

## **FCC EVALUATION REPORT FOR CERTIFICATION**

Manufacturer : KIMIN ELECTRONIC CO., LTD.  
293-4, Gongdan-dong, Gumi-si, Gyeongbuk, Korea  
Attn : Mr. Se-bong Jang, General Manager

Date of Issue : February 27, 2009  
Order Number : GETEC-C1-09-041  
Test Report Number : GETEC-E3-09-023  
Test Site : Gumi College EMC Center  
(Registration Number.: 100749)

**FCC ID. : TGELT32U4**

**Applicant : KIMIN ELECTRONIC CO., LTD.**

Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: 32" LCD TV/Monitor
Type of Authority	: Certification
Model Name	: LT32U41, LT32U4##, MT-SYKIT32K1AB, MT-##KIT32##AB (#: A ~ Z, 0 ~ 9) "These model names are given in accordance with customer's requirement that are not effect on EMC performance. All the electrical and mechanical characteristics are the same as basic model except model name designation."
Trade Name	: KIMIN, SOYO

This equipment has been shown to be in compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003 / Canadian standard ICES-003

I attest to the accuracy of data. All measurements reported herein were performed by me 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.

Tested by,

Reviewed by,



\_\_\_\_\_  
Hyo-Young Kim, Associate Engineer  
GUMI College EMC center



\_\_\_\_\_  
Tae-Sig Park, Technical Manager  
GUMI College EMC center



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**Scope:** Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and / or unintentional radiators for compliance with technical rules and regulations of the Federal Communications Commission.

## 1. General Information

**Applicant:** KIMIN ELECTRONIC CO., LTD.

**Applicant Address:** 293-4, Gongdan-dong, Gumi-si, Gyeongbuk, Korea

**Manufacturer:** KIMIN ELECTRONIC CO., LTD.

**Manufacturer Address:** 293-4, Gongdan-dong, Gumi-si, Gyeongbuk, Korea

**Contact Person:** Mr. Se-bong Jang, General Manager

**Tel Number:** +82-54-462-0100

**Fax Number:** +82-54-462-7500

- **FCC ID.** TGELET32U4
- **EUT Type** 32" LCD TV/Monitor
- **Model Name** LT32U41, LT32U4##, MT-SYKIT32K1AB, MT-##KIT32##AB (#: A ~ Z, 0 ~ 9)  
"These model names are given in accordance with customer's requirement that are not effect on EMC performance.  
All the electrical and mechanical characteristics are the same as basic model except model name designation."
- **Trade Name** KIMIN, SOYO
- **Serial Number** Prototype
- **Rule Part(s)** FCC Part 15 Subpart B
- **Type of Authority** Certification
- **Test Procedure(s)** ANSI C63.4 (2003) / Canadian standard ICES-003
- **Dates of Test** February 23, 2009
- **Place of Test** Gumi College EMC Center ( FCC Registration Number: 100749)  
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-09-023
- **Dates of Issue** February 27, 2009

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**EUT Type:** 32" LCD TV/Monitor

**FCC ID.:** TGELET32U4



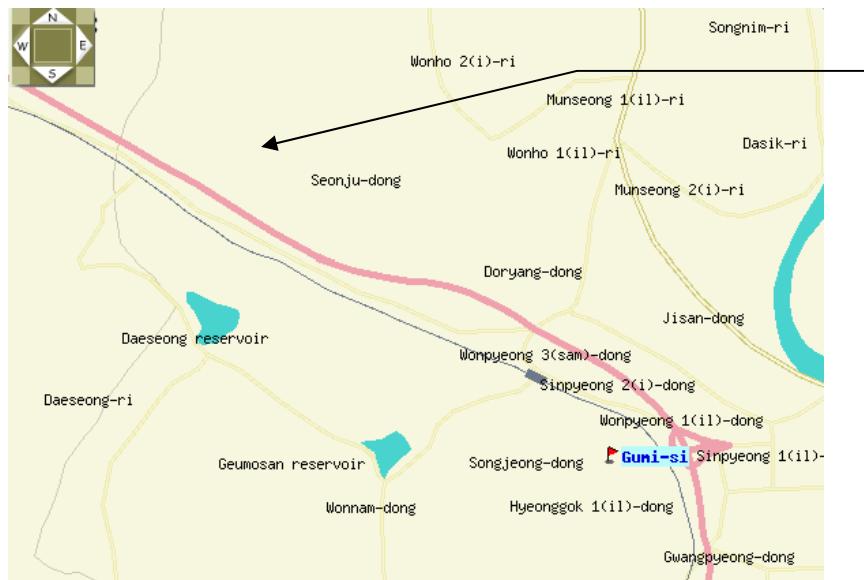
## 2. Introduction

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Nose Emissions From Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ASNI C63.4-2003) was used in determining radiated and conducted emissions emanating from **KIMIN ELECTRONIC CO., LTD. 32" LCD TV/Monitor (Model Name: LT32U41)**

These measurement tests were conducted at **Gumi College EMC Center**.

The site address is 407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.

This test site is one of the highest point of Gumi 1 college at about 200 km away from Seoul city and 40 km away from Daejeon city. It is located in the valley surrounded by mountains in all directions where ambient radio signal conditions are quiet and a favorable area to measure the radio frequency interference on open field test site for the computing and ISM devices manufactures. The detailed description of the measurement facility was found to be in compliance with the requirements of §2.948 according to ANSI C63.4 on October 19, 1992



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Fig 1. The map above shows the Gumi College in vicinity area.



### 3. Product Information

#### 3.1 Description of EUT

The Equipment under Test (EUT) is the **KIMIN ELECTRONIC CO., LTD. 32" LCD TV/Monitor (Model Name: LT32U41) FCC ID.: TGELT32U4**

Model		MT-SYKIT32K1AB
Dimension	Horizontal	796.0 mm
	Height	583.0 mm
	Thickness	23.0 mm
Weight		14.0 kg
Contrast Ratio		1,000:1 typical
Brightness		500 cd/m <sup>2</sup> typical
Panel Resolution		1366 (H) x 768 (V)
Display Color		16.7M colors
Audio Output		2.5W + 2.5W
Consumption		135W
External Port		<ul style="list-style-type: none"><li>• HDMI / DVI IN</li><li>• RGB IN(PC)</li><li>• COMPONENT IN</li><li>• S-VIDEO IN</li><li>• AV IN</li><li>• AUDIO IN (RGB / DVI)</li><li>• ANTENNA / CABLE IN</li><li>• DIGITAL AUDIO OUT (COAXIAL)</li><li>• AC IN</li></ul>

- LCD Panel : LC320WXN (LG Display)
- TV Tuner : DTVS205ER201A (SAMSUNG)



### 3.2 Support Equipment / Cables used

#### 3.2.1 Used Support Equipment

Description	Manufacturer	Model Name	S/N & FCC ID
PC	Hewlett Packard	D530	S/N: CNG34800PY FCC ID: DoC
Video card	ATI	ATI RV360(9600)	S/N: SN0402017176 FCC ID: DoC
Printer	Hewlett Packard	970CXI	S/N: MY9B01F1FG FCC ID: DoC
Serial Mouse	LOGITECH	M-S69	S/N: 334684-108 FCC ID: JNZ211443
Key-board	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID: AQ6-23K15
Joystick	Microsoft	X05-92626	S/N: 9262600296169 FCC ID: DoC
DVD player	LG Electronics Inc.	LC-954	S/N: 3850R-Z674K FCC ID: DoC
Digital TV pattern generator	PI International	TPG430B	S/N: 93.01.20.05.09.00.00.02 FCC ID: DoC
Low Cost 8-VSB Modulator	Telecommunication Inc.	VBS-ENC-150E	S/N: 2005-726 FCC ID: DoC

See "Appendix E – Test Setup Photographs" for actual system test set-up



### 3.2.2 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.8 m unshielded.
Analog cable	Connected to the EUT and PC	1.8 m shielded with two ferrite cores
HDMI cable	Connected to the EUT and PC	1.95 m shielded
PC sound cable	Connected to the EUT and PC	1.8 m shielded with a ferrite core
Component cable	Connected to the EUT and DVD player	3.0 m shielded with two ferrite cores
Component sound cable	Connected to the EUT and DVD player	3.0 m shielded with two ferrite cores
S-video cable	Connected to the EUT and DVD player	1.8 m shielded with two ferrite cores
AV in cable	Connected to the EUT and DVD player	1.8 m shielded with two ferrite cores
ANT cable	Connected to the EUT and TV signal generator	10 m shielded

### 3.3 Modification Item(s)

- None.



## 4. Description of tests

### 4.1 Test Condition

The EUT was installed, arranged and operated in a manner that is most representative of equipment as typically used. The measurements were carried out while varying operating modes and cable positions within typically arrangement to determine maximum emission level.

The representative and worst test mode(s) were noted in the test report.

- Test Voltage / Frequency : AC 120 V / 60 Hz
- Test Mode(s)
  - Monitor mode
  - Radiated emission : 1 024 \* 768 / 60 Hz (RGB\_Analog, HDMI)
  - Conducted emission : 1 024 \* 768 / 60 Hz (RGB\_Analog, HDMI),  
800 \* 600 / 60 Hz (RGB\_Analog), 640 \* 480 / 60 Hz (RGB\_Analog)
- Operating test pattern
  - "H" character scrolling mode (Font size: 10)
  - Black background white character.
  - Brightness and contrast was adjusted as maximum level.
  - 1 kHz sound tone with winamp player.
- TV & AV portion of this equipment will be applied the "Verification" procedure.



#### 4.2 Conducted Emission

The Line conducted emission test facility is inside a 4 m × 8 m × 2.5 m shielded enclosure.

The EUT was placed on a non-conducting 1.0 m by 1.5 m table, which is 0.8 m in height and 0.4 m away from the vertical wall of the shielded enclosure.

The EUT is powered from the Rohde & Schwarz LISN (ESH2-Z5) and the support equipment is powered from the Rohde & Schwarz LISN (ESH3-Z5). Powers to the LISN are filtered by high-current high insertion loss power line filter.

Sufficient time for EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

The RF output of the LISN was connected to the EMI test receiver (Rohde & Schwarz, ESCS30).

The EMI test receiver was scanned from 150 kHz to 30 MHz with 20 ms sweep time to determine the frequency producing the maximum EME from the EUT. The frequency producing the maximum level was re-examined using Quasi-Peak mode of the EMI test receiver.

The bandwidth of Quasi-peak mode was set to 9 kHz. Each emission was maximized consistent with typical applications by varying the configuration of the test sample. Interface cables were connected to the available interface ports of the test unit. The effect of varying the position of cables was investigated to find the configuration that produces maximum diagram emission. Excess cable lengths were bundled at center with 30 cm ~ 40 cm.

Each EME reported was calibrated using the R/S signal generator.

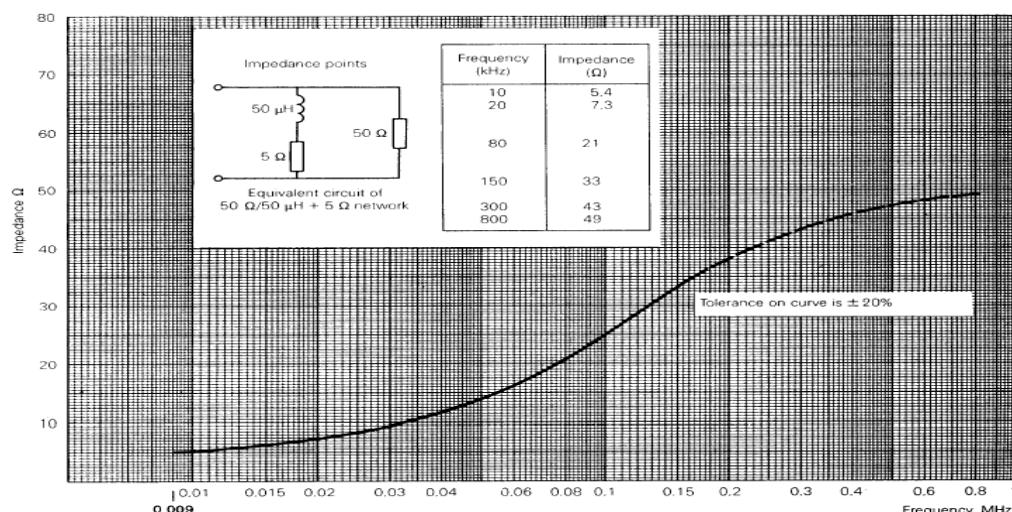


Fig 2. Impedance of LISN



#### 4.3 Radiated Emission

Preliminary measurements were conducted 3 m semi anechoic chamber using broadband antennas to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The technology configuration, mode of operation and turntable azimuth with respect to antenna was note for each frequency found.

The spectrum was scanned from 30 MHz to 1 000 MHz using bicornical log antenna (Schwarzbeck, VULB9160). Above 1 GHz, horn antenna (Schwarzbeck, BBHA9120D) was used.

Final measurements were made outdoors at 3 m/ 10 m test range.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

Each frequency found during pre-scan measurements was re-examined and investigated using EMI test receiver. The detector function was set to CISPR quasi-peak mode average mode and the bandwidth of the receiver was set to 120 kHz or 1MHz depending on the frequency or type of signal.

The EUT, support equipment and interconnecting cables were reconfigured to the setup producing the maximum emission for the frequency and were placed on top of a 0.8 m high non-metallic 1.0 m×1.5 m table.

The turntable containing the test sample was rotated; the antenna height was varied 1 m to 4 m and stopped at the azimuth or height producing the maximum emission.

Each EME reported was calibrated using the R/S signal generator.

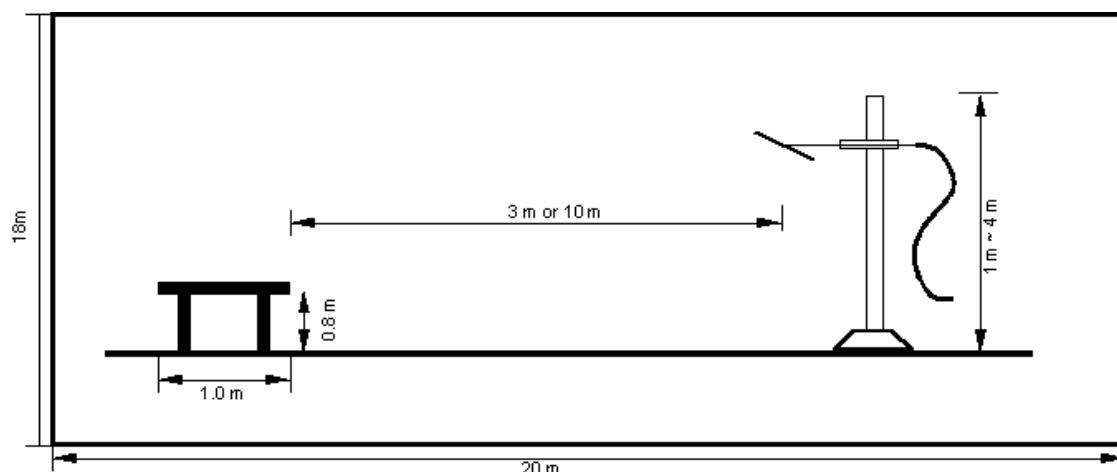


Fig 3. Dimensions of Open Site Test Area



## 5. Conducted Emission

### 5.1 Operating Environment

Temperature : 23 °C  
Relative Humidity : 35 % R.H.

### 5.2 Test Set-up

The conducted emission measurements were performed in the shielded room.

The EUT was placed on wooden table, 0.8 m heights above the floor, 0.4 m from the reference ground plane (GRP) wall and 0.8 m from AMN.

AMN is bonded on horizontal reference ground plane.

The ground plane, which was electrically bonded to the shield room, ground system and all power lines entering the shield room, were filtered.

### 5.3 Measurement Uncertainty

The measurement uncertainty was calculated in accordance with ISO “Guide to the expression of uncertainty in measurement”.

The measurement uncertainty was given with a confidence of 95 %.

Test items	Uncertainty	Remark
Conducted emission (9 kHz ~ 150 kHz)	± 2.97 dB	Confidence levels of 95 % (k=2)
Conducted emission (150 kHz ~ 30 MHz)	± 4.05 dB	Confidence levels of 95 % (k=2)



#### 5.4 Limit

RFI Conducted		FCC Limit(dB) Class B	
Freq. Range		Quasi-Peak	Average
150 kHz ~ 0.5 MHz		66 ~ 56*	56 ~ 46*
0.5 MHz ~ 5 MHz		56	46
5 MHz ~ 30 MHz		60	50

\*Limits decreases linearly with the logarithm of frequency.

#### 5.5 Test equipment used

	<b>Model Name</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Serial Number</b>	<b>Due to calibration</b>
■ -	ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 13. 2009
■ -	ESH3-Z5	Rohde & Schwarz	Artificial mains network	838979/020	12. 12. 2009
■ -	ESH2-Z5	Rohde & Schwarz	Artificial mains network	829991/009	12. 12. 2009



## 5.6 Test data for Power line conducted emission

- Test Date : February 23, 2009
- Resolution Bandwidth : 9 kHz
- Frequency Range : 0.15 MHz ~ 30 MHz

◆ Test resolution: 1 024 \* 768 / 60 Hz (Analog)

Frequency [MHz]	Insertion Loss [dB]	Cable Loss [dB]	Line	Q.P[dB $\mu$ V]			A.V[dB $\mu$ V]			Margin[dB]	
				Limit	Reading	Result	Limit	Reading	Result	Q.P	A.V
0.198	0.11	-0.17	N	63.69	39.06	39.00	53.69	38.16	38.10	24.69	15.59
0.261	0.11	-0.15	L1	61.39	39.34	39.30	51.39	34.84	34.80	22.09	16.59
3.753	0.24	-0.08	N	56.00	35.54	35.70	46.00	33.84	34.00	20.30	12.00
12.186	0.44	0.00	L1	60.00	35.56	36.00	50.00	28.66	29.10	24.00	20.90
15.612	0.58	0.02	N	60.00	35.80	36.40	50.00	28.60	29.20	23.60	20.80
16.473	0.65	0.02	L1	60.00	35.63	36.30	50.00	28.53	29.20	23.70	20.80
17.685	0.69	0.03	L1	60.00	35.48	36.20	50.00	29.68	30.40	23.80	19.60
17.922	0.70	0.04	L1	60.00	34.26	35.00	50.00	27.46	28.20	25.00	21.80
18.444	0.72	0.04	L1	60.00	37.44	38.20	50.00	30.74	31.50	21.80	18.50
21.024	0.83	0.06	L1	60.00	37.61	38.50	50.00	33.21	34.10	21.50	15.90
22.659	0.74	0.09	N	60.00	37.87	38.70	50.00	32.97	33.80	21.30	16.20
22.863	0.74	0.10	N	60.00	37.96	38.80	50.00	32.16	33.00	21.20	17.00
23.589	0.72	0.10	N	60.00	35.48	36.30	50.00	30.48	31.30	23.70	18.70

\*Comment : Line : L1(line 1), L2(line2), L3(line 3), N(neutral)

Q.P:Quasi-peak, A.V : Average

Insertion Loss : Insertion Loss of LISN

Cable Loss : Cable Loss + Pulse Limiter Insertion loss value



◆ Test resolution: 1 024 \* 768 / 60 Hz (HDMI)

Frequency [MHz]	Insertion Loss [dB]	Cable Loss [dB]	Line	Q.P[dB $\mu$ V]			A.V[dB $\mu$ V]			Margin[dB]	
				Limit	Reading	Result	Limit	Reading	Result	Q.P	A.V
0.252	0.11	-0.15	L1	61.69	37.94	37.90	51.69	34.94	34.90	23.79	16.79
0.333	0.11	-0.14	L1	59.37	37.23	37.20	49.37	33.13	33.10	22.17	16.27
0.537	0.13	-0.13	L1	56.00	31.70	31.70	46.00	30.60	30.60	24.30	15.40
0.669	0.13	-0.13	L1	56.00	30.60	30.60	46.00	30.00	30.00	25.40	16.00
2.820	0.22	-0.11	N	56.00	31.99	32.10	46.00	29.29	29.40	23.90	16.60
3.759	0.24	-0.08	N	56.00	35.84	36.00	46.00	33.84	34.00	20.00	12.00
4.899	0.27	-0.06	N	56.00	29.59	29.80	46.00	27.69	27.90	26.20	18.10
11.997	0.40	0.00	N	60.00	32.70	33.10	50.00	30.70	31.10	26.90	18.90
14.499	0.52	0.02	N	60.00	35.06	35.60	50.00	30.06	30.60	24.40	19.40
17.646	0.69	0.03	L1	60.00	36.18	36.90	50.00	31.48	32.20	23.10	17.80
21.360	0.74	0.06	N	60.00	35.90	36.70	50.00	30.90	31.70	23.30	18.30
22.077	0.86	0.08	L1	60.00	35.86	36.80	50.00	31.16	32.10	23.20	17.90
25.296	0.69	0.11	N	60.00	30.70	31.50	50.00	30.00	30.80	28.50	19.20

\*Comment : Line : L1(line 1), L2(line2), L3(line 3), N(neutral)

Q.P:Quasi-peak, A.V : Average

Insertion Loss : Insertion Loss of LISN

Cable Loss : Cable Loss + Pulse Limiter Insertion loss value



◆ Test resolution: 800 \* 600 / 60 Hz (Analog)

Frequency [MHz]	Insertion Loss [dB]	Cable Loss [dB]	Line	Q.P[dB $\mu$ V]			A.V[dB $\mu$ V]			Margin[dB]	
				Limit	Reading	Result	Limit	Reading	Result	Q.P	A.V
0.201	0.10	-0.17	L1	63.56	39.47	39.40	53.56	37.67	37.60	24.16	15.96
0.252	0.12	-0.15	N	61.69	38.33	38.30	51.69	34.23	34.20	23.39	17.49
0.336	0.11	-0.14	L1	59.30	37.43	37.40	49.30	32.63	32.60	21.90	16.70
0.471	0.13	-0.13	L1	56.49	32.10	32.10	46.49	31.50	31.50	24.39	14.99
2.493	0.21	-0.10	N	56.00	30.29	30.40	46.00	28.09	28.20	25.60	17.80
3.753	0.24	-0.08	N	56.00	34.34	34.50	46.00	33.04	33.20	21.50	12.80
11.934	0.40	0.00	N	60.00	37.40	37.80	50.00	33.00	33.40	22.20	16.60
12.000	0.43	0.00	L1	60.00	37.77	38.20	50.00	33.47	33.90	21.80	16.10
16.418	0.59	0.02	N	60.00	35.99	36.60	50.00	30.59	31.20	23.40	18.80
19.848	0.66	0.06	N	60.00	35.58	36.30	50.00	29.18	29.90	23.70	20.10
22.611	0.74	0.09	N	60.00	38.37	39.20	50.00	33.17	34.00	20.80	16.00
22.944	0.74	0.10	N	60.00	37.16	38.00	50.00	31.86	32.70	22.00	17.30

\*Comment : Line : L1(line 1), L2(line2), L3(line 3), N(neutral)

Q.P:Quasi-peak, A.V : Average

Insertion Loss : Insertion Loss of LISN

Cable Loss : Cable Loss + Pulse Limiter Insertion loss value



◆ Test resolution: 640 \* 480 / 60 Hz (Analog)

Frequency [MHz]	Insertion Loss [dB]	Cable Loss [dB]	Line	Q.P[dB $\mu$ V]			A.V[dB $\mu$ V]			Margin[dB]	
				Limit	Reading	Result	Limit	Reading	Result	Q.P	A.V
0.201	0.11	-0.17	N	63.56	39.76	39.70	53.56	38.26	38.20	23.86	15.36
0.252	0.11	-0.15	L1	61.69	38.34	38.30	51.69	34.54	34.50	23.39	17.19
0.336	0.11	-0.14	L1	59.30	37.43	37.40	49.30	33.43	33.40	21.90	15.90
0.402	0.12	-0.14	L1	57.81	33.12	33.10	47.81	30.42	30.40	24.71	17.41
2.895	0.21	-0.12	L1	56.00	31.01	31.10	46.00	30.21	30.30	24.90	15.70
4.380	0.26	-0.07	N	56.00	32.41	32.60	46.00	28.61	28.80	23.40	17.20
11.931	0.40	0.00	N	60.00	37.70	38.10	50.00	32.20	32.60	21.90	17.40
12.927	0.48	0.01	L1	60.00	35.11	35.60	50.00	30.61	31.10	24.40	18.90
13.062	0.45	0.01	N	60.00	34.94	35.40	50.00	32.44	32.90	24.60	17.10
14.682	0.53	0.02	N	60.00	36.75	37.30	50.00	32.25	32.80	22.70	17.20
15.756	0.59	0.02	N	60.00	36.39	37.00	50.00	29.79	30.40	23.00	19.60
18.987	0.74	0.05	L1	60.00	36.11	36.90	50.00	30.01	30.80	23.10	19.20
22.548	0.74	0.09	N	60.00	35.57	36.40	50.00	31.27	32.10	23.60	17.90

\*Comment : Line : L1(line 1), L2(line2), L3(line 3), N(neutral)

Q.P:Quasi-peak, A.V : Average

Insertion Loss : Insertion Loss of LISN

Cable Loss : Cable Loss + Pulse Limiter Insertion loss value



## 6. Radiated Emission

### 6.1 Operating Environment

Temperature : 2 °C  
Relative Humidity : 43 % R.H.

### 6.2 Test Set-up

A preliminary scan with peak mode was performed in the semi anechoic chamber and found frequency for open area test site.

The formal radiated emission was measured at 3 m/ 10 m-distance open area test site.

The EUT was placed on a non-conductive turntable approximately 0.8 m above the ground plane.

The turntable with EUT was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels.

This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

### 6.3 Measurement Uncertainty

The measurement uncertainty was calculated in accordance with ISO “Guide to the expression of uncertainty in measurement”.

The measurement uncertainty was given with a confidence of 95 %.

Test items	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 3.54 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.49 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.85 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.76 dB	Confidence levels of 95 % (k=2)



#### 6.4 Limit

Frequency (MHz)	FCC Limit @ 3 m. dB $\mu$ V/m	CISPR Limit @ 10 m. dB $\mu$ V/m
30 ~ 88	40.0	30.0
88 ~ 216	43.5	30.0
216 ~ 230	46.0	30.0
230 ~ 960	46.0	37.0
960 ~ 1 000	54.0	37.0
> 1 000	54.0	No Specified limit

#### 6.5 Test Equipment used

Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESI	Rohde & Schwarz	EMI test receiver	830482/010	12. 14. 2009
■ - ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 13. 2009
■ - HK116	Rohde & Schwarz	Biconical ANT	832639/007	12. 28. 2009
■ - HL223	Rohde & Schwarz	Log-periodic antenna	835998/004	12. 28. 2009
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 26. 2009
■ - HD100	HD GmbH	Position Controller	100/692/01	N/A
■ - DS415S	HD GmbH	Turntable	415/657/01	N/A
■ - MA240	HD GmbH	Antenna Mast	240/565/01	N/A
■ - AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 11. 2009



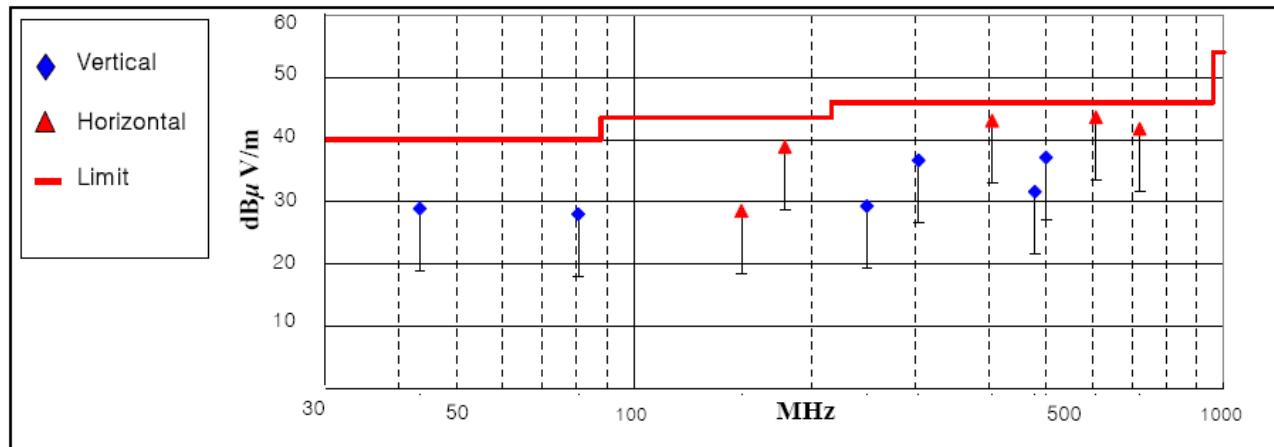
## 6.6 Test data for Radiated emission

- Test Date : February 23, 2009
- Resolution Bandwidth : 120 kHz/ 1 MHz
- Frequency Range : 30 MHz ~ 2 000 MHz
- Measurement Distance : 3 m

◆ Operating Condition: 1 024 \* 768 / 60 Hz (Analog)

Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dB $\mu$ V/m)	Margin (dB)	Positioning System		
	Reading Value(dB $\mu$ V)	Antenna Factor(dB/m)	Cable Loss(dB)	Test Result (dB $\mu$ V/m)			Pol. (H/V)	Height (cm)	Angle ( $^{\circ}$ )
43.42	17.16	9.79	1.97	28.92	40.00	11.08	V	112	186
80.50	17.30	8.00	2.67	27.97	40.00	12.03	V	120	21
152.26	13.16	11.72	3.65	28.53	43.50	14.97	H	327	110
180.35	22.03	12.77	3.99	38.79	43.50	4.71	H	255	152
248.45	9.56	14.86	4.90	29.32	46.00	16.68	V	196	188
303.80	18.03	12.86	5.79	36.68	46.00	9.32	V	142	241
405.00	19.82	15.68	7.55	43.05	46.00	2.95	H	286	186
478.55	7.59	16.74	7.29	31.62	46.00	14.38	V	100	331
500.00	13.09	16.83	7.19	37.11	46.00	8.89	V	110	329
607.48	17.59	18.27	7.75	43.61	46.00	2.39	H	207	163
720.39	13.01	20.43	8.31	41.75	46.00	4.25	H	215	190



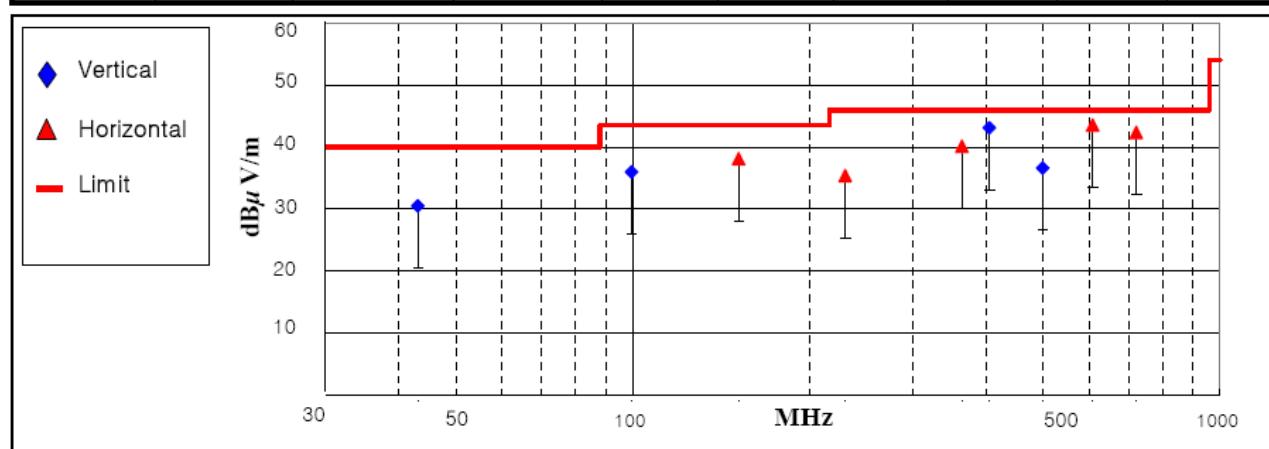
< Fig 4. Radiated emission result (30 MHz ~ 1 000 MHz)>



♦ Operating Condition: 1 024 \* 768 / 60 Hz (HDMI)

Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dB $\mu$ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol. (H/V)	Height (cm)	Angle ( $^{\circ}$ )
	Value(dB $\mu$ V)	Factor(dB/m)	Loss(dB)	(dB $\mu$ V/m)					
43.12	18.71	9.84	1.96	30.51	40.00	9.49	V	100	121
99.61	23.68	9.44	2.84	35.96	43.50	7.54	V	136	51
151.55	22.82	11.69	3.64	38.15	43.50	5.35	H	300	63
230.12	16.21	14.55	4.65	35.41	46.00	10.59	H	212	128
363.89	17.91	14.63	7.59	40.13	46.00	5.87	H	286	176
405.00	19.86	15.68	7.55	43.09	46.00	2.91	V	173	152
499.35	12.61	16.83	7.19	36.63	46.00	9.37	V	105	310
607.52	17.53	18.27	7.75	43.55	46.00	2.45	H	245	146
720.38	13.62	20.43	8.31	42.36	46.00	3.64	H	266	210

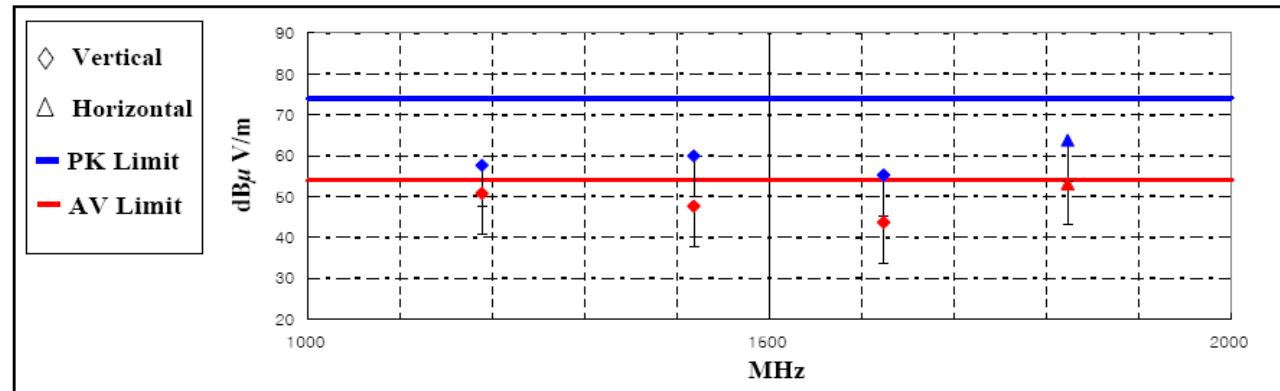


< Fig 5. Radiated emission result (30 MHz ~ 1 000 MHz)>



◆ Operating Condition: 1 024 \* 768 / 60 Hz (Analog)  
 Detector mode: Peak detector mode / Average detector mode

Frequency (MHz)	Measurement Level						Limit (dB $\mu$ V/m)		Margin (dB)		Positioning System		
	Reading Value (dB $\mu$ V/m)		AF	AMP / CL	Test Result (dB $\mu$ V/m)				Peak	Average	Peak	Average	Pol.
	Peak	Average	(dB/m)	(dB)	Peak	Average	Peak	Average	Peak	Average	Peak	Average	(H/V)
1188.00	73.02	66.12	25.20	-40.62	57.60	50.70	74.00	54.00	16.40	3.30	V	196	31
1417.60	74.51	62.21	25.61	-40.22	59.90	47.60	74.00	54.00	14.10	6.40	V	133	214
1623.20	69.19	57.59	25.87	-39.86	55.20	43.60	74.00	54.00	18.80	10.40	V	165	199
1822.40	77.17	66.47	26.06	-39.53	63.70	53.00	74.00	54.00	10.30	1.00	H	213	241



\*Comment : AMP/CL\_Cable loss value + AMP gain value

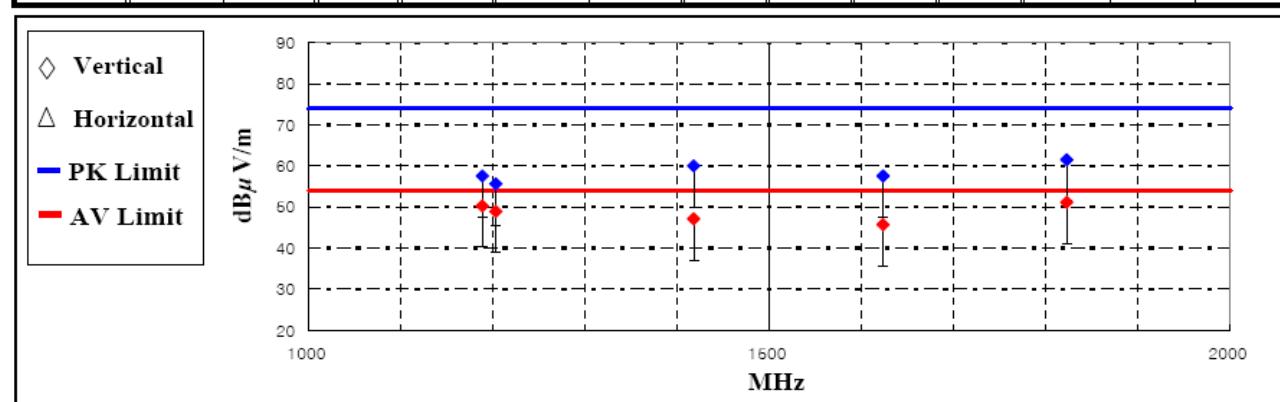
AF : Antenna factor value

Pol. : H(Horizontal), V(Vertical)

< Fig 6. Radiated emission result (1 000 MHz ~ 2 000 MHz)>

◆ Operating Condition: 1 024 \* 768 / 60 Hz (HDMI)  
 Detector mode: Peak detector mode / Average detector mode

Frequency (MHz)	Measurement Level						Limit (dB $\mu$ V/m)		Margin (dB)		Positioning System		
	Reading Value (dB $\mu$ V/m)		AF	AMP / CL	Test Result (dB $\mu$ V/m)				Peak	Average	Peak	Average	Pol.
	Peak	Average	(dB/m)	(dB)	Peak	Average	Peak	Average	Peak	Average	Peak	Average	(H/V)
1188.00	72.92	65.62	25.20	-40.62	57.50	50.20	74.00	54.00	16.50	3.80	V	200	33
1202.80	70.95	64.25	25.23	-40.58	55.60	48.90	74.00	54.00	18.40	5.10	V	143	351
1417.50	74.61	61.71	25.61	-40.22	60.00	47.10	74.00	54.00	14.00	6.90	V	115	211
1623.20	71.49	59.69	25.87	-39.86	57.50	45.70	74.00	54.00	16.50	8.30	V	175	196
1822.40	74.97	64.57	26.06	-39.53	61.50	51.10	74.00	54.00	12.50	2.90	V	126	190



\*Comment : AMP/CL\_Cable loss value + AMP gain value

AF : Antenna factor value

Pol. : H(Horizontal), V(Vertical)

< Fig 7. Radiated emission result (1 000 MHz ~ 2 000 MHz)>

EUT Type: 32" LCD TV/Monitor

FCC ID.: TGELT32U4



## 7. Sample Calculations

$$\begin{aligned} \text{dB}\mu\text{V} &= 20 \log_{10}(\mu\text{V}/\text{m}) \\ \text{dB}\mu\text{V} &= \text{dBm} + 107 \\ \mu\text{V} &= 10^{(\text{dB}\mu\text{V}/20)} \end{aligned}$$

### 7.1 Example 1 :

#### ■ 20.3 MHz

$$\begin{aligned} \text{Class B Limit} &= 250 \mu\text{V} = 48 \text{ dB}\mu\text{V} \\ \text{Reading} &= -67.8 \text{ dBm} \text{(Calibrated level)} \\ \text{Convert to dB}\mu\text{V} &= -67.8 \text{ dBm} + 107 = 39.2 \text{ dB}\mu\text{V} \\ 10^{(39.2 \text{ dB}\mu\text{V}/20)} &= 91.2 \mu\text{V} \\ \text{Margin} &= 39.2 - 48 = -8.8 \\ &= 8.8 \text{ dB below Limit} \end{aligned}$$

### 7.2 Example 2 :

#### ■ 66.7 MHz

$$\begin{aligned} \text{Class B Limit} &= 100 \mu\text{V}/\text{m} = 40.0 \text{ dB}\mu\text{V}/\text{m} \\ \text{Reading} &= -76.0 \text{ dBm} \text{(Calibrated level)} \\ \text{Convert to dB}\mu\text{V}/\text{m} &= -76.0 \text{ dBm} + 107 = 31.0 \text{ dB}\mu\text{V}/\text{m} \\ \text{Antenna Factor + Cable Loss} &= 5.8 \text{ dB} \\ \text{Total} &= 36.8 \text{ dB}\mu\text{V}/\text{m} \\ \text{Margin} &= 36.8 - 40.0 = -3.2 \\ &= 3.2 \text{ dB below Limit} \end{aligned}$$



## 8. Recommendation & Conclusion

The data collected shows that the **KIMIN ELECTRONIC CO., LTD. 32" LCD TV/Monitor (Model Name: LT32U41)** was complies with §15.107 and 15.109 of the FCC Rules.