

HCT CO., LTD.

Product Compliance Division, EMC Team
SAN 136-1, AMI-RI, BUBAL-EUP, ICHEON-SI, KYOUNGI-DO, 467-701, KOREA
TEL: +82 31 639 8518 FAX: +82 31 639 8525

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-F07-1205

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID :

MODEL:


U6DAL150A6
AL150A6, HL-1500XU

Rule Part(s): Part 15 & 2
Equipment Class: FCC Class B Peripheral Device (JBP)
Standard(s): FCC Class B: (CISPR 22)

LCD Panel: DC-In, TV ANT, D-SUB, PC Audio, AV Input, S-Video, HDMI, Audio Out,
Serial Port, AC-In, USB
LM150X08/ 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
: Dong Sub Kim

Test engineer of EMC Tech. Part



Approved by
: Sang Jun LEE
Manager of EMC Tech. Part



TABLE OF CONTENTS

	PAGE
REPORT COVER	1
TABLE OF CONTENTS	2
1. SCOPE	3
2. INTRODUCTION (SITE DESCRIPTION)	4
3. PRODUCTION INFORMATION	5
3.1 Equipment Description	
4. DESCRIPTION OF TESTS (CONDUCTED)	7
4.1 Powerline Conducted RFI	
5. DESCRIPTION OF TESTS (RADIATED)	8
6. LIST OF SUPPORT EQUIPMENT	9 - 10
6.1 Cable Description	
6.2 Noise Suppression Parts on Cable. (I/O CABLE)	
7. TEST DATA (CONDUCTED)	11 - 15
8. TEST DATA (RADIATED)	16
9. SAMPLE CALCULATIONS	17
9.1 Example 1	
9.2 Example 2	
10. TEST EQUIPMENT	18
11. TEST SOFTWARE USED	19
12. CONCLUSION	20

ATTACHMENT A:	FCC ID LABEL & LOCATION
ATTACHMENT B:	EXTERNAL PHOTOGRAPHS
ATTACHMENT C:	BLOCK DIAGRAM
ATTACHMENT D:	TEST SETUP PHOTOGRAPHS
ATTACHMENT E:	USER'S MANUAL
ATTACHMENT F:	INTERNAL PHOTOGRAPHS

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.

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

- **FCC ID :** U6DAL150A6
- **Equipment Class:** FCC Class B Peripheral Device (JBP)
- **EUT Type:** LCD TV
- **Model(s):** AL150A6, HL-1500XU
- **Max input Resolution:** 1280 x 768 x 60 Hz
- **HDTV Input:** 480i/p (60 Hz), 576i/p (50 Hz), 720p (60 Hz), 1080i (50, 60 Hz)
- **Input Power:** DC +19 External Power Adaptor
- **Power Consumption:** 30 Watt (Normal)
- **Rule Part(s):** FCC Part 15 Subpart B
- **Test Procedure(s):** ANSI C63.4 (2003)
- **Dates of Tests:** Dec. 07, 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: U6DAL150A6**

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

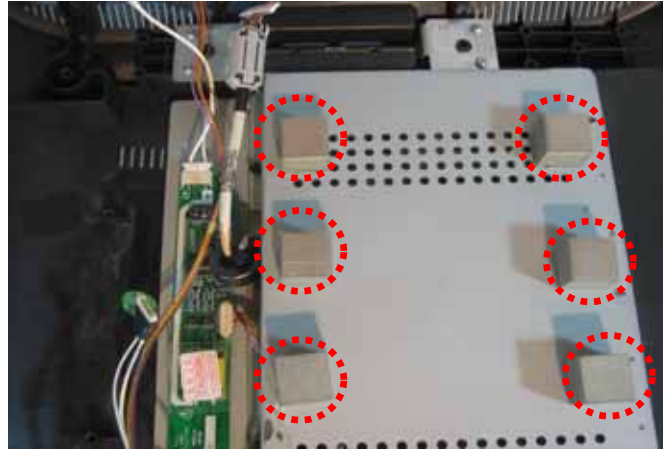
3.1 Equipment Description

Equipment Under Test (EUT) is **Aomni International LCD TV**
(FCC ID: U6DAL150A6)

15" LCD TV	
Function and Display Specificatio	
Display Size	15-Inch 4 : 3 Diagonal Screen
Display Mode	Variable 4 Modes (4:3 Mode/ Zoom)
Pixel Format	1024 x 768 Physical Pixel
Contrast Ratio	500:1
Brightness	450 cd/m ²
Max Input Resolution	1280 x 768 / 60Hz
Input Compatible	Multiple input compatible
Video	Advanced motion digital/Motion-Adaptive De-interlace process, Digital progressive line scaling.
Tuner Module	TV/CATV (ATSC)
Programming	Favorite channel programming, Time Set, Set the Sleep timer
HDTV Input	480i/p (60Hz) , 576ip (50Hz), 720p (60Hz), 1080i (50, 60Hz)
Color Temperature	Selectable 3 Mode (Warm, Normal, Cool)
Dimension / Weight	
Main Only	364 (W) x 333 (H) x 67 (D)
With Stand	395 (W) x 333 (H) x 198 (D)
With Stand and Speaker	395 (W) x 333 (H) x 198 (D)
Miscellaneous	
Audio	Built-in amplifier and two speaker (7 att/Typ.) systems (optional), Selectable fixed/variable audio output (optional)
External Control	Front OSD Button Control, Remote control, RS232C Control
Power Consumption	
Input Power	DC +19 External Power Adapter
Power Consumption	30 Watt(Normal)
Connectivity	
TV1, 2 Input	RF/CATV (ATSC)
Composite Input	RCA x 1Port (AV Input)
S-Video Input	Mini Din 4Pin x 1Port
PC Input	Mini D-Sub 15Pin x 1Port
Audio Input	Phone Jack x 1Port
Speaker Output	Cinch Type x 4Port (Stereo L/R)
External Control Port	Phone Jack x 1Port
HDMI Port	HDMI x 1Port
SPDIF Port	SPDIF (Optical) x 1Port (5.1 Channel)

- Debugging Information

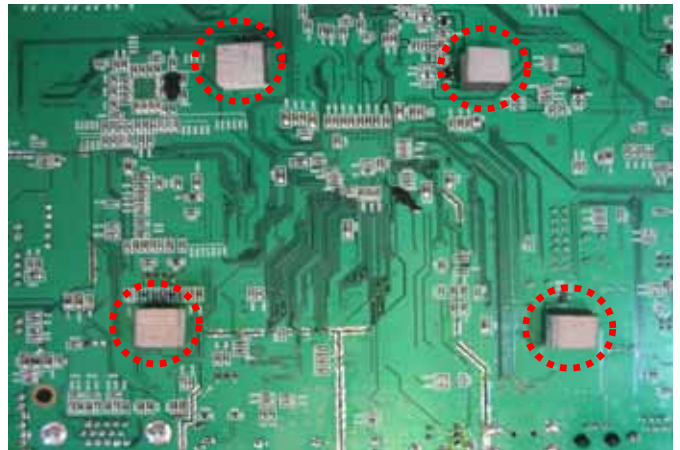
Attached the Gasket



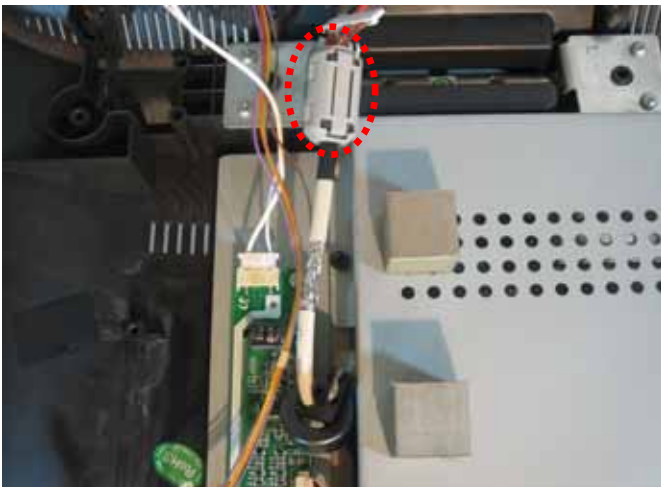
Attached the Gasket



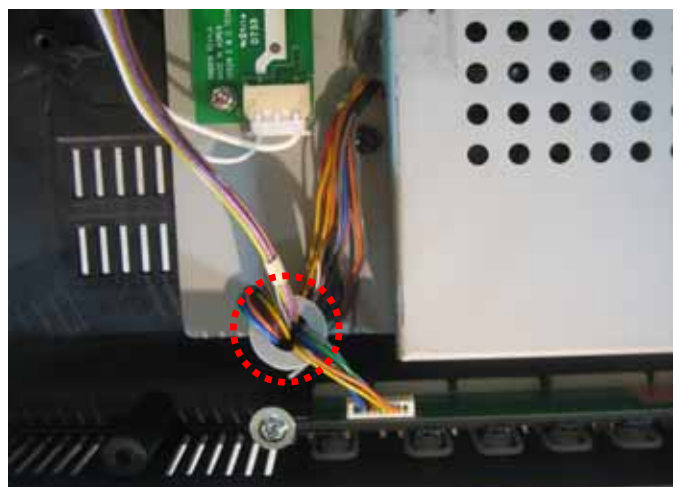
Main board - Attached the Gasket



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)	
	Quasi-Peak	Average
Freq. Range		
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[μ V / m]	FCC Limit @ 10m.* Quasi – Peak dB [μ V / m]	CISPR Limit @ 10m. Quasi-Peak dB [μ 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	AL150A6, HL-1500XU	U6DAL150A6	EUT
EUT Adaptor	Yang Ming Industrial	DA-60F19	DoC	EUT END
PC	DELL	OPTIPLEXGX620	DoC	EUT 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)	DC-In	N	N/A	1.8(P)
	TV ANT	N/A	Y	3.0(D)
	D-SUB	N/A	Y	1.8(D)
	PC Audio	N/A	Y	1.5(D)
	AV Input	N/A	Y	1.5(D)
	S-Video	N/A	Y	1.5(D)
	HDMI	N/A	Y	1.5(D)
	Audio Out	N/A	Y	1.5(D)
	Serial Port	N/A	N	3.0(D)
PC	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)	TV ANT	N	N/A	Y	Both END
	D-SUB	Y	Both END	Y	Both END
	PC Audio	N	N/A	Y	Both END
	AV Input	N	N/A	Y	Both END
	S-Video	N	N/A	Y	Both END
	HDMI	N	N/A	Y	Both END
	Audio Out	N	N/A	Y	Both END
	Service Port	N	N/A	N	N/A
PC	USB	N	N/A	Y	PC END
	USB	N	N/A	Y	PC END

7. CONDUCTED TEST DATA

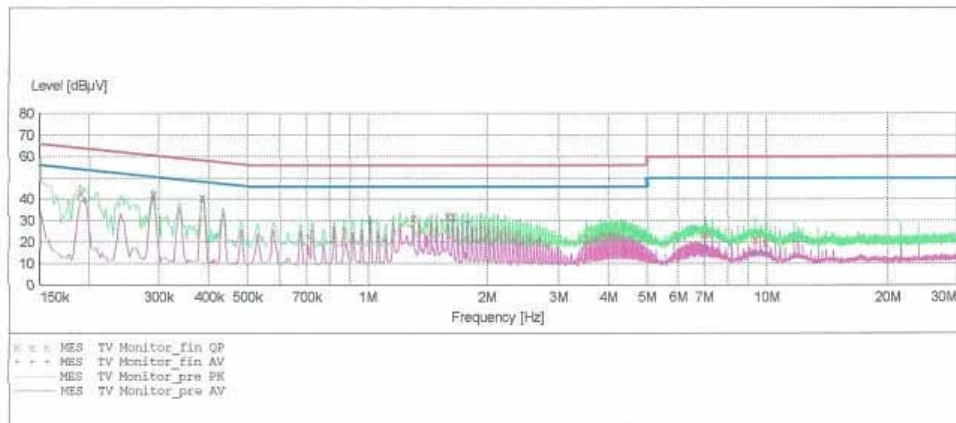
HCT

EMC TEST LAB.

EUT: AL150A6, HL-1500XU
 Manufacturer: Aomni International
 Operating Condition: NORMAL
 Test Site: SHIELD ROOM
 Operator: DS-KIM
 Test Specification: CISPR 22 CLASS B
 Comment: H

SCAN TABLE: "CISPR 22 Voltage"

Short Description:			CISPR 22 Voltage			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	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"

12/7/2007 10:16AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.190100	43.00	10.0	64	21.0	---	---
0.290100	42.40	10.0	61	18.1	---	---
0.385100	40.80	10.0	58	17.4	---	---
1.300000	31.30	10.2	56	24.7	---	---
1.590000	32.20	10.2	56	23.8	---	---
1.640000	32.30	10.2	56	23.7	---	---
7.025000	24.00	10.9	60	36.0	---	---
9.360000	21.30	11.1	60	38.7	---	---
9.950000	20.10	11.1	60	39.9	---	---

MEASUREMENT RESULT: "TV Monitor_fin AV"

12/7/2007 10:16AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.195100	39.40	10.0	54	14.4	---	---
0.290100	40.60	10.0	51	9.9	---	---
0.385100	40.20	10.0	48	8.0	---	---
1.010000	29.80	10.1	46	16.2	---	---
1.640000	30.00	10.2	46	16.0	---	---
1.785000	29.30	10.3	46	16.7	---	---
7.025000	18.40	10.9	50	31.6	---	---
9.365000	14.50	11.1	50	35.5	---	---
9.950000	14.50	11.1	50	35.5	---	---

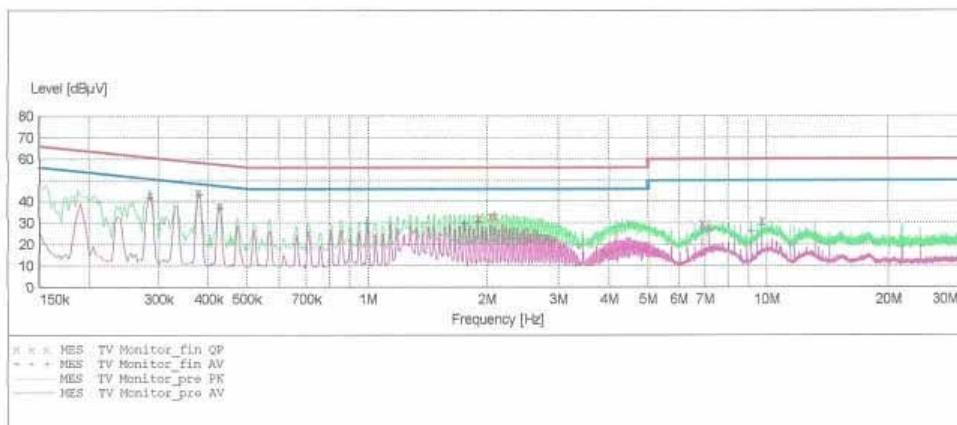
HCT

EMC TEST LAB.

EUT: AL150A6, HL-1500XU
Manufacturer: Aomni International
Operating Condition: NORMAL
Test Site: SHIELD ROOM
Operator: DS-KIM
Test Specification: CISPR 22 CLASS B
Comment: N

SCAN TABLE: "CISPR 22 Voltage"

Short Description:			CISPR 22 Voltage			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
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"

12/7/2007 10:57AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.285100	43.00	10.0	61	17.7	---	---
0.377600	44.30	10.0	58	14.0	---	---
0.427600	38.30	10.0	57	19.0	---	---
1.900000	32.40	10.3	56	23.6	---	---
2.040000	33.00	10.3	56	23.0	---	---
2.085000	33.00	10.3	56	23.0	---	---
6.880000	29.70	10.9	60	30.3	---	---
7.170000	28.30	10.9	60	31.7	---	---
9.750000	31.30	11.1	60	28.7	---	---

MEASUREMENT RESULT: "TV Monitor_fin AV"

12/7/2007 10:57AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.285100	42.20	10.0	51	8.5	---	---
0.380100	43.60	10.0	48	4.7	---	---
0.427600	37.30	10.0	47	10.0	---	---
0.995000	30.10	10.1	46	15.9	---	---
1.755000	29.70	10.3	46	16.3	---	---
1.895000	30.50	10.3	46	15.5	---	---
6.880000	27.30	10.9	50	22.7	---	---
9.175000	26.50	11.1	50	23.5	---	---
9.750000	28.80	11.1	50	21.2	---	---

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 7).
3. Line H = Hot Line N = Neutral

** Measurements using CISPR quasi-peak mode.

8. RADIATED TEST DATA

[D-Sub]

Frequency MHz	Reading dBuV	Ant. Factor dB / m	Cable Loss dB	ANT POL (H / V)	Total dBuV / m	Limit dBuV / m	Margin dB
45.3	7.1	12.6	1.5	V	21.2	30.0	8.8
68.7	11.0	10.1	1.9	V	23.0	30.0	7.0
149.0	6.5	13.0	2.9	V	22.4	30.0	7.6
155.5	4.4	13.1	3.0	H	20.5	30.0	9.5
174.9	7.3	11.5	3.1	V	21.9	30.0	8.1
181.4	8.5	10.5	3.2	V	22.2	30.0	7.8
259.9	15.2	11.3	3.9	H	30.4	37.0	6.6
331.8	13.2	13.5	4.4	H	31.1	37.0	5.9
454.9	11.0	16.3	5.0	V	32.3	37.0	4.7
464.5	10.4	16.4	5.1	H	31.9	37.0	5.1

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 8).

*** Measurements using CISPR quasi-peak mode.

9. Sample Calculations

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

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

9.1 Example 1:

@ 0.3801 MHz

Class B limit	= 48.0 dB μV
Reading	= 43.3 dB μV (calibrated level)

Margin	= 43.3 – 48.0 = - 4.7 dB μV
	= 4.7 dB below limit

9.2 Example 2:

@ 454.9 MHz

Class B limit	= 37.0 dB $\mu V / m$
Reading	= 11.0 dB $\mu V / m$ (calibrated level)
Antenna Factor + Cable Loss	= 21.3 dB
Total	= 32.3 dB $\mu V / m$

Margin	= 32.3 – 37.0 = - 4.7B $\mu V / m$
	= 4.7 dB below limit

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 acted 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: U6DAL150A6)** complies with §15.107 and §15.109 of the FCC Rules.