

## FCC EVALUATION REPORT FOR CERTIFICATION

**KOREA Standard Technology**

*Test report No.: KST-FCC0528*

**Applicant's Name :** SUNGJIN NEOTECH Co.,Ltd.

**Applicant's Address :** 106, Suntechcity B/D, 513-15 Sangdaewon-Dong, Jungwon-Gu, Seongnam City, Kyonggi-Do, Korea

**Manufacturer's Name :** SUNGJIN NEOTECH Co.,Ltd.

**Manufacturer's Address :** 106, Suntechcity B/D, 513-15 Sangdaewon-Dong, Jungwon-Gu, Seongnam City, Kyonggi-Do, Korea

**Manufacturer's Name :** BUKANG ELECTRONICE CO.,LTD.

**Manufacturer's Address :** TianWei Management, Area ChangPing Town, DONGGUAN CITY, GUANDONG, PROVINCE PR CHINA

**EUT's:**

**FCC ID** : SWMMV177S

**Product Name** : TFT LCD MONITOR

**Model Number(s)** : MV177S

**Product Options** : Request for enter a multi list of model name by manufacturer.

MV177S&MV177SN&MV177SW&MV177SB

**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 C63.4-2000.

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 : July 1, 2005.**

**Issued Date : July 4, 2005**

**Tested by:**



Jung, Suck-Jin

**Approved by:**



Lee, Weon-Woo



# EMI TEST REPORT

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## 1. Description of Device

1) Kind of equipment: TFT LCD MONITOR  
2) FCC ID: SWMMV177S  
3) Model Name: MV177S  
4) Serial No.: -  
5) Type of Sample Tested: Pre-production  
6) High Frequency Used: 12.000MHz  
24.576MHz  
7) Adapter Model name : LSE0107A1240  
Manufacturer : LI SHIN INTERNATIONAL  
ENTERPRISE CORP.  
Serial no : B12C18-A801  
9) Power : INPUT: 100-240 V, 50/60 Hz, 1.0 A  
OUTPUT: 12.0 V, 3.33 A  
1) Tested Power supply: 1phase AC120 V, 60 Hz  
12) Date of Manufacture: June, 2005  
13) Manufacture: SUNGJIN NEOTECH Co.,Ltd.  
14) Description of Operating: Scroll All "H" Character  
Resolution 1024\*768  
Vertical Frequency: 60Hz  
15) Dates of Test: July 1, 2005  
16) Place of Tests: Korea Standard Technology EMC site  
17) Test Report No: KST-FCC0528



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## 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 & Test Lab :

:180-254, Annyung-Ri, Taean-Yup, Hwasung-shi, Kyunggi-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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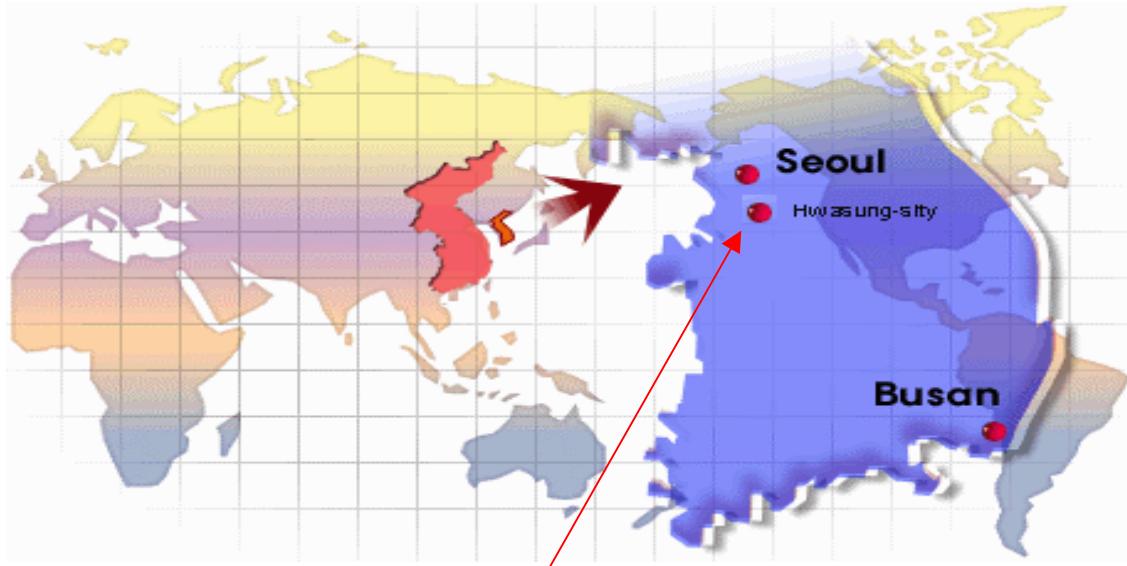
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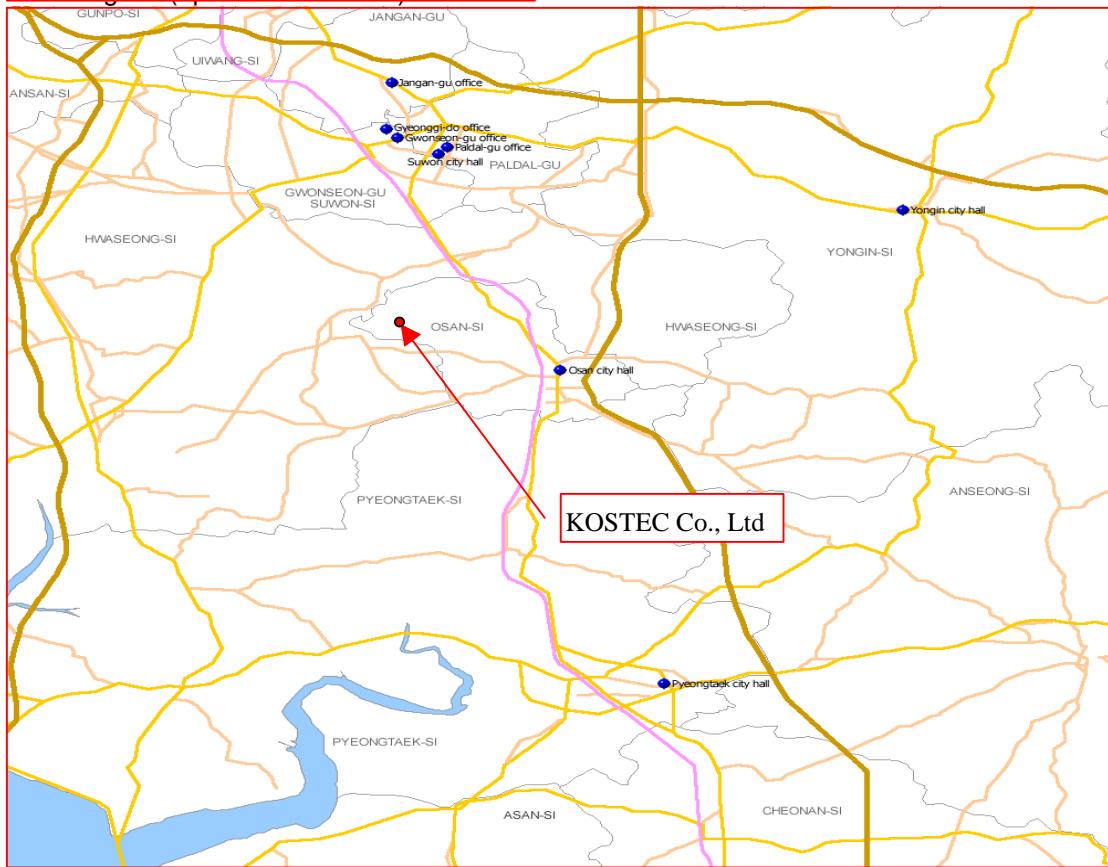


## 3. Route Map of Measurement Facility

Korea



Hwasung-si (open area test site)



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## 4. Test System Configuration

### Operation Environment

	<u>Temperature</u> ( °C )	<u>Humidity</u> ( % )	<u>Pressure</u> ( hPa )
10 m Open Area site	27	41	993
Shielded room:	27	42	993

### 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, site 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 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:	SUNGJIN NEOTECH Co.,Ltd.
Address:	106, Suntechcity B/D, 513-15 Sangdaewon-Dong, Jungwon-Gu, Seongnam City, Kyonggi-Do, Korea
Model:	MV177S
Serial Number:	-

### Configuration of EUT

Description	Manufacturer	Model/Part #	Serial Number
LCD Panel	SamSung	LTM170EU-L21	5G5FY6718B
Main Controller	SNC R&D	MV177 VER1.6	2005012027
OSD Board	None	None	None
Speaker	STAR	EB-07301LH-03	None
Ac/dc adapter	LI SHIN INTERNATIONAL ENTERPRISE CORP.	LSE0107A1240	B12C18-A801

### EUT Used cables

Cable Type	Shield	Length (m)	Ferrite	Connector	Connection Point 1	Connection Point 2
POWER	Yes	1.2	-	DC INLET	Ac/dc adapter	Main power source
VGA In	Yes	1.5	Yes	D-sub	EUT	PC
Audio(IN)	Yes	1.2	-	Jack	EUT	PC
Audio(OUT)	Yes	2.0	-	Jack	EUT	Headset
PS/2	Yes	1.2	Y	Din	PC	Keyboard
PS/2	Yes	1.5	-	Din	PC	Mouse
Parallel	Yes	1.5	Y	D-sub	PC	Printer

### Operating conditions

The operating mode/system were as follows in details:

Operating: . After Connected from personal computer 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.

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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	2006.3.10	•
L.I.S.N.	ESH2-Z5	100044	R&S	2006.5.02	•
	ESH3-Z5	100147	R&S	2005.8.16	•

#### Measurement uncertainty

Conducted Emission measurement :  $\pm 2.4$  (K=2)

#### Test data <Class B>

FREQ. (MHz)	LEVEL(dB $\mu$ V)		LINE Pol	Loss (dB)	LIMIT(dB $\mu$ V)		MARGIN(dB $\mu$ V)	
	QP	AV			QP	AV	QP	AV
0.150	33.80	19.97	N	0.08	66.00	56.00	32.12	35.95
0.206	39.98	32.61	L	0.29	63.37	53.37	23.10	20.47
0.274	36.62	31.75	N	0.29	61.00	51.00	24.09	18.96
0.954	31.48	28.94	N	0.43	56.00	46.00	24.09	16.63
3.478	31.40	23.44	L	0.62	56.00	46.00	23.98	21.94
4.086	32.41	23.15	N	0.68	56.00	46.00	22.91	22.17
7.562	40.26	35.62	L	1.20	60.00	50.00	18.54	13.18
19.470	36.23	27.13	L	1.77	60.00	50.00	22.00	21.10
23.938	35.00	26.55	N	2.08	60.00	50.00	22.92	21.37

\* Level = test receiver reading value

\* Loss = LISN insertion Loss + Cable Loss

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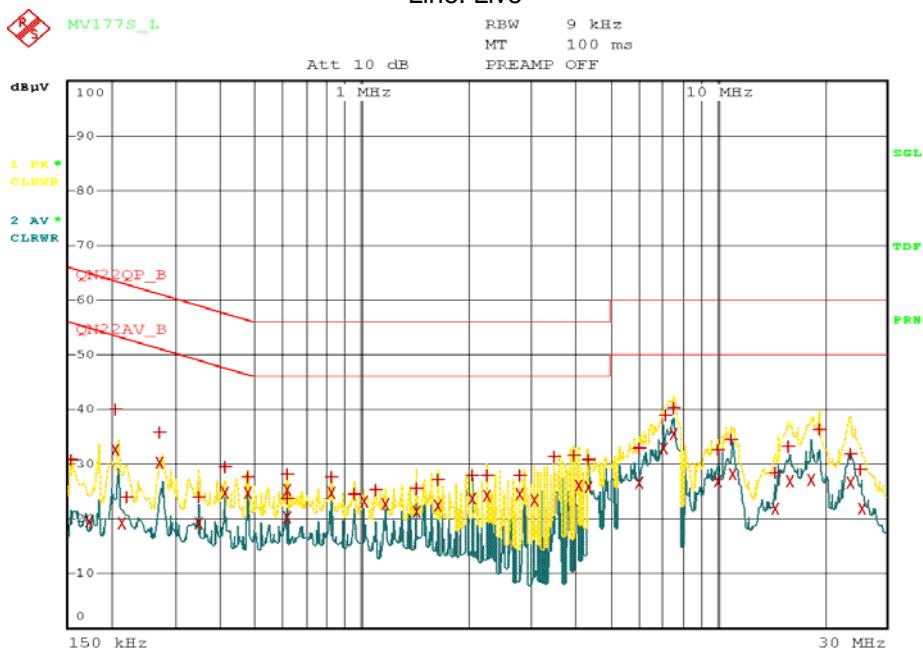
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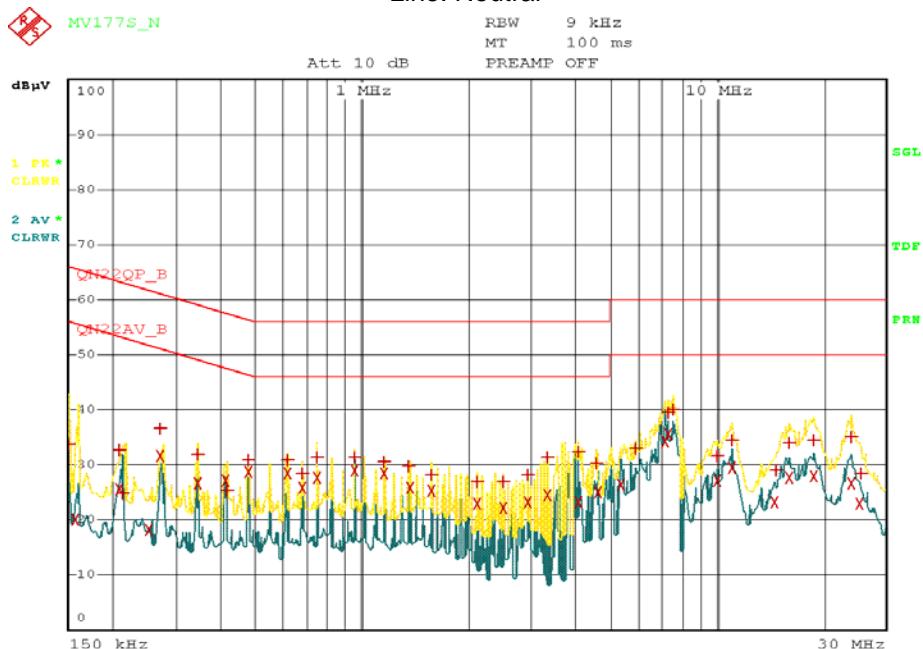
## Conducted emission test graph

Line. Live



Date: 1.JUL.2005 14:22:00

Line. Neutral



Date: 1.JUL.2005 14:24:46

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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 date
Test receiver	ESCS30	100111	R&S	2006.3.17
Ultra broadband antenna	HL562	100075	R&S	2006.3.16
Matching network	RAM	358.5414.02	R&S	-
Antenna Mast	AT14	none	Daeil EMC	-
Turn Table	TT15	none	Daeil EMC	-
10m Open area site	none	none	KOSTEC Lab	-
chamber(3 m)	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 :

Freq (MHz)	Reading (dBuV/m)	P (H/V)	H (m)	A (.)	Antenna (dB)	Cable Loss (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
47.97	21.40	H	3.60	320	9.40	2.70	33.50	40.0	6.50
110.38	21.20	V	1.50	240	9.20	3.80	34.20	43.5	9.30
191.97	23.76	H	3.20	360	7.20	4.74	35.70	43.5	7.80
239.87	21.65	H	3.20	360	9.06	5.19	35.90	46.0	10.10
287.85	23.38	H	3.00	120	10.58	6.34	40.30	46.0	5.70
383.79	12.06	H	2.60	270	13.09	7.25	32.40	46.0	13.60
431.77	13.26	H	2.70	90	14.13	7.71	35.10	46.0	10.90
623.67	7.09	V	1.70	90	17.33	9.38	33.80	46.0	12.20

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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