GUMI COLLEGE
EMC CENTER

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FCC EVALUATION REPORT FOR CERTIFICATION

Manufacturer : KTV Global Corp.

357-55 Hosan-Dong, Dalseo-Gu, Daegu-Si, KOREA

Attn: Eui-Yeun Kim/ Manager

Date of Issue : December 18, 2006

Test Report No. : GETEC-E3-06-075

Test Site : Gumi College EMC Center
(Registration No.: 100749)

FCC ID.: BRFLCM17BB

Applicant.: KTV Global Corp.

Rule Part(s)	**: FCC Part 15 Subpart B**
Equipment Class	**: Class B computing device peripheral (JBP)**
EUT Type	**: 17" TFT LCD CCTV Monitor**
Type of Authority	**: Certification**
Model No.	**: LCM17BB**

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

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 vest 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,

Jae-Hoon Jeong, Senior Engineer
GUMI College EMC center

Reviewed by,

Tae-Sig Park, Technical Manager
GUMI College EMC center

CONTENTS

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: KTV Global Corp.
Applicant Address: 357-55 Hosan-Dong,Dalseo-Gu, Daegu-Si, Korea
Manufacturer: KTV Global Corp.
Manufacturer Address: 357-55 Hosan-Dong,Dalseo-Gu, Daegu-Si, Korea
Contact Person: Eui-Yeun Kim/ Manager
Tel. & Fax No.: Tel No.: +82-53-605-7071 Fax No.: +82-53-605-7080

- **FCC ID** BRFLCM17BB
- **EUT Type** 17” TFT LCD CCTV Monitor
- **Model No.** LCM17BB
- **Serial No.** Proto type
- **Rule Part(s)** FCC Part 15 Subpart B
- **Type of Authority** Certification
- **Test Procedure(s)** ANSI C63.4 (2003)
- **Dates of Test** December 6, 2006
- **Place of Test** **Gumi College EMC Center** (FCC Registration No.: 100749)
  407, Bugok-Dong, Gumi-si, Gyeongsangbuk-Do, Korea
- **Test Report No.** GETEC-E3-06-075
- **Dates of Issue** December 18, 2006

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 9kHz to 40GHz (ASNI C63.4-2003) was used in determining radiated and conducted emissions emanating from **KTV Global Corp. 17" TFT LCD CCTV Monitor (Model No.: LCM17BB)**

These measurement tests were conducted at **Gumi College EMC Center**.
The site address is 407, Bugok-Dong, Gumi-si, Gyeongsangbuk-Do, Korea
This test site is one of the highest point of Gumi 1 college at about 200 kilometers away from Seoul city and 40 kilometers away from Daege 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

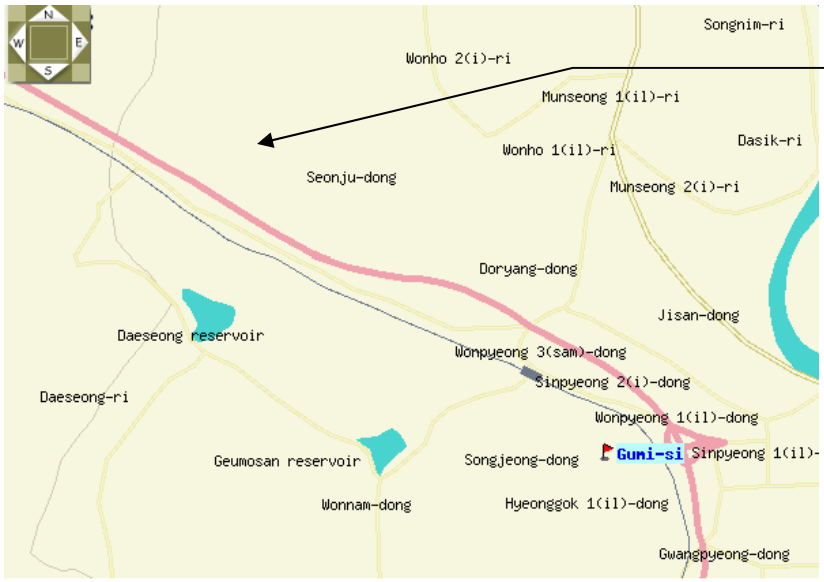

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Fig 1. The map above shows the Gumi College in vicinity area.

3. Product Information

3.1 Description of EUT

The Equipment Under Test (EUT) is the **KTV Global Corp. 17" TFT LCD CCTV Monitor (Model No.: LCM17BB) FCC ID.: BRFLCM17BB**

Power Requirements	AC 100-240V, 50-60Hz
Maximum Resolution(s)	1280×1024 Non-interlaced @ 60Hz(Analog) 1280×1024 Non-interlaced @ 60Hz(Digital)
Frequency	Horizontal: 31.469 ~ 64kHz Vertical: 59.940 ~ 75.029Hz
Speaker	Max 2W, 8ohm, 30*70mm
Sound output	0.5W
Dimensions(W *H * D)	390* 425* 180 mm
Weight	6.0 kg

3.2 Support Equipment / Cables used

3.2.1 Used Support Equipment

Description	Manufacturer	Model No.	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	PIONEER	DV-525	S/N: UEYD012398LL FCC ID: DoC
Monitor	LG Electronics Inc.	RZ-13LA60	S/N: N/A FCC ID: DoC
CCTV camera	KTV Global Corp.	CCN-342LA	S/N: 99060079 FCC ID: DoC

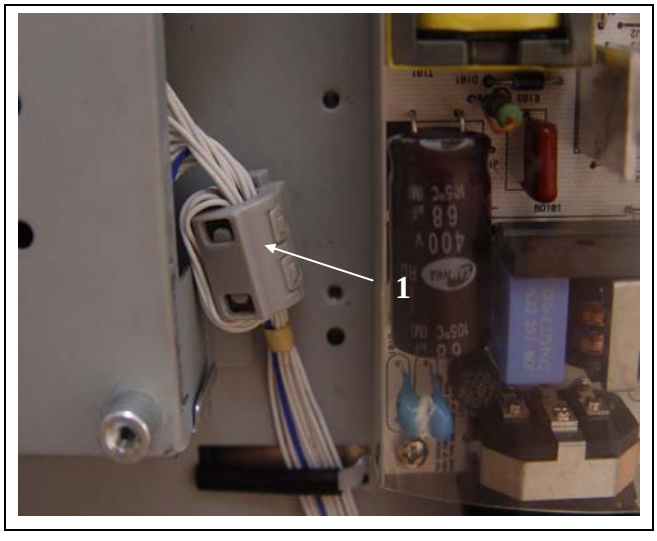
See "Appendix E – Test Setup Photographs" for actual system test set-up

3.2.2 Used Cable(s)

Cable No.	Condition	Description
Power cable	Connected to the EUT	1.8m unshielded
Video cable(D-sub)	Connected to the EUT and PC	1.8m shielded with two ferrite cores
Video cable(DVI-D)	Connected to the EUT and PC	1.8m shielded with two ferrite cores
S-VHS cable	Connected to the EUT and DVD Player	1.8m shielded
AV input cable	Connected to the EUT and CCTV Camera	3.0m shielded
AV output cable	Connected to the EUT and Monitor	3.0m shielded
Audio input cable	Connected to the EUT and DVD Player	3.0m shielded
Audio output cable	Connected to the EUT and Monitor	3.0m shielded

3.3 Modification Item(s)

- 1) Added a clamp type ferrite core(FeeLux BNF-12) on the control cable with one turn.



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 120V / 60Hz
- Test Mode(s)
  -. Monitor mode, AV mode, CCTV mode
  -. Radiated emission : 1280*1024/60Hz (Analog), 1280*1024/60Hz (Digital)
  -. Conducted emission : 1280*1024/60Hz (Analog), 1280*1024/60Hz (Digital),
  800*600/75Hz (Analog), 640*480/60Hz (Analog)
- Operating test pattern
  - Monitor mode
    -. "H" character scrolling mode(Font size: 10)
    -. Black background white character
    -. Brightness and contrast was adjusted as maximum level
    -. 1kHz sound tone with win-amp player
  - AV mode
    -. Color bar pattern & 1kHz sound tone
  - CCTV mode
    -. CCTV Camera input

4.2 Conducted Emission

The Line conducted emission test facility is inside a 4×8×2.5 meter shielded enclosure.
The EUT was placed on a non-conducting 1.0 by 1.5 meter table, which is 0.8 meters in height and 0.4 meters 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 150kHz to 30MHz with 20msec 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 9kHz. 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 – 40 centi-meters.
Each EME reported was calibrated using the R/S signal generator

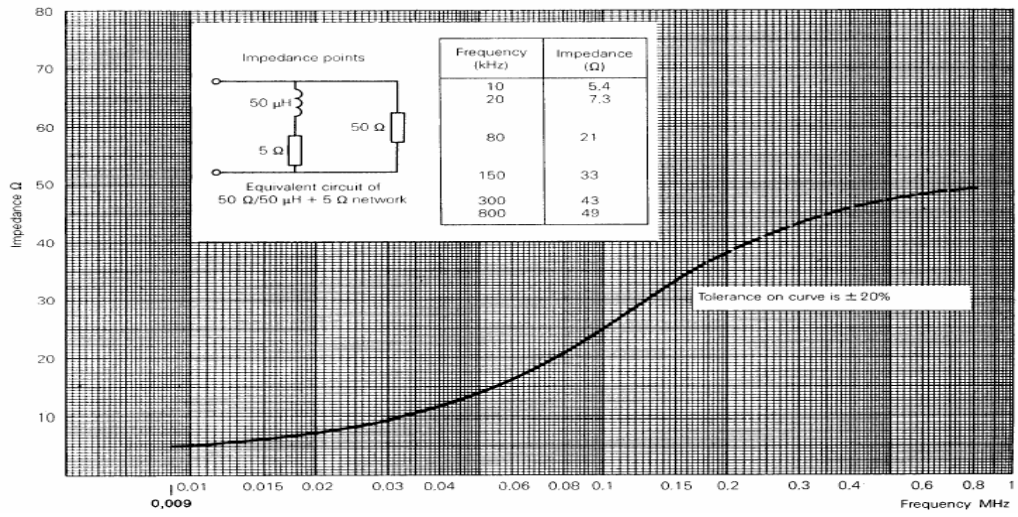


Fig 2. Impedance of LISN

4.3 Radiated Emission

Preliminary measurements were conducted 3m 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 to 1000MHz using bicornical log antenna (Schwarzbeck, VULB9160). Above 1GHz, horn antenna (Schwarzbeck, BBHA9120D) was used.

Final measurements were made outdoors at 3m/10m-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 120kHz 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 0.8m high non-metallic 1.0×1.5 meter table.

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

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

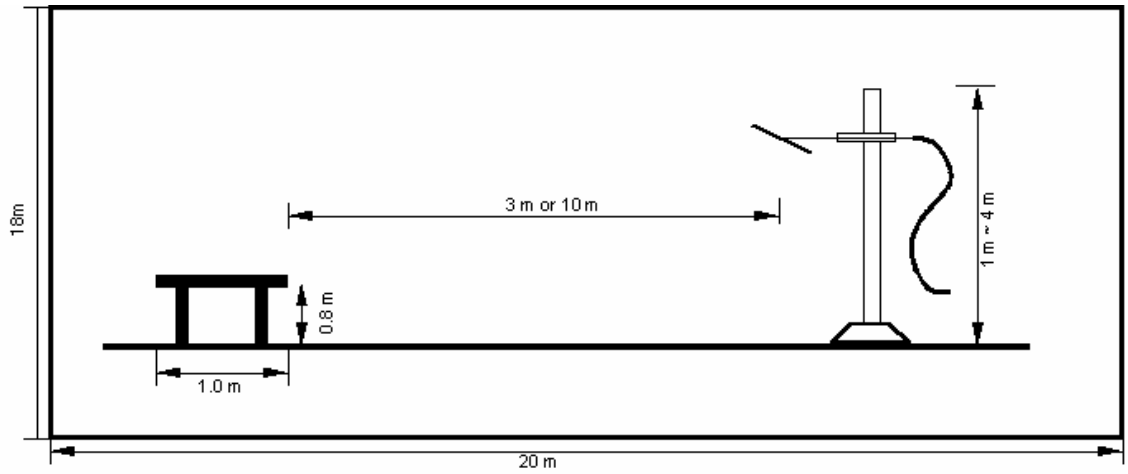


Fig 3. Dimensions of Open Site Test Area

5. Conducted Emission

5.1 Operating environment

Temperature : 23℃
Relative humidity : 39 %

5.2 Test set-up

The conducted emission measurements were performed in the shielded room.
The EUT was placed on wooden table, 0.8m heights above the floor, 0.4m from the reference ground plane (GRP) wall and 0.8m 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%.

Contribution	Probability Distribution	Uncertainty (±dB)	
		Power Port	Communication port
Receiver specification	Rectangular	0.50	0.50
LISN coupling specification	Rectangular	1.50	
ISN coupling specification	Rectangular		1.50
Mismatch LISN VRC : Γl= 0.20 ISN VRC : Γl= 0.20 ATT VRC(IN) : Γg= 0.03 Uncertainty limits 20log(1± Γl Γg)	U-shaped	0.05 -0.05	0.05 -0.05
Mismatch Receiver VRC : Γl= 0.09 ATT VRC : Γg= 0.11 Uncertainty limits 20log(1± Γl Γg)	U-shaped	0.09 -0.09	0.09 -0.09
System repeatability	Std Deviation	0.55	0.55
Cable and input attenuator calibration	Normal (k=2)	0.08	0.08
Repeatability of EUT			
Combined standard uncertainty Uc(y)	Normal	1.07 -1.07	1.07 -1.07
Extended uncertainty U	Normal (k=2)	2.15 -2.15	2.15 -2.15

5.4 Limit

RFI Conducted	FCC Limit(dB) Class B	
Freq. Range	Quasi-Peak	Average
150kHz – 0.5MHz	66 – 56*	56 – 46*
0.5MHz – 5MHz	56	46
5MHz – 30MHz	60	50
*Limits decreases linearly with the logarithm of frequency.		

5.5 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Due to calibration
■ -	ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 14. 2006
■ -	ESH3-Z5	Rohde & Schwarz	Artificial mains network	838979/020	12. 15. 2006
■ -	ESH2-Z5	Rohde & Schwarz	Artificial mains network	829991/009	12. 16. 2006

5.6 Test data for power line conducted emission

5.6.1 Test mode : Monitor mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 9kHz
-. Frequency range : 0.15MHz ~ 30MHz

♦ **Test resolution: 1280*1024/60Hz (Analog)**

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.185	0.10	-0.20	N	64.26	54.3	54.20	54.26	38.8	38.70	10.06	15.56
0.385	0.13	-0.13	L1	58.17	48.2	48.20	48.17	35.2	35.20	9.97	12.97
0.570	0.14	-0.21	L1	56.00	45.2	45.13	46.00	33.5	33.43	10.87	12.57
0.930	0.15	-0.23	L1	56.00	43.5	43.42	46.00	33.1	33.02	12.58	12.98
2.805	0.21	-0.18	L1	56.00	44.0	44.04	46.00	32.5	32.54	11.96	13.46
6.280	0.32	-0.15	L1	60.00	44.8	44.96	50.00	39.8	39.96	15.04	10.04
9.890	0.39	0.00	L1	60.00	40.1	40.49	50.00	32.7	33.09	19.51	16.91
15.830	0.63	0.01	L1	60.00	45.1	45.74	50.00	32.7	33.34	14.26	16.66
16.725	0.66	0.00	L1	60.00	49.5	50.16	50.00	35.5	36.16	9.84	13.84
19.805	0.74	0.00	L1	60.00	39.4	40.14	50.00	27.4	28.14	19.86	21.86
24.575	0.60	0.03	N	60.00	30.2	30.83	50.00	25.6	26.23	29.17	23.77

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

♦ **Test resolution: 1280*1024/60Hz (Digital)**

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.185	0.11	-0.20	L1	64.26	54.2	54.10	54.26	38.0	37.90	10.16	16.36
0.380	0.12	-0.13	N	58.28	48.2	48.19	48.28	35.9	35.89	10.09	12.39
0.500	0.14	-0.18	L1	56.00	47.8	47.77	46.00	36.4	36.37	8.24	9.64
0.780	0.15	-0.23	L1	56.00	44.2	44.12	46.00	31.8	31.72	11.88	14.28
1.460	0.16	-0.27	N	56.00	41.7	41.59	46.00	29.6	29.49	14.41	16.51
2.040	0.18	-0.31	N	56.00	42.3	42.17	46.00	30.2	30.07	13.83	15.93
4.470	0.26	-0.15	L1	56.00	40.5	40.61	46.00	30.8	30.91	15.39	15.09
17.160	0.64	0.00	N	60.00	49.6	50.24	50.00	34.2	34.84	9.76	15.16
19.670	0.68	0.00	N	60.00	36.9	37.58	50.00	24.6	25.28	22.42	24.72

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

♦ **Test resolution: 800*600/75Hz (Analog)**

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.185	0.10	-0.20	N	64.26	54.4	54.30	54.26	38.8	38.70	9.96	15.56
0.195	0.11	-0.22	N	63.82	54.9	54.79	53.82	43.1	42.99	9.04	10.84
0.385	0.13	-0.13	L1	58.17	47.7	47.70	48.17	35.5	35.50	10.47	12.67
0.535	0.12	-0.19	N	56.00	46.3	46.23	46.00	33.0	32.93	9.77	13.07
1.670	0.17	-0.29	N	56.00	42.6	42.48	46.00	29.5	29.38	13.52	16.62
3.270	0.22	-0.14	N	56.00	43.7	43.78	46.00	32.5	32.58	12.22	13.42
4.545	0.26	-0.15	N	56.00	40.1	40.21	46.00	29.5	29.61	15.79	16.39
6.815	0.33	-0.11	L1	60.00	42.1	42.33	50.00	32.7	32.93	17.67	17.07
15.855	0.62	0.01	N	60.00	45.2	45.83	50.00	33.6	34.23	14.17	15.77
16.570	0.63	0.00	N	60.00	51.3	51.93	50.00	36.9	37.53	8.07	12.47
24.580	0.60	0.03	N	60.00	28.5	29.13	50.00	25.3	25.93	30.87	24.07

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

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

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.185	0.10	-0.20	N	64.26	54.9	54.80	54.26	38.7	38.60	9.46	15.66
0.320	0.11	-0.16	N	59.71	53.7	53.65	49.71	42.1	42.05	6.06	7.66
0.570	0.12	-0.21	N	56.00	44.8	44.71	46.00	32.9	32.81	11.29	13.19
0.995	0.14	-0.23	N	56.00	42.3	42.21	46.00	31.5	31.41	13.79	14.59
1.870	0.17	-0.31	N	56.00	42.4	42.27	46.00	29.5	29.37	13.73	16.63
2.805	0.21	-0.18	N	56.00	43.2	43.23	46.00	31.2	31.23	12.77	14.77
3.340	0.22	-0.14	N	56.00	43.1	43.18	46.00	32.5	32.58	12.82	13.42
4.540	0.26	-0.15	N	56.00	40.1	40.21	46.00	29.9	30.01	15.79	15.99
10.445	0.41	0.00	N	60.00	40.2	40.61	50.00	33.1	33.51	19.39	16.49
15.870	0.62	0.01	N	60.00	45.6	46.23	50.00	34.1	34.73	13.77	15.27
16.570	0.63	0.00	N	60.00	51.2	51.83	50.00	34.5	35.13	8.17	14.87
24.575	0.60	0.03	N	60.00	43.2	43.83	50.00	35.9	36.53	16.17	13.47

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

5.6.2 Test mode : AV mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 9kHz
-. Frequency range : 0.15MHz ~ 30MHz

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.185	0.10	-0.20	N	64.26	53.9	53.80	54.26	38.9	38.80	10.46	15.46
0.260	0.12	-0.20	L1	61.43	52.6	52.53	51.43	42.3	42.23	8.90	9.20
0.385	0.12	-0.13	N	58.17	48.4	48.39	48.17	35.7	35.69	9.78	12.48
0.510	0.14	-0.18	L1	56.00	48.2	48.16	46.00	36.2	36.16	7.84	9.84
0.995	0.14	-0.23	N	56.00	42.5	42.41	46.00	31.8	31.71	13.59	14.29
1.730	0.18	-0.30	L1	56.00	42.5	42.38	46.00	31.4	31.28	13.62	14.72
2.800	0.21	-0.18	L1	56.00	43.7	43.74	46.00	32.1	32.14	12.26	13.86
4.465	0.26	-0.15	L1	56.00	39.8	39.91	46.00	30.2	30.31	16.09	15.69
9.870	0.39	0.00	L1	60.00	40.4	40.79	50.00	32.6	32.99	19.21	17.01
17.305	0.67	0.00	L1	60.00	46.1	46.77	50.00	31.5	32.17	13.23	17.83
27.940	0.61	0.11	N	60.00	31.9	32.62	50.00	27.1	27.82	27.38	22.18

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

5.6.3 Test mode : CCTV input mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 9kHz
-. Frequency range : 0.15MHz ~ 30MHz

Frequency (MHz)	Insertion Loss	Cable Loss	Pol.	Quasi-Peak[dBuV]			Average[dBuV]			Margin[dBuV]	
				Limit	Reading	Result	Limit	Reading	Result	Quasi	Average
0.200	0.11	-0.23	N	63.61	52.6	52.48	53.61	40.9	40.78	11.13	12.83
0.335	0.13	-0.16	L1	59.33	49.7	49.67	49.33	40.3	40.27	9.65	9.05
0.530	0.14	-0.19	L1	56.00	43.8	43.75	46.00	34.3	34.25	12.25	11.75
0.810	0.15	-0.23	L1	56.00	43.7	43.62	46.00	30.5	30.42	12.38	15.58
1.240	0.16	-0.25	L1	56.00	43.2	43.11	46.00	31.4	31.31	12.89	14.69
2.710	0.21	-0.19	L1	56.00	44.1	44.12	46.00	33.5	33.52	11.88	12.48
4.515	0.27	-0.15	L1	56.00	39.9	40.02	46.00	32.5	32.62	15.98	13.38
10.280	0.40	0.00	L1	60.00	44.7	45.10	50.00	37.5	37.90	14.90	12.10
17.430	0.68	0.00	L1	60.00	49.7	50.38	50.00	34.3	34.98	9.62	15.02
19.735	0.68	0.00	N	60.00	39.0	39.68	50.00	32.5	33.18	20.32	16.82
24.570	0.60	0.03	N	60.00	29.5	30.13	50.00	24.9	25.53	29.87	24.47

*Comment : Pol : H (Live), N(Neut)
Insertion Loss : Insertion Loss of LISN
Cable Loss : Cable Loss + Pulse Limiter Insertion loss value

6. Radiated Emission

6.1 Operating environment

Temperature : 6℃
Relative humidity : 45 %

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 3m/10m-distance open area test site.
The EUT was placed on a non-conductive turntable approximately 0.8 meters above the ground plane.
The turntable with EUT was rotated 360°, and the antenna was varied in height between 1.0 and 4.0 meters 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%.

Contribution	Probability Distribution	Uncertainty (dB)			
		Biconical Ant.		Log-periodic Ant.	
		3m	10m	3m	10m
Ambient signal					
Antenna factor calibration	Normal (k=2)	0.50	0.50	0.50	0.50
Receiver specification	Rectangular	0.50	0.50	0.50	0.50
Antenna directivity	Rectangular	0.25	0.00	1.50	0.25
Antenna phase center variation	Rectangular	0.00	0.00	1.00	0.20
Antenna factor frequency interpolation	Rectangular	0.25	0.25	0.25	0.25
Measure distance variation	Rectangular	0.60	0.40	0.60	0.40
Site imperfections	Rectangular	-2.00	-2.40	2.50	2.40
Mismatch Receiver VRC : Γl= 0.09 Antenna VRC : Γg= 0.43 (Bi) 0.23 (Lp) Uncertainty limits 20log(1± Γl Γg)	U-shaped	0.33 -0.35	0.33 -0.35	0.18 -0.18	0.18 -0.18
System repeatability	Std Deviation	0.82	0.82	0.79	0.79
Cable loss calibration	Normal (k=2)	0.09	0.09	0.09	0.09
Combined standard uncertainty Uc(y)	Normal	1.54 -1.54	1.70 -1.70	2.03 -2.03	1.68 -1.68
Extended uncertainty U	Normal (k=2)	3.09 -3.09	3.39 -3.40	4.05 -4.05	3.36 -3.36

6.4 Limit

Frequency (MHz)	FCC Limit @ 3m. dB μV/m	CISPR Limit @ 10m. dB μV/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 – 1000	54.0	37.0
1000 – 2000	54.0	-

6.5 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Due to Calibration
■ -	ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 14. 2006
■ -	HK116	Rohde & Schwarz	Biconical ANT	826861/018	11. 27. 2007
■ -	HL223	Rohde & Schwarz	Log-periodic antenna	829228/011	11. 27. 2007
■ -	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
■ -	BBHA9120D	Schwarzbeck	Horn ANT	207	11.26.2006
■	87405A	Agilent	Preamplifier	MY39500777	N/A

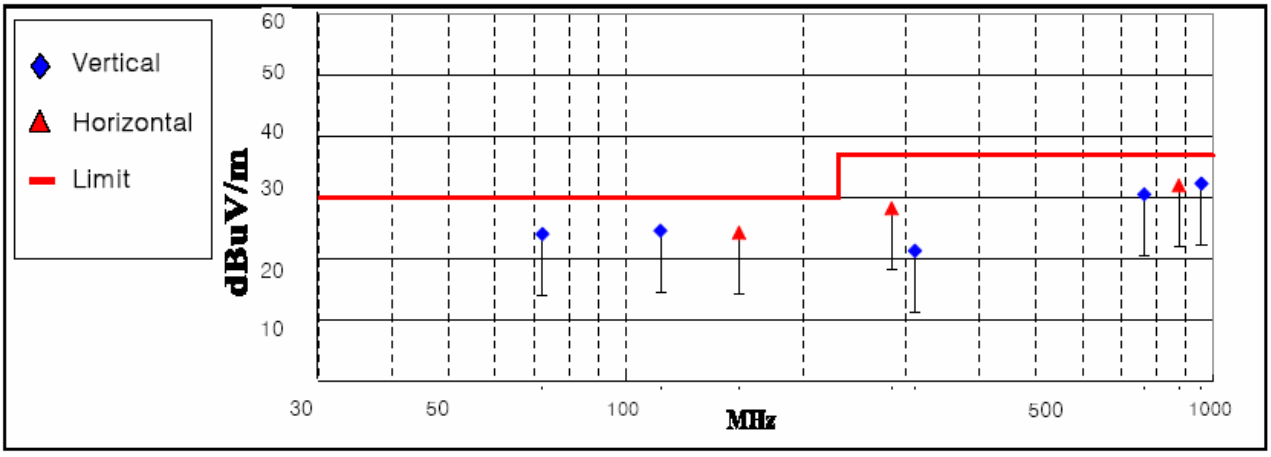
6.6 Test data for radiated emission

6.6.1 Test mode : Monitor mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 120kHz / 1MHz
-. Frequency range : 30MHz ~ 2000MHz
-. Measurement distance : 10m/ 3m

♦ Operating Condition: 1280*1024/60Hz(Analog)
Detector mode: Quasi- peak detector mode

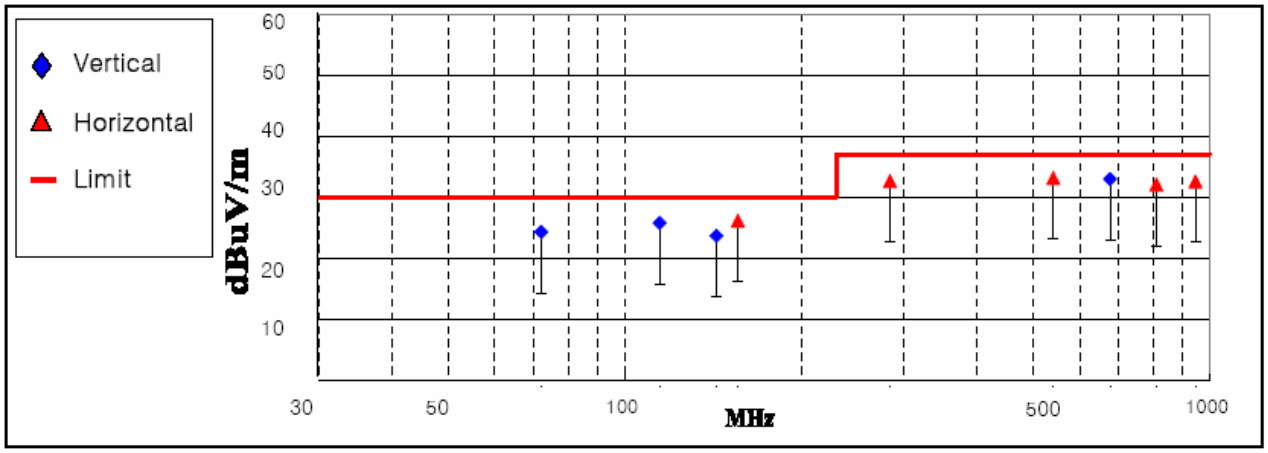
Frequency (MHz)	Measurement Level				Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)	Antenna Factor(dB)	Cable Loss(dB)	Test Result (dBuV/m)			Pol. (H/V)	Height (cm)	Angle (deg)
72.12	14.0	7.85	2.24	24.1	30.0	5.9	V	158	90
114.61	11.3	10.54	2.85	24.7	30.0	5.3	V	245	45
156.01	8.5	12.40	3.45	24.4	30.0	5.6	H	236	164
283.68	5.1	18.32	4.91	28.3	37.0	8.7	H	325	120
310.65	3.4	12.76	5.21	21.4	37.0	15.6	V	158	295
763.01	1.2	21.11	8.28	30.6	37.0	6.4	V	205	280
873.96	0.8	22.33	8.94	32.1	37.0	4.9	H	300	15
955.01	0.4	22.46	9.49	32.3	37.0	4.7	V	107	40



< Fig 4. Radiated emission result (30MHz ~ 1000MHz)>

♦ Operating Condition: 1280*1024/60Hz(Digital)
Detector mode: Quasi- peak detector mode

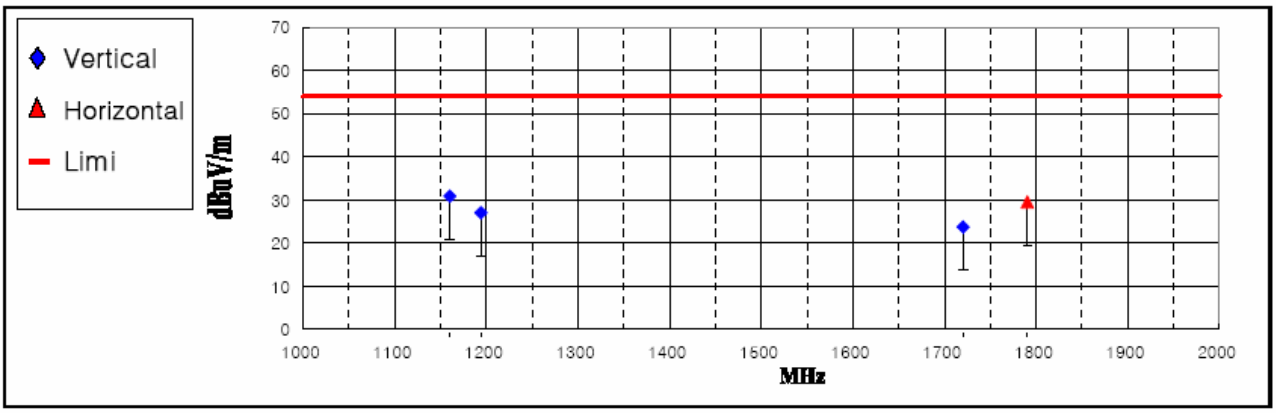
Frequency (MHz)	Measurement Level				Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)	Antenna Factor(dB)	Cable Loss(dB)	Test Result (dBuV/m)			Pol. (H/V)	Height (cm)	Angle (deg)
72.01	14.2	7.84	2.24	24.3	30.0	5.7	V	100	201
114.71	12.4	10.54	2.85	25.8	30.0	4.2	V	154	100
143.41	8.4	11.96	3.29	23.7	30.0	6.3	V	130	32
156.10	10.3	12.40	3.45	26.2	30.0	3.8	H	285	195
283.86	9.4	18.35	4.91	32.7	37.0	4.3	H	305	175
539.94	8.1	18.16	6.92	33.2	37.0	3.8	H	360	300
675.12	5.2	20.07	7.71	33.0	37.0	4.0	V	198	145
810.11	2.1	21.42	8.56	32.1	37.0	4.9	H	314	15
945.03	0.8	22.36	9.42	32.6	37.0	4.4	H	225	90



< Fig 5. Radiated emission result (30MHz ~ 1000MHz)>

♦ Operating Condition: 1280*1024 / 60Hz (Analog)
Detector mode: Peak detector mode / Average detector mode

Frequency (MHz)	Measurement Level						AV Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)		AF	AMP / CL	Test Result (dBuV/m)				Pol.	Height	Angle
	Peak	Average	(dB)	(dB)	Peak	Average			(H/V)	(cm)	(deg)
1160.00	39.0	29.5	23.2	-21.8	40.4	30.9	54.0	23.1	V	103	204
1194.01	42.6	25.4	23.4	-21.7	44.2	27.1	54.0	26.9	V	124	172
1720.13	32.5	19.4	25.2	-20.9	36.8	23.8	54.0	30.2	V	221	173
1790.20	37.3	24.9	25.4	-20.8	42.0	29.5	54.0	24.5	H	300	200

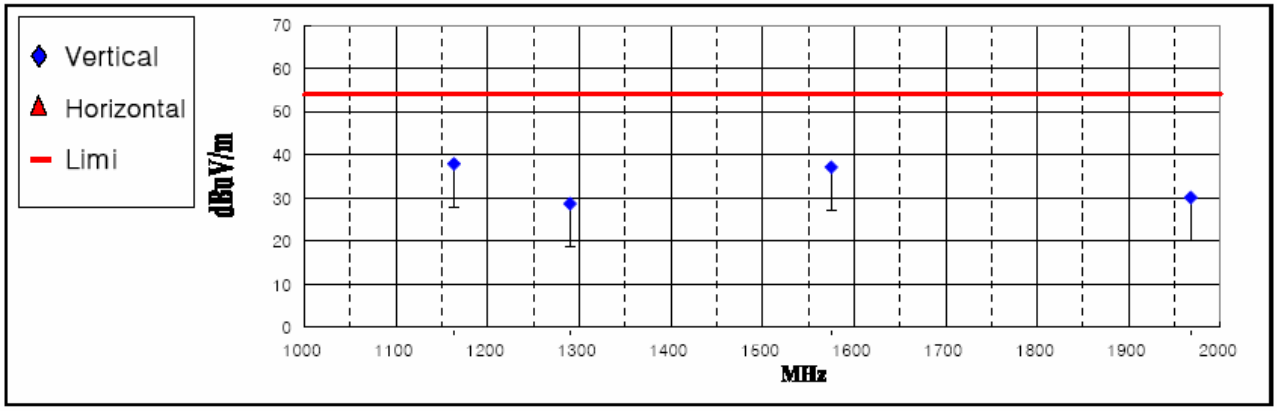


**Commant :AMP/CL : Cable loss + AMP gain*

< Fig 6. Radiated emission result (1000MHz ~ 2000MHz)>

♦ Operating Condition: 1280*1024 / 60Hz (Digital)
Detector mode: Peak detector mode / Average detector mode

Frequency (MHz)	Measurement Level						AV Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)		AF	AMP / CL	Test Result (dBuV/m)				Pol.	Height	Angle
	Peak	Average	(dB)	(dB)	Peak	Average			(H/V)	(cm)	(deg)
1163.02	50.9	36.5	23.3	-21.8	52.4	37.9	54.0	16.1	V	125	160
1290.01	46.5	26.6	23.7	-21.6	48.6	28.7	54.0	25.3	V	100	197
1575.25	49.9	33.5	24.7	-21.0	53.5	37.1	54.0	16.9	V	112	215
1967.52	47.5	24.6	26.0	-20.6	53.0	30.1	54.0	23.9	V	107	211



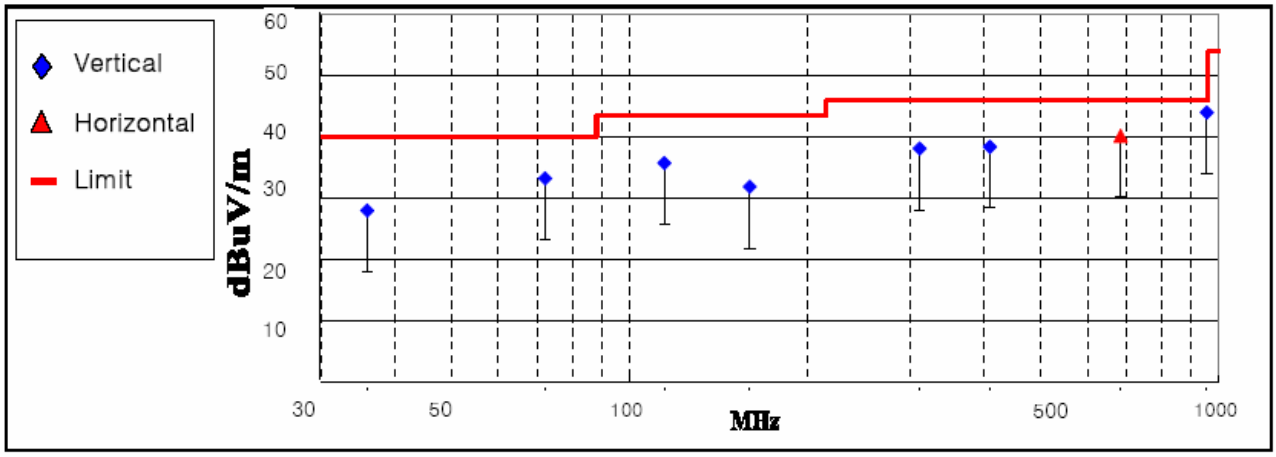
**Commant :AMP/CL : Cable loss + AMP gain*

< Fig 7. Radiated emission result (1000MHz ~ 2000MHz)>

6.6.2 Test mode : AV mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 120kHz
-. Frequency range : 30MHz ~ 1000MHz
-. Measurement distance : 3m
-. Detector mode : Quasi-peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)	Antenna Factor(dB)	Cable Loss(dB)	Test Result (dBuV/m)			Pol. (H/V)	Height (cm)	Angle (deg)
35.94	14.3	11.94	1.80	28.0	40.0	12.0	V	100	50
71.99	23.2	7.84	2.24	33.3	40.0	6.7	V	135	190
114.73	22.4	10.54	2.85	35.8	43.5	7.7	V	140	0
160.23	15.9	12.55	3.50	31.9	43.5	11.6	V	195	14
310.98	20.2	12.77	5.21	38.2	46.0	7.8	V	204	255
409.38	16.4	15.91	6.15	38.5	46.0	7.5	V	136	270
682.19	12.3	20.20	7.76	40.3	46.0	5.7	H	320	165
955.03	12.1	22.46	9.49	44.0	46.0	2.0	V	122	180

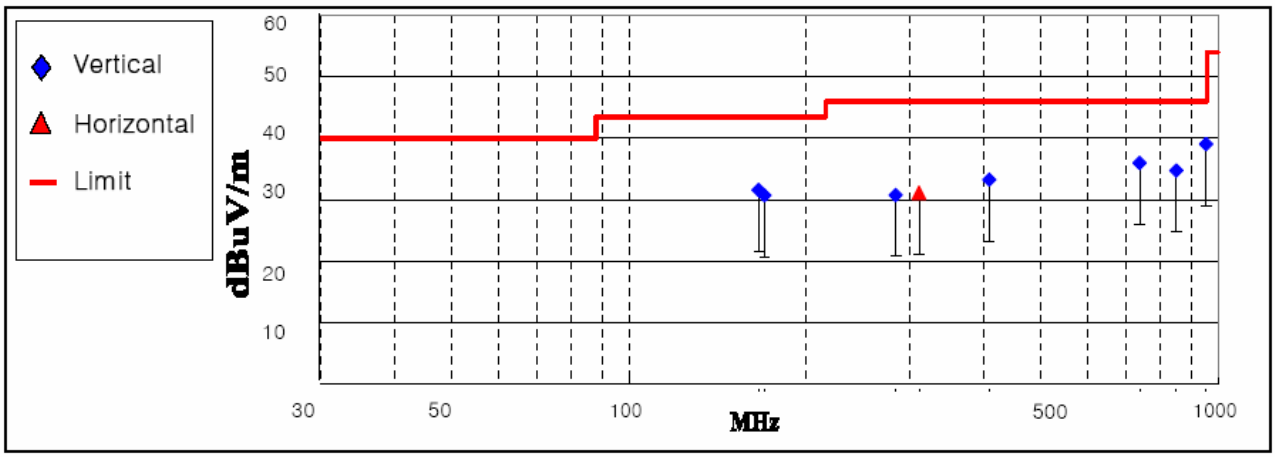


< Fig 8. Radiated emission result (30MHz ~ 1000MHz)>

6.6.3 Test mode : CCTV input mode

-. Test Date : December 6, 2006
-. Resolution bandwidth : 120kHz
-. Frequency range : 30MHz ~ 1000MHz
-. Measurement distance : 3m
-. Detector mode : Quasi-peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBuV/m)	Margin (dBuV/m)	Positioning System		
	Reading Value(dBuV)	Antenna Factor(dB)	Cable Loss(dB)	Test Result (dBuV/m)			Pol. (H/V)	Height (cm)	Angle (deg)
166.21	15.3	12.73	3.53	31.6	43.5	11.9	V	125	152
170.04	14.3	12.85	3.55	30.7	43.5	12.8	V	195	100
283.86	7.5	18.35	4.91	30.8	46.0	15.2	V	205	90
310.99	13.2	12.77	5.21	31.2	46.0	14.8	H	350	238
409.38	11.2	15.91	6.15	33.3	46.0	12.7	V	140	270
736.74	6.9	20.94	8.12	36.0	46.0	10.0	V	100	35
850.21	3.5	22.43	8.80	34.7	46.0	11.3	V	195	214
955.14	7.1	22.47	9.49	39.1	46.0	6.9	V	170	29



< Fig 9. Radiated emission result (30MHz ~ 1000MHz)>

7. Sample Calculations

$$dB\mu V = 20 \text{ Log }_{10}(\mu V/m)$$
$$dB\mu V = dBm + 107$$
$$\mu V = 10^{(dB\mu V/20)}$$

7.1 Example 1 :

■ 20.3 MHz

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

7.2 Example 2 :

■ 66.7 MHz

Class B Limit	= 100 μV/m	= 40.0 dBμV/m
Reading	= - 76.0 dBm(Calibrated level)	
Convert to dBμV/m	= - 67.8 dBm + 107	= 31.0 dBμV/m
Antenna Factor + Cable Loss	= 5.8 dB	
Total	= 36.8 dBμV/m	
Margin	= 36.8 – 40.0	= -3.2
	= 3.2 dB below Limit	

8. Recommendation & conclusion

The data collected shows that the **KTV Global Corp. 17" TFT LCD CCTV Monitor (Model No.: LCM17BB)** was complies with §15.107 and 15.109 of the FCC Rules.