

**HCT CO., LTD.**

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**TEST REPORT**

**Manufacture;**  
Aomni International

463-841) #502 Glory Tower, 186-5 Gumi-dong, Bundang-gu,  
Seongnam-si, Gyeonggi-do, Korea

**Date of Issue:** December 13, 2007

**Test Report No.:** HCT-F07-1206

**Test Site:** HCT CO., LTD.  
**HCT FRN:** 0005-8664-21

**FCC ID :**

**U6DAL420V1**

**MODEL:**

**AL420V1**

**Rule Part(s):** Part 15 & 2

**Equipment Class:** FCC Class B Peripheral Device (JBP)

**Standard(s):** FCC Class B: (CISPR 22)

**LCD Panel:** AC-In, Audio Out, AV Input 1, AV Input 2, AV Input 3, S-Video, Audio In 1, Component, Serial, D-SUB, HDMI, Audio In 2, PC Audio, TV ANT, Serial Port, AC-In, USB, LC420WX7/ LG. PHILIPS LCD

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

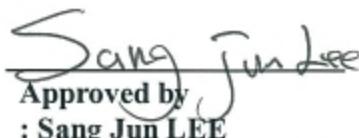
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



Report prepared by

: Sung Yong Kim

Test engineer of EMC Tech. Part



Approved by  
: Sang Jun LEE



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# MEASUREMENT REPORT

## 1. Scope

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

<b>Applicant Name:</b>	Aomni International
<b>Address:</b>	463-841) #502 Glory Tower, 186-5 Gumi-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea

- **FCC ID :** U6DAL420V1
- **Equipment Class:** FCC Class B Peripheral Device (JBP)
- **EUT Type:** LCD TV
- **Model(s):** AL420V1
- **Max input Resolution:** 1280 x 1024 x 60 Hz
- **HDTV Input:** 480i/p (60 Hz), 576i/p (50 Hz), 720p (50/60 Hz), 1080i (50/60 Hz)
- **Input Power:** AC 100 ~ 240 V 50/60 Hz
- **Power Consumption:** 180 Watt (Max)
- **Rule Part(s):** FCC Part 15 Subpart B
- **Test Procedure(s):** ANSI C63.4 (2003)
- **Dates of Tests:** Dec. 05, 2007 ~ Dec. 10, 2007
- **Place of Tests:**  
254-1,MAEKOK-RI,HOBUP-MYUN,ICHON-SI,KYOUNGKI-DO,467-701,KOREA

## **2. INTRODUCTION**

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2003) was used in determining radiated and conducted emissions emanating from **Aomni International LCD TV FCC ID: U6DAL420V1**

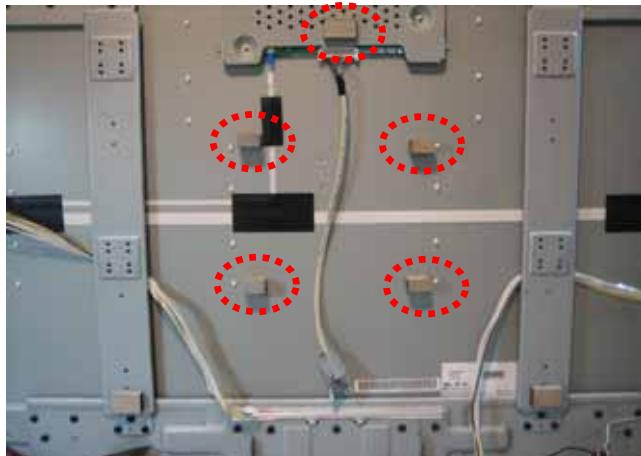
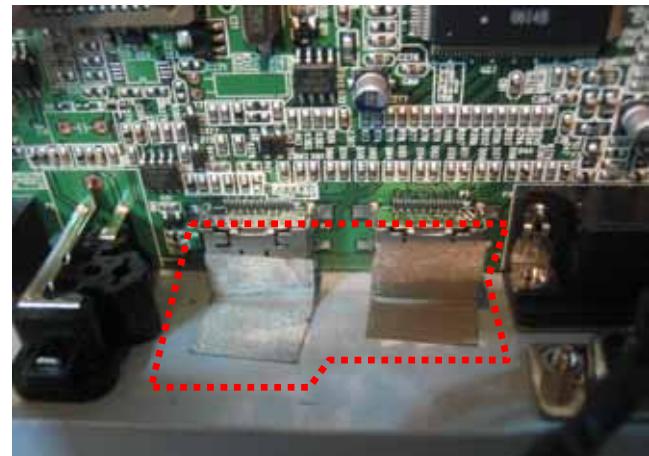
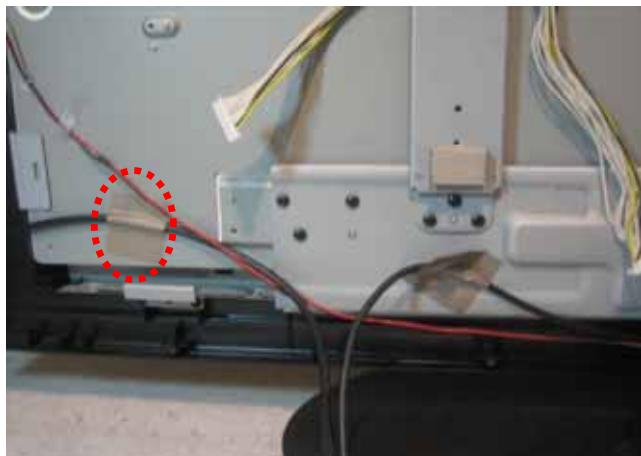
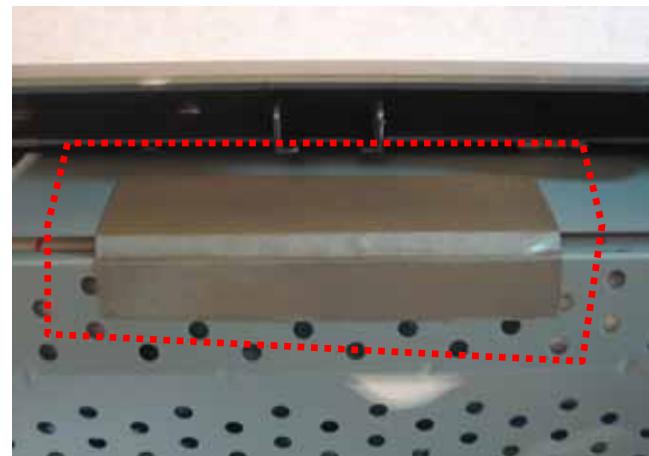
The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, MAEKOK-RI, HOBUP-MYUN, ICHON-SI, KYOUNGKI-DO, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 23, 2003 (Confirmation Number: EA90661)

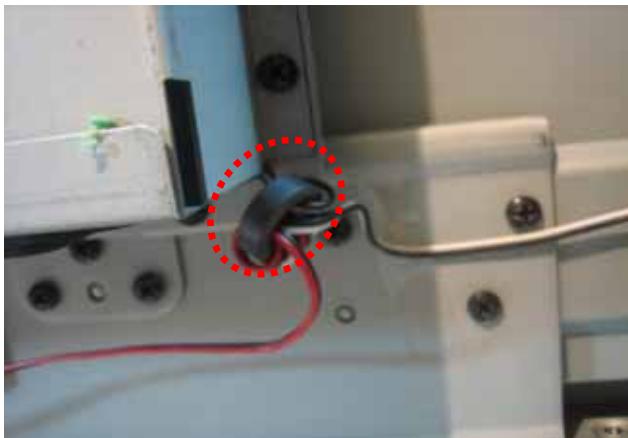
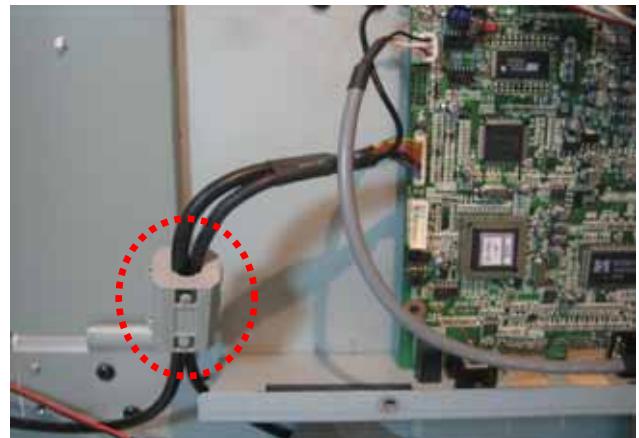
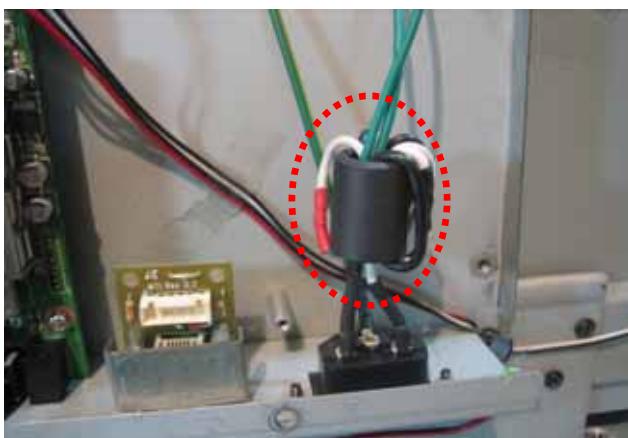
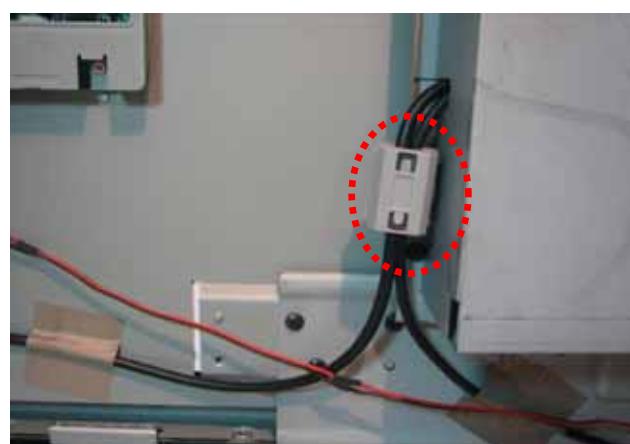
### 3. PRODUCT INFORMATION

#### 3.1 Equipment Description

Equipment Under Test (EUT) is **Aomni International LCD TV (FCC ID: U6DAL420V1)**

42" LCD TV	
<b>Function and Display Specification</b>	
Display Size	42-Inch 16 : 9 Diagonal Screen
Display Mode	Variable 5 Modes (4:3 Mode / 16:9 X 4 Modes)
Pixel Format	1366 X 768 Physical Pixel
Contrast Ratio	5000 : 1
Brightness	500 cd/m <sup>2</sup>
Max Input Resolution	1280 X 1024 / 60Hz
PIP	Advanced multi-windows viewing PIP (picture in picture) with four selectable window positions on Video mode
Input Compatible	Multiple input compatible
Video	Advanced motion digital/Motion-Adaptive De-interlace process, Digital progressive line scaling.
Tuner Module	TV/CATV (PAL/SECAM)
Programming	Favorite channel programming, Time Set, Set the Sleep timer, TTX
HDTV Input	480i/p (60Hz), 576i/p (50Hz), 720p (50/60Hz), 1080i (50/60Hz)
Color Temperature	Selectable 5 Mode (Warm1, 2, Normal, Cool1, 2)
<b>Dimension/Weight</b>	
Main Only	1013mm (W) X 692mm (H) X 121mm (D)
With Stand	1013mm (W) X 625mm (H) X 270mm (D)
With Stand and Speaker	1108mm (W) X 692mm (H) X 121mm (D)
<b>Miscellaneous</b>	
Audio	Built-in amplifier and two speaker (7Watt/Typ.) systems (optional), Selectable fixed/variable audio output (optional)
External Control	Front OSD Key Control, Remote Control, RS232C Control
<b>Power Consumption</b>	
Input Power	AC 100 ~ 240V 50/60Hz
Power Consumption	180 Watt (Max)
<b>Connectivity</b>	
TV Input	RF/CATV (PAL/SECAM)
COMPOSITE Input	RCA X 3Port (AV Input 1, 2, 3)
COMPONENT Input	RCA X 1Port
S-VIDEO Input	Mini Din 4Pin X 1Port
PC Input	Mini D-Sub 15Pin X 1Port / HDTV Input (480p, 576p, 720p (50/60Hz), 1080i (50/60Hz))
AUDIO Input/Output	RCA X 3Port
Speaker Output	Cinch Type X 4Port (Stereo L/R), Head Phone Jack X 1Port
External Control Port	Mini D-Sub 9Pin X 1Port
HDMI1, 2 Input	HDMI X 2Port

**- Debugging Information****Attached the Gasket****Attached the Gasket Tape****Attached the Gasket Tape****Attached the Gasket Tape**

**Attached the Core****Attached the Core****Attached the Core****Attached the Core****Attached the Core**

## 4. Description of Tests(Conducted)

### 4.1 Powerline Conducted RFI (150 kHz- 30 MHz)

The power line conducted RFI measurements were performed according to **ANSI C63.4 (2003)**.

The EUT was placed on a non-conducting 1.0 by 1.5 meter table which is 0.8 meters in height and 0.40 meters away from the vertical wall of the shielded enclosure. Power to the EUT is provided through a Rohde & Schwarz 50 Ω / 50 uH Line Impedance Stabilization Network (LISN) and the support equipment through a separate Solar 50 Ω / 50 uH Line- Conducted Test Facility LISN. Sufficient time for the EUT, support equipment, and test equipment were allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer to determine the frequency producing the maximum EME. The spectrum was scanned from 150 kHz to 30 MHz. Each maximum EME was remeasured using an EMI receiver. The detector function of the receiver was set to CISPR quasi- peak and average mode with the bandwidth set to 9 kHz. Each emission was maximized consistent with the 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 the center with 30- 40cm. in length. The worst-case configuration is noted in the test report and the photographs are attached. Each EME reported was calibrated using the Rohde & Schwarz SMT signal generator and are listed on Table 1. RFI Conducted FCC Class B.

RFI CONDUCTED	FCC CLASS B Limits dB(uV)	
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

**Table 1. RFI Conducted Limits**

## 5. Description of Tests (Radiated)

### Radiated Emissions

Preliminary measurements were made indoors at 3 meter using broadband antennas, broadband amplifier, and spectrum analyzer 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 spectrum was scanned from 30 to 1000 MHz using Tri-log antenna, and above 1 GHz using linearly polarized horn antennas. For frequencies above 1 GHz, horn antennas were used. Sufficient time for the EUT, support equipment, and test equipment were allowed in order for them to warm up to their normal operating condition. The EMI receiver detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120 kHz. The EUT, support equipment, and interconnecting cables were arranged to the configuration that produces the maximum EME emission found during preliminary scan. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Horizontal and vertical antenna polarizations were checked. Each emission was maximized by: varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/ or support equipment, and powering the monitor the computer aux AC outlet, if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission.

ITE Radiated Limits			
Frequency (MHz)	FCC Limit @ 3m. Quasi-Peak dB[ $\mu$ V / m]	FCC Limit @ 10m.* Quasi – Peak dB [ $\mu$ V / m]	CISPR Limit @ 10m. Quasi-Peak dB [ $\mu$ V / m]
30-88	40.0	29.5	30.0
88-216	43.5	33.0	30.0
216-230	46.0	35.6	30.0
230-960	46.0	35.6	37.0
960-1000	54.0	43.5	37.0
> 1000	54.0	43.5	No Specified Limit

\* Limit extrapolated 20 dB/decade

Table 2. Radiated Class B limits @ 10-meters

## 6. Support Equipment Used

DEVICE TYPE	MANUFACTURER	MODEL NUMBER	FCC ID / DoC	CONNECTED TO
LCD TV	Aomni International	AL420V1	U6DAL420V1	EUT
PC	DELL	OPTIPLEXGX620	DoC	EUT END
Keyboard	DELL	SK-8115	DoC	PC END
Mouse	Logitech	M-BT96a	DoC	PC END

### 6.1 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
LCD TV (EUT)	AC-In	N	N/A	1.8(P)
	Audio Out	N/A	Y	1.5(D)
	AV Input 1	N/A	Y	1.5(D)
	AV Input 2	N/A	Y	1.5(D)
	AV Input 3	N/A	Y	1.5(D)
	S-Video	N/A	Y	1.5(D)
	Audio In 1	N/A	Y	1.5(D)
	Component	N/A	Y	1.5(D)
	Serial	N/A	Y	1.8(D)
	D-SUB	N/A	Y	1.8(D)
	HDMI	N/A	Y	1.5(D)
	Audio In 2	N/A	Y	1.5(D)
	PC Audio	N/A	Y	1.5(D)
	TV ANT	N/A	Y	3.0(D)
PC	Serial Port	N/A	N	1.8(D)
	AC-In	N	N/A	1.8(P)
	USB	N/A	Y	1.8(D)
	USB	N/A	Y	1.8(D)

The marked "(D)" means the Data Cable and "(P)" means the Power Cable.

## 6.2 Noise Suppression Parts on Cable. (I/O CABLE)

		Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
LCD TV (EUT)	Audio Out	N	N/A	Y	Both END
	AV Input 1	N	N/A	Y	Both END
	AV Input 2	N	N/A	Y	Both END
	AV Input 3	N	N/A	Y	Both END
	S-Video	N	N/A	Y	Both END
	Audio In 1	N	N/A	Y	Both END
	Component	N	N/A	Y	Both END
	Serial	N	N/A	Y	Both END
	D-SUB	Y	Both END	Y	Both END
	HDMI	N	N/A	Y	Both END
	Audio In 2	N	N/A	Y	Both END
	PC Audio	N	N/A	Y	Both END
PC	TV ANT	N	N/A	Y	Both END
	Serial Port	N	N/A	N	N/A
	USB	N	N/A	Y	PC END
	USB	N	N/A	Y	PC END

## 7. CONDUCTED TEST DATA

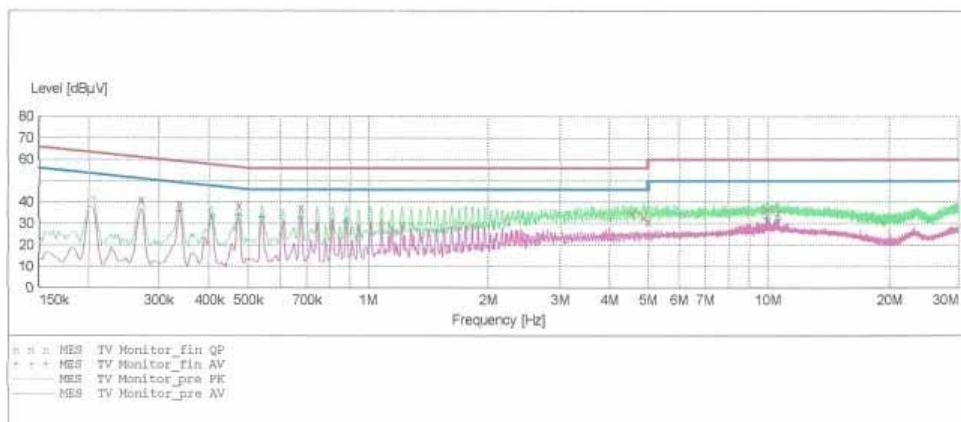
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EMC TEST LAB.

EUT: AL420V1  
 Manufacturer: Aomni International  
 Operating Condition: NORMAL  
 Test Site: SHIELD ROOM  
 Operator: SY-KIM  
 Test Specification: CISPR 22 CLASS B  
 Comment: H

**SCAN TABLE: "CISPR 22 Voltage"**

CISPR 22 Voltage						
Start Frequency	Stop Frequency	Step Width	Detector	Meas.	IF Time	Transducer
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



**MEASUREMENT RESULT: "TV Monitor\_fin QP"**

12/6/2007 11:13AM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Line dB	PE
0.270100	40.90	10.0	61	20.2	---	---
0.337600	39.40	10.0	59	19.9	---	---
0.472600	38.40	10.1	57	18.0	---	---
0.675000	37.40	10.1	56	18.6	---	---
4.530000	34.90	10.6	56	21.1	---	---
4.870000	33.00	10.6	56	23.0	---	---
5.000000	31.00	10.6	56	25.0	---	---
9.955000	36.30	11.1	60	23.7	---	---
10.605000	35.30	11.2	60	24.7	---	---

**MEASUREMENT RESULT: "TV Monitor\_fin AV"**

12/6/2007 11:13AM

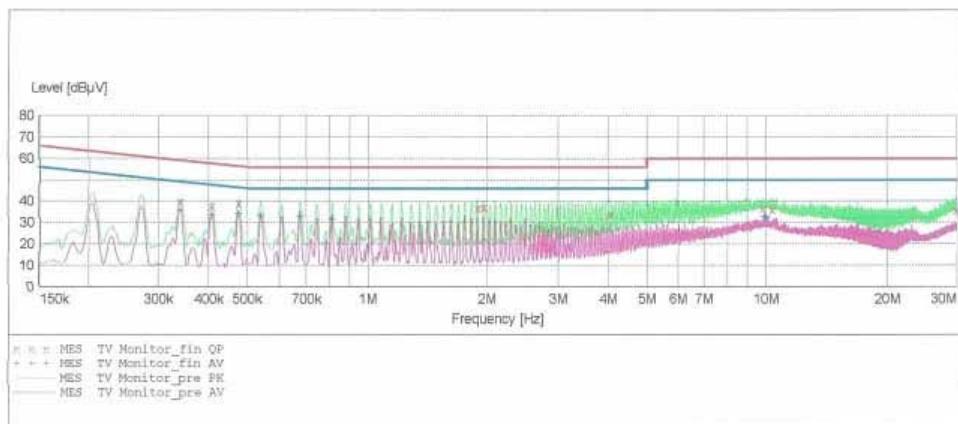
Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Line ---	PE ---
0.337600	36.20	10.0	49	13.0	---	---
0.405100	33.80	10.0	48	14.0	---	---
0.472600	34.20	10.1	47	12.2	---	---
0.540000	33.30	10.1	46	12.7	---	---
0.675000	33.20	10.1	46	12.8	---	---
0.880000	31.70	10.1	46	14.3	---	---
9.955000	32.70	11.1	50	17.3	---	---
10.005000	32.50	11.1	50	17.5	---	---
10.595000	32.20	11.2	50	17.8	---	---

**HCT**
**EMC TEST LAB.**

EUT: AL420V1  
 Manufacturer: Omni International  
 Operating Condition: NORMAL  
 Test Site: SHIELD ROOM  
 Operator: SY-KIM  
 Test Specification: CISPR 22 CLASS B  
 Comment: N

**SCAN TABLE: "CISPR 22 Voltage"**

CISPR 22 Voltage						
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width			Time	Bandw.
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			


**MEASUREMENT RESULT: "TV Monitor\_fin QP"**

12/6/2007 11:10AM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Line	PE
0.340100	39.70	10.0	59	19.5	---	---
0.407600	37.90	10.0	58	19.8	---	---
0.475100	39.10	10.1	56	17.4	---	---
1.890000	36.90	10.3	56	19.1	---	---
1.955000	37.30	10.3	56	18.7	---	---
4.045000	33.80	10.5	56	22.2	---	---
9.855000	36.70	11.1	60	23.3	---	---
10.400000	36.20	11.2	60	23.8	---	---
29.840000	35.70	12.8	60	24.3	---	---

**MEASUREMENT RESULT: "TV Monitor\_fin AV"**

12/6/2007 11:10AM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Line dB	PE
0.340100	36.10	10.6	49	13.1	---	---
0.407600	33.80	10.0	48	13.9	---	---
0.475100	34.50	10.1	46	11.9	---	---
0.540000	33.70	10.1	46	12.3	---	---
0.675000	33.30	10.1	46	12.7	---	---
0.810000	31.80	10.1	46	14.2	---	---
9.955000	33.20	11.1	50	16.8	---	---
10.005000	33.20	11.1	50	16.8	---	---
10.055000	32.10	11.1	50	17.9	---	---

**NOTES:**

1. All modes of operation were investigated, and the worst-case emissions are reported.
2. The conducted limits are listed on Table 1 (Page 8).
3. Line H = Hot Line N = Neutral

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\*\* Measurements using CISPR quasi-peak mode.

## 8. RADIATED TEST DATA

Frequency	Reading	Ant. Factor	Cable Loss	ANT POL	Total	Limit	Margin
MHz	dBuV	dB / m	dB	(H / V)	dBuV / m	dBuV / m	dB
151.2	4.4	13.1	2.9	V	20.4	30.0	9.6
164.7	5.3	12.7	3.0	V	21.0	30.0	9.0
194.4	8.3	9.3	3.3	H	20.9	30.0	9.1
216.0	9.6	9.7	3.5	V	22.8	30.0	7.2
237.6	16.7	10.8	3.7	V	31.2	37.0	5.8
302.4	13.8	12.7	4.2	H	30.7	37.0	6.3
344.1	14.8	13.7	4.4	H	32.9	37.0	4.1
450.1	10.2	16.3	5.0	H	31.5	37.0	5.5

Radiated Measurements at 10-meters.

### NOTES:

1. All modes of operation were investigated, and the worst-case emissions are reported.
2. The radiated limits are listed on Table 2 (Page 9).

\*\*\* Measurements using CISPR quasi-peak mode.

## 9. Sample Calculations

$$\text{dB } \mu\text{V} = 20 \log_{10} (\mu\text{V})$$

$$\text{dB } \mu\text{V} = \text{dBm} + 107$$

### 9.1 Example 1:

@ 0.3376 MHz

Class B limit	= 49.0 dB $\mu\text{V}$
Reading	= 36.0 dB $\mu\text{V}$ (calibrated level)

Margin	= $36.0 - 49.0 = -13.0 \text{ dB } \mu\text{V}$
	= <b>13.0 dB below limit</b>

### 9.2 Example 2:

@ 344.1 MHz

Class B limit	= 37.0 dB $\mu\text{V/m}$
Reading	= 14.8 dB $\mu\text{V/m}$ (calibrated level)
Antenna Factor + Cable Loss	= 18.1 dB
Total	= 32.9 dB $\mu\text{V/m}$

Margin	= $32.9 - 37.0 = -4.1 \text{ dB/m}$
	= <b>4.1 dB below limit</b>

## 10. Test Equipment

<u>Type</u>	<u>Manufacture</u>	<u>Model Number</u>	<u>CAL Due Date</u>
Conducted Emission			
EMI Test Receiver	Rohde & Schwarz	ESCI	2008.06.01
LISN	Rohde & Schwarz	ESH2-Z5	2008.04.20
LISN	EMCO	3816/2SH	2008.02.03
PULSE LIMITER	Rohde & Schwarz	ESH3-Z2	2008.10.30
Radiated Emission			
EMI Test Receiver	Rohde & Schwarz	ESI40	2008.11.06
TRILOG Antenna	Schwarzbeck	VULB9168	2008.03.19
Antenna Position Tower	HD	MA240	N/A
Turn Table	EMCO	1050	N/A
Controller	HD GmbH	HD 100	N/A
Slide Bar	HD GmbH	KMS 560	N/A

## 11. Test Software Used

**The EUT was act in standby mode during radiated and conducted testing.**

NOTE: This is a sample of the basic program used during the test. However, during testing, a different software program may be used; whichever determines the worst-case condition. In addition, the program used also depends on the number and type of devices being tested.

## 12. Conclusion

The data collected shows that **Aomni International LCD TV (FCC ID: U6DAL420V1)** complies with §15.107 and §15.109 of the FCC Rules.

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**HCT CO., LTD.**

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