

VERIFICATION REPORT

LG Electronics Inc.
19-1, Cheongho-ri, Jinwi-myeon
Pyeongtaeak-si, Gyeonggi-do, KOREA

Date of Test : June.13, 2009
Test Reports S/N : E09066

Trade Name : LG
Manufacturer #1 : LG Electronics Inc
Address of the Manufacturer #1 : 19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si,
Gyeonggi-do, 451-713, Korea
Manufacturer #2 : Shanghai LG Electronics Co.,Ltd.
Address of the Manufacturer #2 : 600, Yun Qiao Road, Jin Qiao Export Processing
Zone, Pu Dong New Area, Shanghai, China.
Model No : LSW900N-B
Added Model :
EUT Type : IP BOX CAMERA
Rule Part(s) : FCC Part 15, Subpart B Class A and
Industry Canada regulation ICES-003

This equipment has been shown to be capable of 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 (Note Code #37).

I attest to the accuracy of data and 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 qualifications of all persons taking them.

P.T. R&D Lab. Certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S. C. 853(a)



June 13, 2009
M. K. Lee, Technical manager
LG Electronics Inc.
Digitalmedia Standards Group

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Introduction

1. Test Specification, Method & procedures

To determine the Radiated and Conducted Emission emanating from Model Name LSW900N-B,

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40 GHz (ANSI C63.4-2003) was used.

2. Location of testing facility

It takes about an hour from Seoul by car. The distance is approximately 50km.

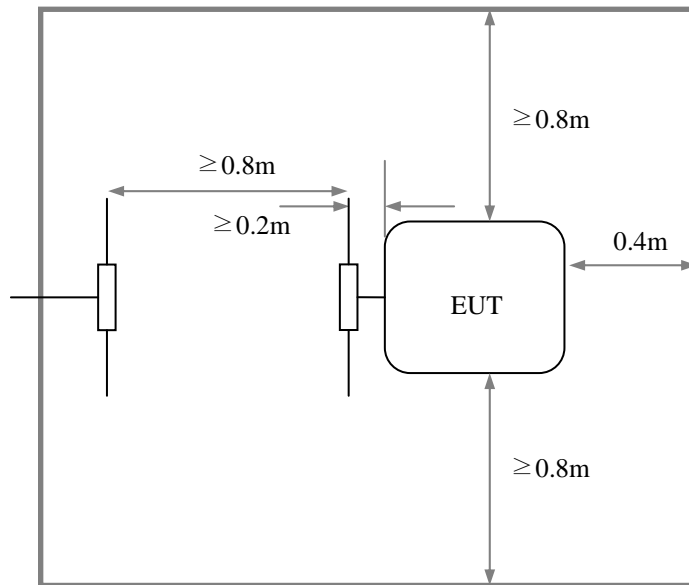


Note: The detailed description of measuring facility was found to be in compliance with Federal Communications Commission requirements of §2.948 according to ANSI 63.4 on June 29,2000

Description of Test

Conducted Emission

1. Test set-up and test procedure



The mains terminal disturbance voltage was measured with the equipment under test (EUT) in a screened room. The EUT was connected to an Artificial mains network (AMN) placed on the floor. The EUT was placed on a non-metallic table 0.4 m from the reference ground plane (RGP). The distance to other metallic surfaces was at least 0.8 m. Amplitude measurements were performed with a quasi-peak and a average detector.

2.Measurement uncertainty

Mains terminal disturbance voltage, quasi-peak detection : ± 1.97 dB

Mains terminal disturbance voltage, average detection : ± 1.97 dB

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT in the above mentioned way.

Measurement uncertainty is calculated in accordance with ISO "guide to the expression of Uncertainty in measurement". The measurement uncertainty is given with a confidence of 95%.

3.Test protocol

Date of test :June.13, 2009

The measurements with the quasi-peak detector meet the average limit at all frequencies and in all modes of operation, Below data are the representative high-power frequencies to be detected under testing of all modes.

An overview sweep performed with peak detector is included in the test report as chart A1.

Radiated Emission

Preliminary measurements were performed in the 3 m anechoic chamber using broadband antennas, EMI receiver (ESI40, Rohde & Schwarz) to determine the emissions characteristics of the EUT. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found. The receiver was scanned from 30 to 1 000 MHz using bi-log antenna.

Above 1 GHz, a horn antenna is used.

Final measurements were made at 3-meter open area test site using broadband bi-log antenna in range of 30 – 1 000 MHz, which is correlate to levels obtained with a tuned dipole antenna.

For emissions above 1 000 MHz, horn antenna may be used. Measurements were also made for both horizontal and vertical polarization. The horizontal distance between the receiving antenna and the closest periphery of the EUT was 3 meters as described in 8.2.3 of ANSI C 63.4-2003.

Each frequency found during pre-scan measurements was re-examined and investigated using EMI/Field strength meter (ESI40, Rohde & Schwarz) and the bandwidth of the receiver was set to 120 kHz or 1 MHz depending on the frequency or type of signal.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 80 Cm high non-metallic 1 x 1.5 meter table. Each type of accessory provided by manufacture or typical used and support equipment, and interconnecting cables were connected to the EUT during measurement to the typical usage and applicable nearly as practicable.

The turn table containing the system was rotated and antenna height was varied 1 to 4 meters to find worst-case emissions from EUT.

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 from the floor mounted outlet box and the computer aux AC outlet, if applicable, and changing the polarity of the antenna, whichever determined the worst-case emission. Each EME reported was calibrated using internal signal generator.

Test Data

Conducted Emissions

1. Test Data

MEASUREMENT OF MAINS TERMINAL DISTURBANCE VOLTAGE

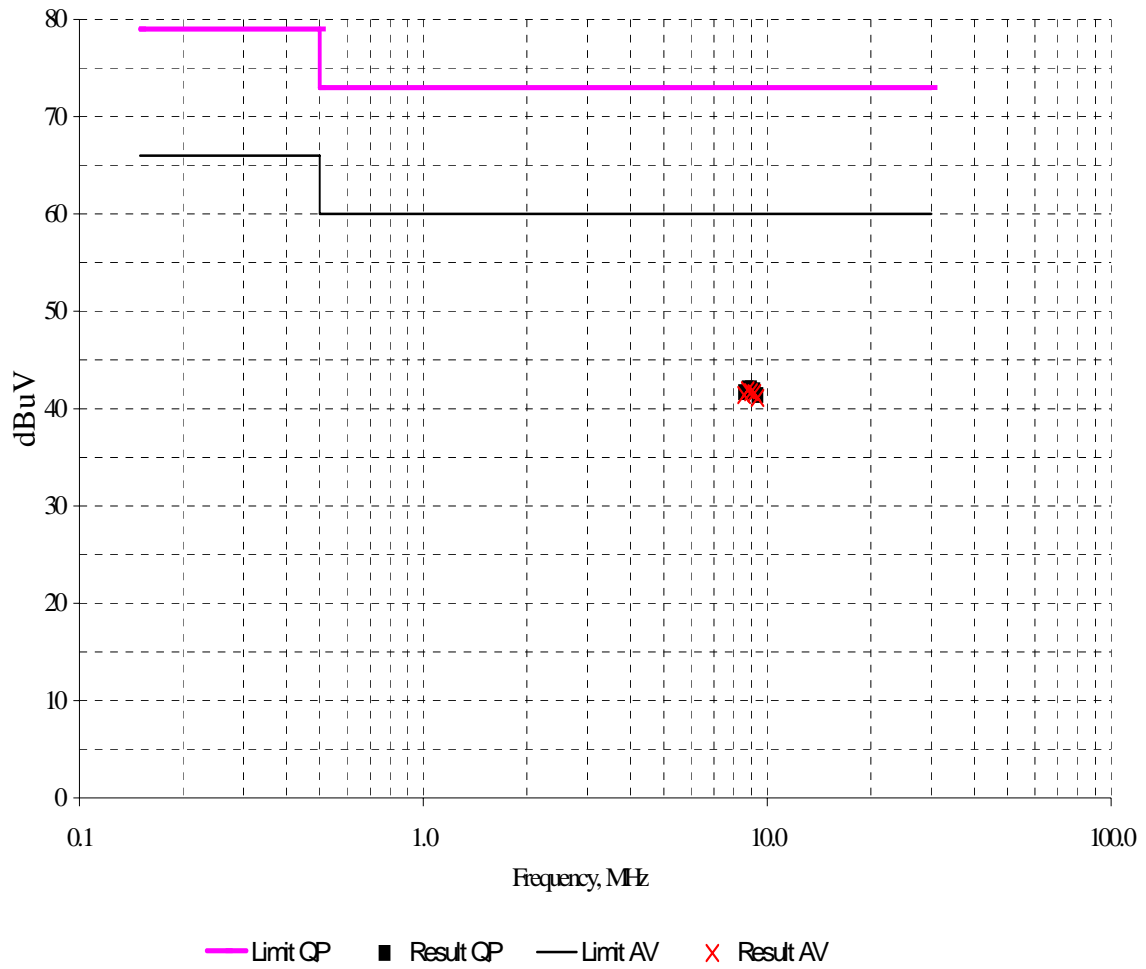
(Operating modes investigated: POWER ON (Normal-Play) mode)

Frequency of the emission [MHz]	Result[dB μ V]		LIMITS, not more[dB μ V]	
	Q-peak	Average	Q-peak	Average
8.57	41.7	41.4	73.0	60.0
8.77	42.1	41.9	73.0	60.0
8.97	42.1	41.7	73.0	60.0
9.17	41.9	41.6	73.0	60.0
9.37	41.4	41.1	73.0	60.0

The notes:

1. In the table brought maximum measured on L1 and N values.
2. Spectrum was checked within the range of frequencies 0.15-30.0 MHz.
3. QP- quasi-peak detector, AV- a detector of average values.
4. If measured QP rates less for average values, measurements AV is not conducted.
5. Results of measurements are brought on graph1.

TEST RESULT OF MAINS TERMINAL DISTURBANCE VOLTAGE
(Operating modes investigated: POWER ON (Normal-Play) mode)

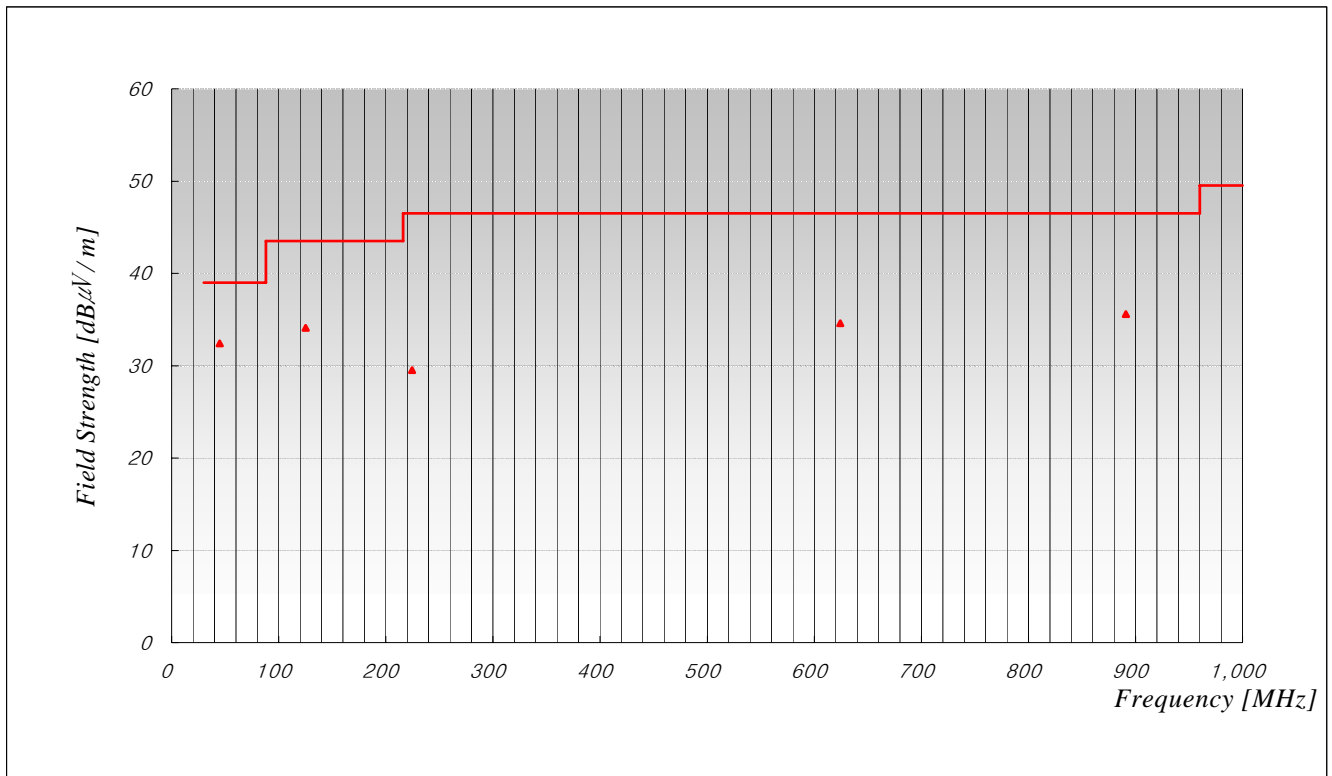


Graph 1

Radiated Emissions

Test mode: Normal Play

Frequency [MHz]	Polarization		Result [dB μ V / m]	Limit [dB μ V / m]	Margin [dB]
	Hor	Ver	Q-peak	Q-peak	Q-peak
44.8	Hor <input type="checkbox"/>	Ver <input checked="" type="checkbox"/>	32.4	39.0	6.6
125.2	Hor <input type="checkbox"/>	Ver <input checked="" type="checkbox"/>	34.1	43.5	9.4
224.5	Hor <input type="checkbox"/>	Ver <input checked="" type="checkbox"/>	29.5	46.5	17.0
624.3	Hor <input checked="" type="checkbox"/>	Ver <input type="checkbox"/>	34.6	46.5	11.9
891.0	Hor <input checked="" type="checkbox"/>	Ver <input type="checkbox"/>	35.6	46.5	10.9



NOTES:
 1. All modes of operation were investigated and the worst-case emissions are reported.

Radiated Measurements at 3-meters

Radiated Emissions (Above 1GHz)

Test mode: Normal Play

Frequency [GHz]	Polarization Hor / Ver	Result [dB μ V / m] Average	Limit [dB μ V / m] Average	Margin [dB] Average
1.57	Hor <input checked="" type="checkbox"/> Ver <input type="checkbox"/>	31.5	54.0	22.5
2.74	Hor <input type="checkbox"/> Ver <input checked="" type="checkbox"/>	28.4	54.0	25.6
3.69	Hor <input type="checkbox"/> Ver <input checked="" type="checkbox"/>	30.9	54.0	23.1
4.15	Hor <input type="checkbox"/> Ver <input checked="" type="checkbox"/>	32.2	54.0	21.8

Note:

1. The worst-case points are reported
2. An infrared remote control will be considered as a part of the main unit and be tested together.
3. During the test the ENTER button of an infrared remote control was pressed.
4. All modes of operation were investigated and the worst-case emissions are reported.

adiated Measurements at 3-meters

Test Equipment

Equipment	Manufacturer	Type	. Serial No.
Test receiver	R&S	ESP3	101012
Artificial Mains Network	R&S	ESH2-Z5	892107/017
Test receiver	R&S	ESPI7	100128
Bi-Log Antenna	Schwarzbeck	VULB 9160	9160-3266
Horn Antenna	Schwarzbeck	9120D	184
Spectrum Analyzer	Agilent	E4402B	MY44211555
Amplifier	HP	HP8447F	2805A02810
Preamplifier	Agilent	8449B	3008A02252
EMI Test Receiver	R&S	ESCS30	100094

R&S = Rohde & Schwarz