.02 | 30.40 | 43.5 | 13.10 |
| 155.47 | 18.05 | H | 2.00 | 45 | 7.80 | 4.35 | 30.20 | 43.5 | 13.30 |
| 168.50 | 19.16 | V | 1.60 | 45 | 7.40 | 4.34 | 30.90 | 43.5 | 12.60 |
| 213.82 | 22.75 | H | 2.00 | 320 | 7.78 | 4.97 | 35.50 | 43.5 | 8.00 |
| 220.33 | 25.50 | H | 2.00 | 110 | 8.20 | 4.90 | 38.60 | 46.0 | 7.40 |
| 349.93 | 19.13 | V | 1.60 | 45 | 12.29 | 7.08 | 38.50 | 46.0 | 7.50 |
| 369.35 | 23.03 | V | 1.00 | 270 | 12.69 | 7.18 | 42.90 | 46.0 | 3.10 |

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: 3 m Open area site



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