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Quality & Reliability Center

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CERTIFICATION OF COMPLIANCE

Date of Issue : July 20, 2001

Test Report No : 00431-4521-F1156

Applicant : LG Electronics Inc.
Regulation : FCC Part 15 Class B
Test procedure : ANSI C63.4-1992
Equipment Class : UnIntentional Radiators – Digital device
EUT Type : 60 Inch Plasma Monitor

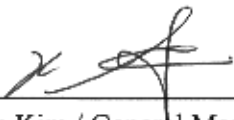
Trade Name(s): Model No.:
LG **MU-60PZ10B**

Other OEM Brand(s) / Model(s) :
Zenith **DPDP60W**

The difference between above OEM model and MU-60PZ10B are only a model name and brand name. The technical characteristic is same.

This device has been verified to comply with the applicable requirements in the FCC Part 15 and was tested in accordance with the measurement procedures specified in ANSI C63.4-1992.

I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.


Kyeom-Soon Kim / General Manager
Quality and Reliability Center
LG Electronics Inc.


NVLAP Lab Code:200040-0

REPORT FOR A DIGITAL DEVICE

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.

U.S. Responsible Party :	LG Electronics USA Inc.
Address:	6133 North River Road, Suite 1100 (Riverway Plaza) Rosemont, IL 60018, USA
Contact Person:	P.H.Byun, General Manager
Telephone No.:	(847) 692-4630 EXT.329
Manufacturer :	LG Electronics Inc. Kumi TV Plant
Address:	642 Jinpyoung-dong Kumi-City Kyoungsangbuk-do, 730-360, KOREA
FCC ID No. :	BEJMU60PZ10
EUT Class :	UnIntentional Radiators - Digital device
EUT Type :	60 Inch Plasma Monitor
Trade Name :	LG
Model No. :	MU-60PZ10B
Rule Part :	FCC Part 15 Class B
Test Procedure :	ANSI C63.4-1992
Date of Test :	July 18-19, 2001
Date of Receipt of EUT :	July 10, 2001
Date of Issue :	July 20, 2001
Test Report No. :	00431-4521-F1156
Test Result :	Positive

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Quality and Reliability Center reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production unit of this model are manufactured with identical electrical and mechanical components.

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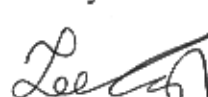
The Quality and Reliability Center was accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code : 200040-0.

Tested by :



D.H.LEE / Research Engineer
Quality and Reliability Center
LG Electronics Inc.

Reviewed by :



J. C. Lee / Senior Engineer
Quality and Reliability Center
LG Electronics Inc.

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1. GENERAL INFORMATION

1.1 Descriptions of equipment under test (EUT)

- 1.1.1 Manufacturer : LG Electronics Inc Kumi TV Plant
642 Jinpyoung-dong Kumi-City
Kyoungsangbuk-do, 730-360, KOREA
- 1.1.2 EUT Type: 60 Inch Plasma Monitor
- 1.1.3 Model No. : MU-60PZ10B
- 1.1.4 Serial No. : Not attached
- 1.1.5 Trade Name : LG
- 1.1.6 FCC ID No. : BEJMU60PZ10
- 1.1.7 System characteristic and descriptions
 - a) Max. Resolution: 1280 X 1024 (Dot)
 - b) Port/Connector(s): Component Input(3X), A/V Input(3X), Speaker(2X),
RGB-PC/RGB-DTV, Audio in(2X)
 - c) Power Supply: AC 120V, ~60Hz, 320W

1.2 Regulations applied to EUT

FCC Part 15 Class B
: The Limit of CISPR 22 Class B apply in this test according to Part 15.107. e) and 15.109. g)

1.3 Measurement procedure

ANSI C63.4-1992

1.4 Measurement place

LG Electronics Inc. Quality and Reliability Center
36, Munlae-dong, 6-ga, Youngdungpo-gu, Seoul 150-096, Korea

2. GENERAL TEST CONDITIONS

The test data contained in this report were obtained by use of the measurement method recommended in FCC Rules, 47 C.F.R. § 15.31(a)(6), with equipment and at the test site filed by the Federal Communications Commission(FCC). The technical standard for a computing device is set forth in the computing devices of Part 15 of FCC Rules. The measurement for radiated emissions and power-line conducted emissions were performed in accordance with the procedures described in ANSI C63.4-1992.

2.1 Operating conditions of EUT

According to the requirements in the computing devices of Part 15, the measurement was made at each function of the EUT being connected with appropriate cables and peripherals. All measurement was investigated under operating conditions of clause 11.1 of ANSI C63.4-1992.

2.2 Stabilization of EUT operating

The EUT was operated for sufficient minutes before testing to make it stabilized in a normal operating condition. The power supplied to the EUT was filtered to meet the requirements.

2.3 Temperature and humidity

The measurement data in this report was obtained at the temperature in the range of 10 to 30 C and humidity in the range of 30 to 80%.

3. TEST SITE

3.1 Semi-anechoic chamber

Measurement of radiated emissions from EUT was made at semi-anechoic chamber that has been in compliance with Federal Communications Commissions(FCC) requirements of clause 2.948 according to ANSI C63.4-1992 on Jan. 29 , 2001.

3.2 A shielded enclosure

The measurement of was made power line conducted emissions in a shielded enclosure providing sufficient shielding effectiveness.

4. CALIBRATIONS OF MEASURING INSTRUMENTS

All measurements were made with instruments calibrated according to the recommendation by manufacturer. Measurement of radiated emissions and power line conducted emissions were made with instruments conforming to American National Standard Specification, ANSI C63.4-1992. The calibration of measuring instrument, including any accessories that may affect test results, was performed according to the recommendation by manufacturer.

5. DESCRIPTION OF TEST CONDITION

5.1 Power line conducted emission measurements

5.1.1 Shielded enclosure

The measurement for power-line emissions from EUT was made in shielded enclosure which provides sufficient shielding effectiveness enough not to affect test results.

5.1.2 Detector function selection and bandwidth

During conducted emission measurement, a radio noise meter that has a CISPR quasi-peak detector with 10 KHz IF bandwidth of 6 dB was utilized.

5.1.3 Frequency range to be scanned

For conducted emissions measurement, frequency range of 150KHz to 30MHz included, was investigated.

5.1.4 Unit of measurement

Test results for conducted emissions are reported in microvolts.

5.1.5 Line impedance stabilization network (LISN)

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A LISN with characteristics that conform to the requirements of ANSI C63.4-1992 was used for the measurement of conducted power-line radio noise; (50 microhenries / 50 ohms). Chassis and earth-points for grounding of the LISN were earth-grounded.

5.1.6 Test conditions and configuration of EUT

The EUT was configured and operated in all modes of operation so as to find the maximum enumeration of emissions from EUT.

The EUT has designed to use the public AC lines with rated AC voltage as specified in Owner's manual and Installation' manual of EUT and filtered to meet the requirement. AC power was supplied to the EUT through LISN with characteristics described in 5.1.5 of part I of this report.

The EUT was placed on a 1 m×2.0 m×80 Cm high wooden table which is place on the earth-grounded conducting surface larger than 2 square meter. The vertical conducting surface was replaced with Horizontal ground plane. Length of the power lead in excess of 80 Cm horizontally separating the EUT from LISN was folded back-and-forth form at the center of the power cord not exceeding 40 Cm in length.

Each type of accessory provided by manufacturer or typically used and support equipment were connected to the EUT during measurement to the typical usage and applicable as nearly as practicable.

5.1.7 Measurement uncertainty

Power line conducted emission measurements : $\pm 3\text{dB}$

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

The measurement uncertainty was calculated in accordance with NAMAS NIS 81 : The treatment of uncertainty in EMC measurement.”

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

5.2 Radiated emissions measurements

5.2.1 Test site

Measurements were made in semi-anechoic chamber as described at 3.1 in this report.

5.2.2 Detector function selection and bandwidth

In radiated emissions measurement, a field strength meter that has a CISPR quasi-peak detector was used. The 6 dB bandwidth of the detector of instrument is 120 KHz over frequency range of 30 to 1000 MHz. Emissions to be scanned above 1000 MHz may be detected in peak mode.

5.2.3 Unit of measurement.

Test results of radiated emissions measurement are reported in microvolts per meter at the specific distance. Using the unit of $\text{dB}\mu\text{V}$ on the test instrument, the indication unit was converted to field strength unit of $\mu\text{V}/\text{m}$ as following method;

$$F (\mu\text{V}/\text{m}) = 10^{\{(R+CL+AF)/20\}} (\mu\text{V}/\text{m})$$

here,

F : Field Strength in $\mu\text{V}/\text{m}$,

R : Meter Reading Level in $\text{dB}(\mu\text{V})$,

CL : Cable Loss from antenna to meter in dB,

AF : Antenna Factor of receiving antenna in $\text{dB}(/m)$

5.2.4 Antennas

Measurements were made using calibrated half-wave tuned dipole antenna for final measurements and biconiLog antenna in range of 30 to 1000 MHz for preliminary measurements to determine the emission characteristics of the EUT. 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 C63.4-1992.

5.2.5 Frequency range to be scanned

For radiated emissions measurements, the spectrum in the range of 30 to 1000 MHz and above, if found, was investigated.

5.2.6 Test conditions and configuration of EUT

The EUT was configured and operated in all modes of operation so as to find the maximum enumeration of emissions from EUT.

The EUT was placed on a 80 Cm high non metallic $1\text{m} \times 2\text{m}$ table. The turn table containing the system was rotated and the antenna height was varied 4 m to find the maximum enumeration of emissions from EUT.

Each type of accessory provided by manufacturer or typically used and support equipment were connected to the EUT during measurement to the typical usage and applicable as nearly as practicable.

5.2.7 Measurement uncertainty

Radiated emissions measurements, biconiLog antenna : $\pm 5\text{dB}$

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

The measurement uncertainty was calculated in accordance with NAMAS NIS 81 : The treatment of uncertainty in EMC measurement.”

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

6. MEASURING INSTRUMENTS AND SET-UP

6.1 Power line conducted emissions

6.1.1 Test receiver

Rohde & Schwarz, Model ESH3 (9 KHz to 30 MHz)

Detector function : CISPR Quasi-Peak

IF Bandwidth : 10 KHz

6.1.2 Line Impedance Stabilization Network (LISN)

EUT: Rohde & Schwarz, Model ESH2-Z5

Peripheral: EMCO, Model 3725/2

Impedance Characteristic : 50uH / 50 Ω

6.2 Radiated emissions

6.2.1 Test receiver

Rohde & Schwarz, Model ESVP (20 MHz to 1300 MHz)

Rohde & Schwarz, Model ESMI (20Hz to 26.5GHz)

Detector function : CISPR Quasi-Peak

IF Bandwidth : 120 KHz

6.2.2 Receiving Antennas.

a) Schwarzbeck, Model VHAP : Tuned dipole antenna (30 to 300 MHz)

b) Schwarzbeck, Model UHAP : Tuned dipole antenna (300 to 1000MHz)

c) EMCO, Model 3142B: BiconiLog Antenna (26 ~ 2000 MHz)

e) EMCO, Model 3115 : Double ridged horn antenna (1 to 18GHz)

7-2. Radiated emissions (§ 15.109)

Product : 60 Inch Plasma Monitor
 Model : MU-60PZ10B
 Serial No. : N/A
 Test Date : July 19, 2001

Detector : Quasi-peak

Test distance : 3m

Test Limits : CISPR 22 CLASS B

Frequency(MHz)	Reading(dBuV)	AF(dB/m)	CL(dB)	Pol.	F/S(dBuV/m)	Limit(dBuV/m)	Margin(dB)
30.17	9.1	21.0	3.4	V	33.5	40.5	-7.0
41.20	14.0	15.0	3.5	V	32.5	40.5	-8.0
80.00	18.4	13.2	3.8	V	35.4	40.5	-5.1
200.00	15.6	12.8	4.5	H	32.9	40.5	-7.6
229.10	16.0	12.8	4.5	H	33.3	40.5	-7.2
240.00	16.8	12.8	4.5	H	34.1	47.5	-13.4
323.99	20.8	15.3	4.8	V	40.9	47.5	-6.6
400.00	14.0	17.4	5.2	H	36.6	47.5	-10.9
540.60	10.3	19.8	5.5	V	35.6	47.5	-11.9
560.00	11.4	20.9	5.7	V	38.0	47.5	-9.5

Result : Positive

Limit Calculation 30-230 MHz : $40.5 \text{ dBuV/m} = 30 \text{ dBuV/m} + 20 \log_{10} (10/3) [\text{dB}]$

* Limit at 3m

30-230 MHz : $40.5 \text{ dB}\mu\text{V/m}$

230-1000MHz : $47.5 \text{ dB}\mu\text{V/m}$

NOTES:

1. All modes of operation were investigated.
2. The Limits of CISPR 22 Class B apply in this radiated emissions test according to § 15.109. g)
3. The EUT was tested under the condition that all of support device and accessories described in clause 9 in this test report was connected and normally operated during the testing.
4. All cables was maximized on the testing.
5. All other emissions are non-significant.
6. AF = Antenna factor CL = Cable loss F/S = Field Strength
7. The conversion Factor for 10m to 3m was used as $20 \times \log_{10}(10/3) [\text{dB}]$.

8. LIST OF INSTRUMENTS USED

Type	Maker	Model	Cal.Date	N Date	Control No.
Test receiver	R&S	ESVP	04-Nov.-00	04-Nov.-01	F0033966AAZA
Test receiver	R&S	ESMI	04-Nov.-00	04-Nov.-01	F0034898AAZA
Test receiver	R&S	ESH3	04-Nov.-00	04-Nov.-01	F0000193AAZL
LISN	R&S	ESH2-Z5	09-Aug.-00	09-Aug.-01	F0033973AAZA
LISN	EMCO	3725/2	05-Oct.-00	05-Oct.-01	F0022876AAZA
BiconiLog antenna	EMCO	3142B	05-Jan-01	05-Jan.-02	
Tuned dipole antenna	S/B	VHAP	11-Aug.-00	11-Aug.-01	F0000406AAZB
Tuned dipole antenna	S/B	UHAP	11-Aug.-00	11-Aug.-01	F0000407AAZB
Double ridged horn antenna	EMCO	3115	02-Nov.-00	02-Nov.-02	F0000391AAZB

H/P : Hewlett-packard
Cal.Date : Calibration date

R&S : Rohde & Schwarz
N Date : Next calibration date

S/B : Schwarzbeck

9. SUPPORT DEVICE & ACCESSORIES USED

9-1. Support device

9-1-1. DVD Player

Model :	DV-414
Maker :	Pioneer
S/N :	TBNN099244U
FCC ID	VERIFICATION

9-1-2. VCR

Model :	VRD4235
Maker :	Zenith
S/N :	151-61100998
FCC ID	BEJ9QKE40120

9-1-3. Desktop computer

Model :	7EL310
Maker :	COMPAQ
S/N :	174987-004
FCC ID	DOC (CLASS B)

9-1-4. Keyboard

Model :	KU-9978
Maker :	COMPAQ
S/N :	B35760GGAKC174A
FCC ID	DOC (CLASS B)

9-1-5. Computer Mouse

Model :	M-S48a
Maker :	LOGITECH
S/N :	470009-796
FCC ID :	JNZ201213

9-1-6. Printer

Model :	2225C+
Maker :	HP
S/N :	JPMHE03752
FCC ID :	DSI6XU2225