

FCC EVALUATION REPORT FOR CERTIFICATION

Applicant : LG Electronics Inc.

19-1, Cheongho-ri, Jinwi-myeon,

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Myoung-Kyu Lee, Chief research engineer

Date of Issue : January 29, 2010

Order Number: GETEC-C1-10-030

Test Report Number: GETEC-E3-10-012

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJ32LD360LUA

Applicant: LG Electronics Inc.

Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: LCD TV/Monitor
Type of Authority	: Certification
Model Name	: 32LD360L-UA
Trade Name	: LG

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 / Canadian standard ICES-003

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,

Reviewed by,


Soon-Hoon Jeong, Engineer
GUMI College EMC center


Jae-Hoon Jeong, Senior Engineer
GUMI College EMC center



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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: LG Electronics Inc.

Applicant Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.

Manufacturer: LG Electronics Inc.

Manufacturer Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.

Contact Person: Mr. Myoung-Kyu Lee, Chief research engineer

Tel Number: +82-31-610-9623

- **FCC ID.** BEJ32LD360LUA
- **EUT Type** LCD TV/Monitor
- **Model Name** 32LD360L-UA
- **Trade Name** LG
- **Serial Number** Prototype
- **Rule Part(s)** FCC Part 15 Subpart B
- **Type of Authority** Certification
- **Test Procedure(s)** ANSI C63.4 (2003) / Canadian standard ICES-003
- **Dates of Test** January 26 ~ 27, 2010
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-10-012
- **Dates of Issue** January 29, 2010



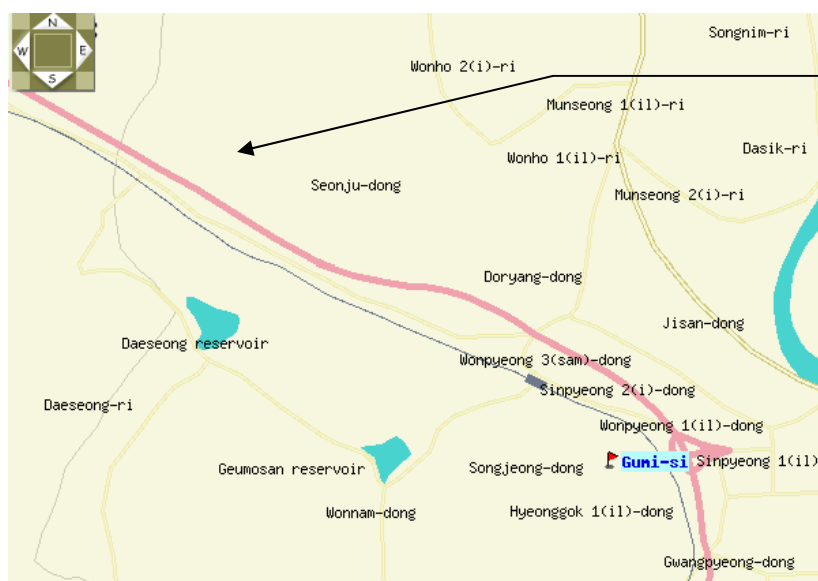
2. Introduction

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 9 kHz to 40 GHz (ASNI C63.4-2003) was used in determining radiated and conducted emissions emanating from **LG Electronics Inc. LCD TV/Monitor (Model Name: 32LD360L-UA)**

These measurement tests were conducted at **Gumi College EMC Center**.

The site address is 407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.

This test site is one of the highest point of Gumi 1 college at about 200 km away from Seoul city and 40 km away from Daegu 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 (2003)



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Gyeongbuk 730-711, Korea.
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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 **LG Electronics Inc. LCD TV/Monitor (Model Name: 32LD360L-UA)**
FCC ID.: BEJ32LD360LUA

MODELS		26LD360L (26LD360L-UA)	32LD360L (32LD360L-UA)
Dimensions (Width x Height x Depth)	With stand	26.1 x 8.1 x 19.0 inches 663.0 x 206.8 x 484.0 mm	31.4 x 22.2 x 8.1 inches 800.0 x 565.0 x 206.8 mm
	Without stand	26.1 x 16.6 x 3.1 inches 663.0 x 423.0 x 79.9 mm	31.4 x 20.0 x 2.9 inches 800.0 x 509.0 x 73.8 mm
Weight	With stand	16.0 lbs / 7.3 kg	20.2 lbs / 9.2 kg
	Without stand	13.6 lbs / 6.2 kg	18.0 lbs / 8.2 kg
Power requirement Television System Program Coverage External Antenna Impedance		AC100-240V ~ 50/60Hz NTSC-M, ATSC, 64 & 256 QAM VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135 75 ohm	
Environment condition	Operating Temperature Operating Humidity	32 ~ 104°F (0 ~ 40°C) Less than 80%	
	Storage Temperature Storage Humidity	-4 ~ 140°F (-20 ~ 60°C) Less than 85%	

-. Maximum Frequency range : 400 MHz



3.2 Support Equipment / Cables used

3.2.1 Used Support Equipment

Description	Manufacturer	Model Name	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
Keyboard	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID: AQ6-23K15
PS2 mouse	LOGITECH	M-S69	S/N: 334684-108 FCC ID: JNZ211443
Joystick	MICROSOFT	X05-92626	S/N: 9262600296169 FCC ID: DoC
DVD player	LG Electronics Inc	LC-954	S/N: 3850R-Z674K FCC ID: DoC
Printer	Hewlett Packard	970CXI	S/N: MY9B01F1FG FCC ID: DoC
TV signal generator	FLUKE	54200	S/N: 831011 FCC ID: DoC
USB memory stick	SM Electronics	UDD-32M	S/N: N/A FCC ID: DoC

See “Appendix D – Test Setup Photographs” for actual system test set-up

3.2.2 System configuration

Description	Manufacturer	Model Name	S/N & FCC ID
None	-	-	-



3.2.3 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.80 m unshielded
RGB(D-sub) in cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
HDMI/DVI in cable	Connected to the EUT and PC	2.00 m shielded
Audio(RGB/DVI) in cable	Connected to the EUT and PC	1.80 m shielded
Remote control in cable	Connected to the EUT and PC	1.20 m shielded with a ferrite core
RS-232C (Control & Service) in cable	Connected to the EUT and PC	1.30 m shielded with two ferrite cores
AV in cable	Connected to the EUT and DVD player	3.00 m shielded
Component cable	Connected to the EUT and DVD player	2.00 m shielded
Component sound cable	Connected to the EUT and DVD player	3.00 m shielded
Antenna cable	Connected to the EUT and TV signal generator	10.00 m shielded
Speaker out cable	Connected to the EUT and DVD player	3.00 m shielded

3.3 Modification Item(s)

- None



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 120 V / 60 Hz

- Test Mode(s)

- . **Monitor mode**

Radiated emission: 1 360 × 768 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

Conducted emission: 1 360 × 768 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

1 024 × 768 / 60 Hz (RGB: Analog), 640 × 480 / 60 Hz (RGB: Analog)

◆ Operating test pattern

- . “H” character scrolling mode (Font size: 10)
- . Black background white character
- . Brightness and contrast was adjusted as maximum level
- . 1 kHz sound tone with winamp player

- . **USB memory stick play mode**

◆ Operating test pattern

- . Continuous playback mode with picture file and 1 kHz audio files.

“The verification report for TV/AV mode would be issued by LG Electronics Inc.”



4.2 Conducted Emission

The Line conducted emission test facility is inside a 4 m × 8 m × 2.5 m shielded enclosure. (FCC Registration No.: 100749)

The EUT was placed on a non-conducting 1.0 m by 1.5 m table, which is 0.8 m in height and 0.4 m 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 150 kHz to 30 MHz with 20 ms 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 9 kHz. 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 cm ~ 40 cm.

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

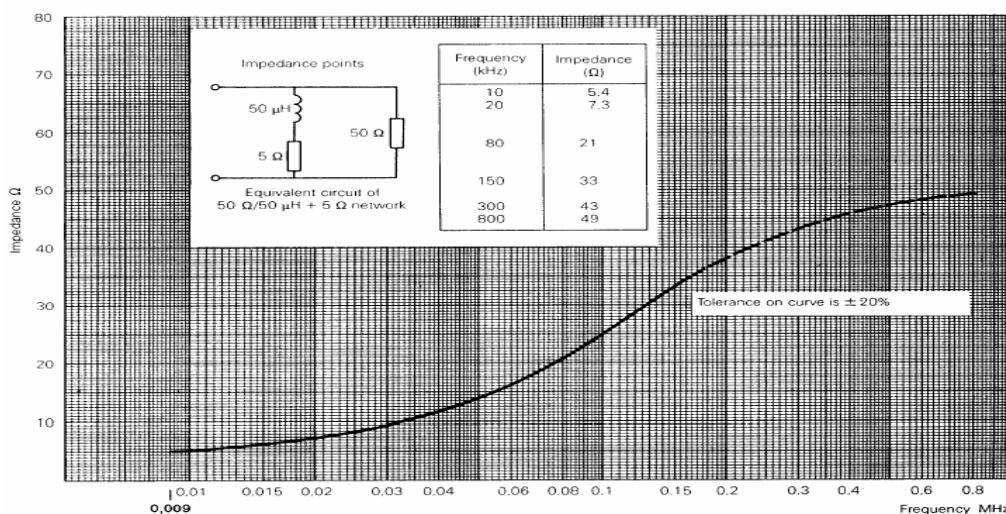


Fig 2. Impedance of LISN



4.3 Radiated Emission

Preliminary measurements were conducted 3 m 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.

Final measurements were made 3 m chamber (FCC registration No.: 443957) and/or 10 m OATS (FCC registration No.: 100749).

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 120 kHz or 1 MHz 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 0.8 m high non-metallic 1.0 m × 1.5 m 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

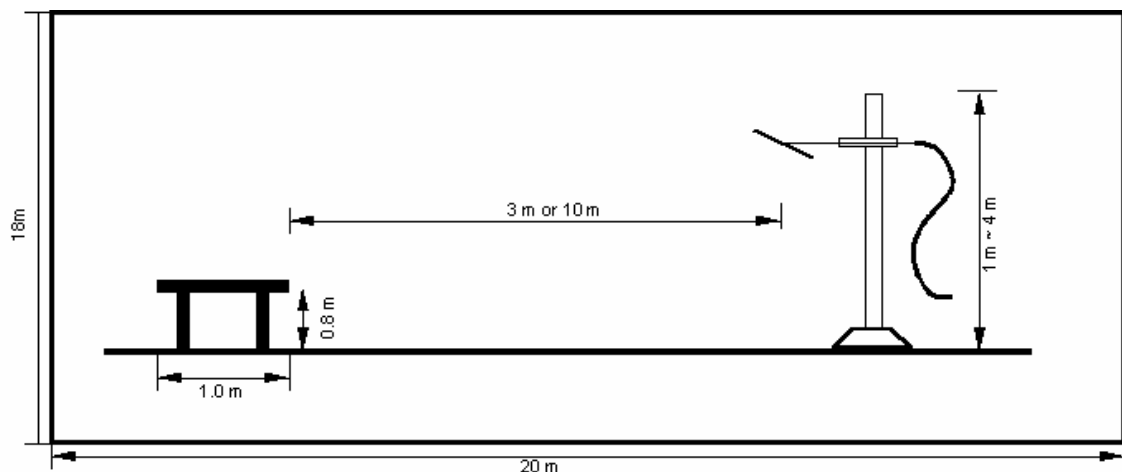


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 25 °C
Relative Humidity : 39 % R.H.

5.2 Test Set-up

The conducted emission measurements were performed in the shielded room.

The EUT was placed on wooden table, 0.8 m heights above the floor, 0.4 m from the reference ground plane (GRP) wall and 0.8 m 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 %.

Test Items	Uncertainty	Remark
Conducted emission (9 kHz ~ 150 kHz)	± 2.69 dB	Confidence levels of 95 % (k=2)
Conducted emission (150 kHz ~ 30 MHz)	± 4.16 dB	Confidence levels of 95 % (k=2)



5.4 Limit

RFI Conducted	FCC Limit(dB) Class B	
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.		

5.5 Test Equipment used

Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 10. 2010
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 10. 2010
■ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 10. 2010
□ - ISN T8	TESEQ. GmbH	ISN	24568	10. 16. 2010

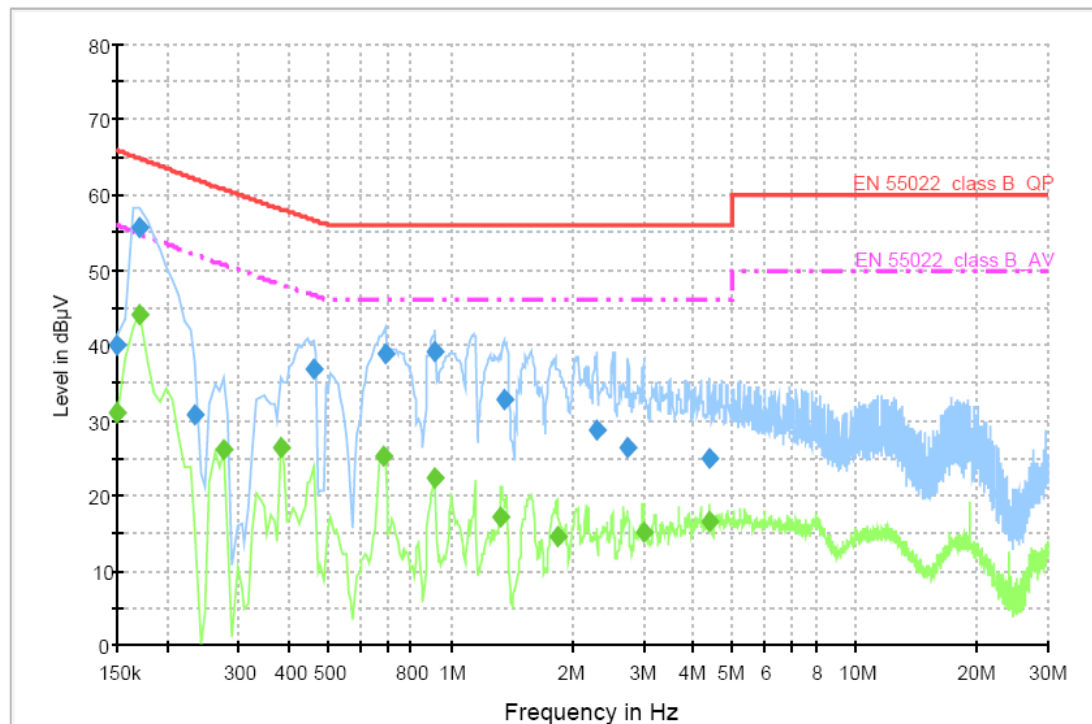
5.6 Test data for Conducted Emission

- . Test Date : January 26, 2010
- . Resolution Bandwidth : 9 kHz
- . Frequency Range : 0.15 MHz ~ 30 MHz



◆ Operating condition: 1 360 × 768 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	40.1	1000.000	9.000	GND	L1	10.0	25.9	66.0	
0.171000	55.5	1000.000	9.000	GND	L1	10.0	9.3	64.8	
0.234000	30.7	1000.000	9.000	GND	L1	10.0	31.4	62.1	
0.458000	36.9	1000.000	9.000	GND	L1	10.0	19.8	56.7	
0.689000	38.9	1000.000	9.000	GND	L1	10.0	17.2	56.0	
0.920000	39.0	1000.000	9.000	GND	L1	10.0	17.0	56.0	
1.361000	32.7	1000.000	9.000	GND	L1	10.1	23.3	56.0	
2.306000	28.8	1000.000	9.000	GND	L1	10.1	27.2	56.0	
2.754000	26.4	1000.000	9.000	GND	L1	10.1	29.6	56.0	
4.350000	25.0	1000.000	9.000	GND	L1	10.2	31.0	56.0	

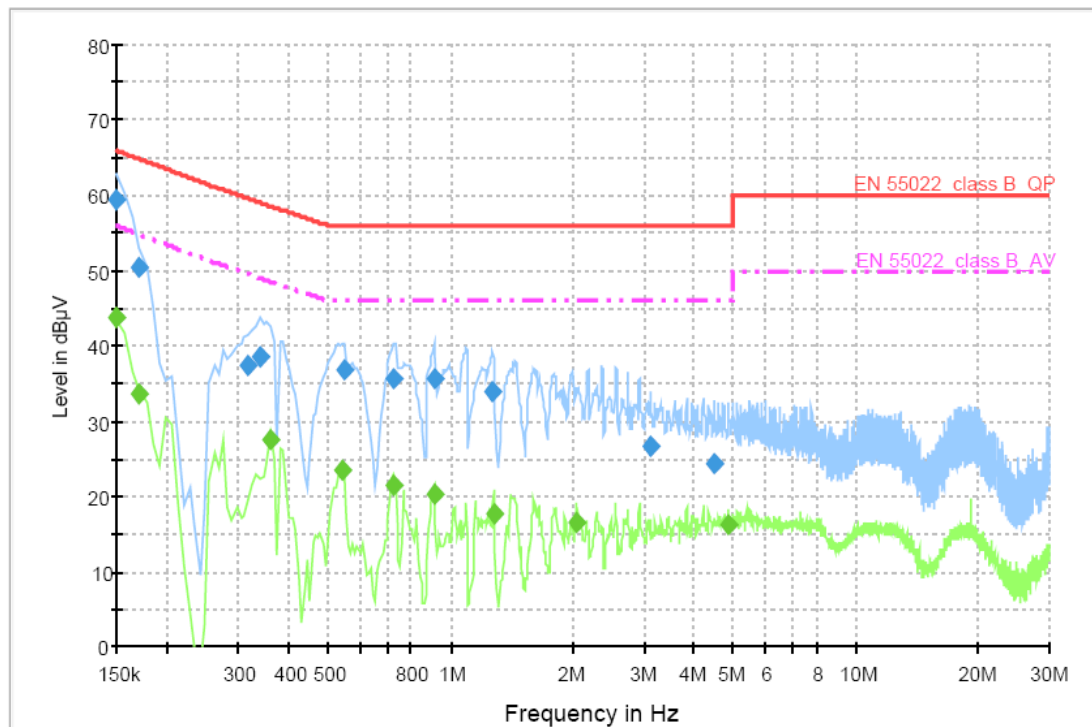
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	31.1	1000.000	9.000	GND	L1	10.0	24.9	56.0	
0.171000	43.9	1000.000	9.000	GND	L1	10.0	10.9	54.8	
0.276000	26.0	1000.000	9.000	GND	L1	10.0	24.7	50.7	
0.381000	26.4	1000.000	9.000	GND	L1	10.0	21.7	48.1	
0.682000	25.2	1000.000	9.000	GND	L1	10.0	20.8	46.0	
0.913000	22.3	1000.000	9.000	GND	L1	10.0	23.7	46.0	
1.333000	17.2	1000.000	9.000	GND	L1	10.1	28.8	46.0	
1.837000	14.4	1000.000	9.000	GND	L1	10.1	31.6	46.0	
2.999000	15.1	1000.000	9.000	GND	L1	10.1	30.9	46.0	
4.357000	16.5	1000.000	9.000	GND	L1	10.2	29.5	46.0	

< Fig 4. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	59.5	1000.000	9.000	GND	N	10.0	6.6	66.0	
0.171000	50.5	1000.000	9.000	GND	N	10.0	14.3	64.8	
0.318000	37.4	1000.000	9.000	GND	N	10.0	22.2	59.6	
0.339000	38.7	1000.000	9.000	GND	N	10.0	20.3	59.0	
0.549000	36.7	1000.000	9.000	GND	N	10.0	19.3	56.0	
0.724000	35.7	1000.000	9.000	GND	N	10.0	20.3	56.0	
0.913000	35.7	1000.000	9.000	GND	N	10.0	20.3	56.0	
1.270000	33.9	1000.000	9.000	GND	N	10.1	22.1	56.0	
3.111000	26.5	1000.000	9.000	GND	N	10.1	29.5	56.0	
4.476000	24.5	1000.000	9.000	GND	N	10.2	31.5	56.0	

Final Measurement Detector 2

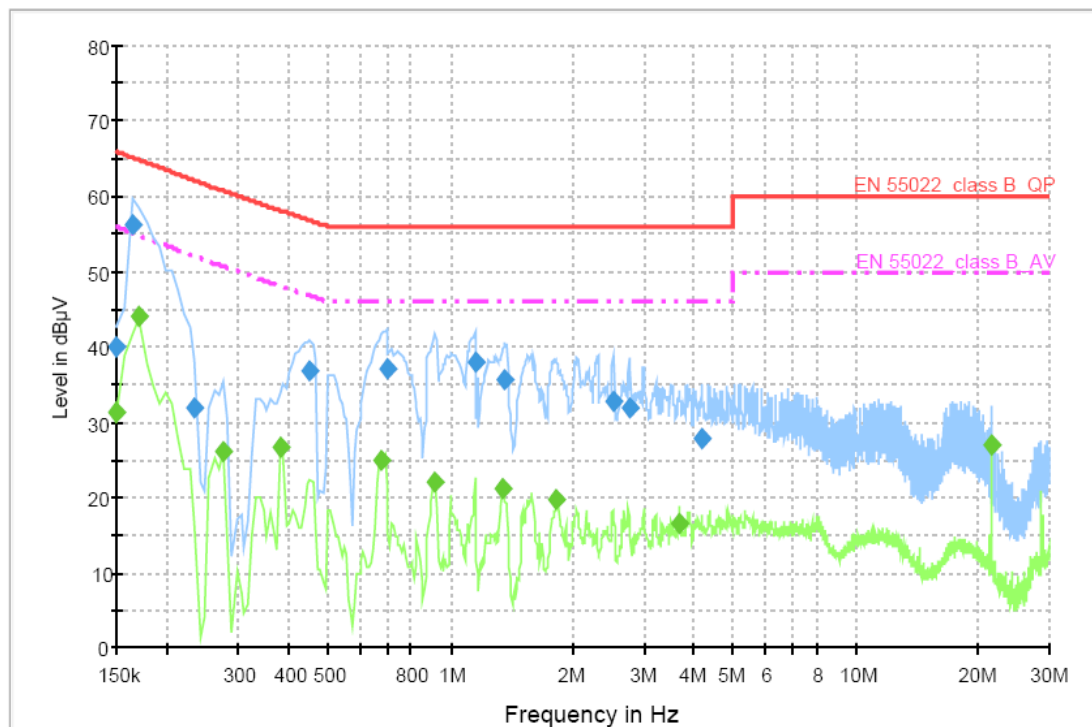
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.8	1000.000	9.000	GND	N	10.0	12.2	56.0	
0.171000	33.7	1000.000	9.000	GND	N	10.0	21.1	54.8	
0.360000	27.7	1000.000	9.000	GND	N	10.0	20.8	48.5	
0.542000	23.5	1000.000	9.000	GND	N	10.0	22.5	46.0	
0.724000	21.5	1000.000	9.000	GND	N	10.0	24.5	46.0	
0.913000	20.3	1000.000	9.000	GND	N	10.0	25.7	46.0	
1.277000	17.8	1000.000	9.000	GND	N	10.1	28.2	46.0	
2.047000	16.6	1000.000	9.000	GND	N	10.1	29.4	46.0	
4.847000	16.3	1000.000	9.000	GND	N	10.2	29.7	46.0	

< Fig 5. Conducted emission result (Neutral line)>



◆ Operating condition: 1 024 × 768 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	40.0	1000.000	9.000	GND	L1	10.0	26.0	66.0	
0.164000	56.3	1000.000	9.000	GND	L1	10.0	8.9	65.2	
0.234000	31.9	1000.000	9.000	GND	L1	10.0	30.2	62.1	
0.451000	36.9	1000.000	9.000	GND	L1	10.0	19.9	56.8	
0.696000	37.2	1000.000	9.000	GND	L1	10.0	18.8	56.0	
1.151000	38.1	1000.000	9.000	GND	L1	10.1	17.9	56.0	
1.361000	35.6	1000.000	9.000	GND	L1	10.1	20.4	56.0	
2.537000	32.8	1000.000	9.000	GND	L1	10.1	23.2	56.0	
2.761000	31.8	1000.000	9.000	GND	L1	10.1	24.2	56.0	
4.175000	27.8	1000.000	9.000	GND	L1	10.2	28.2	56.0	

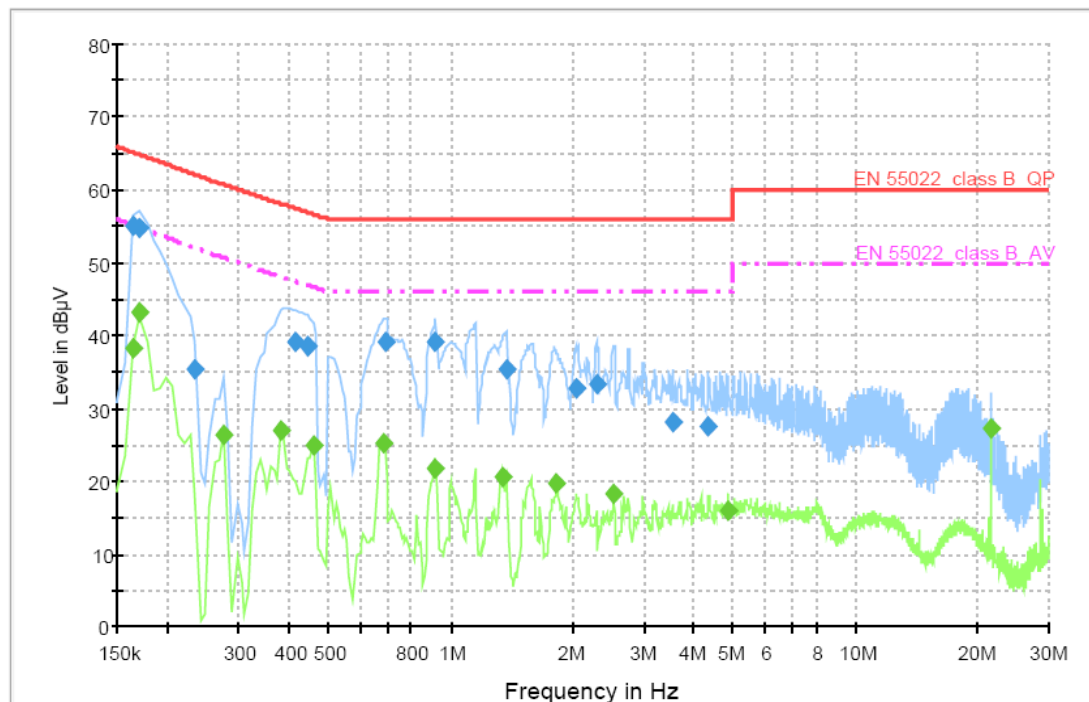
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	31.2	1000.000	9.000	GND	L1	10.0	24.8	56.0	
0.171000	44.0	1000.000	9.000	GND	L1	10.0	10.8	54.8	
0.276000	26.1	1000.000	9.000	GND	L1	10.0	24.6	50.7	
0.381000	26.7	1000.000	9.000	GND	L1	10.0	21.4	48.1	
0.675000	25.1	1000.000	9.000	GND	L1	10.0	21.0	46.0	
0.920000	22.0	1000.000	9.000	GND	L1	10.0	24.0	46.0	
1.340000	21.0	1000.000	9.000	GND	L1	10.1	25.0	46.0	
1.830000	19.7	1000.000	9.000	GND	L1	10.1	26.3	46.0	
3.671000	16.5	1000.000	9.000	GND	L1	10.2	29.5	46.0	
21.598000	26.9	1000.000	9.000	GND	L1	11.1	23.1	50.0	

< Fig 6. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.164000	55.1	1000.000	9.000	GND	N	10.0	10.1	65.2	
0.171000	54.7	1000.000	9.000	GND	N	10.0	10.1	64.8	
0.234000	35.5	1000.000	9.000	GND	N	10.0	26.6	62.1	
0.416000	39.2	1000.000	9.000	GND	N	10.0	18.2	57.4	
0.444000	38.6	1000.000	9.000	GND	N	10.0	18.3	56.9	
0.689000	39.0	1000.000	9.000	GND	N	10.0	17.0	56.0	
0.920000	39.1	1000.000	9.000	GND	N	10.0	16.9	56.0	
1.375000	35.5	1000.000	9.000	GND	N	10.1	20.5	56.0	
2.040000	32.7	1000.000	9.000	GND	N	10.1	23.3	56.0	
2.292000	33.4	1000.000	9.000	GND	N	10.1	22.6	56.0	
3.538000	28.2	1000.000	9.000	GND	N	10.2	27.8	56.0	
4.336000	27.4	1000.000	9.000	GND	N	10.2	28.6	56.0	

Final Measurement Detector 2

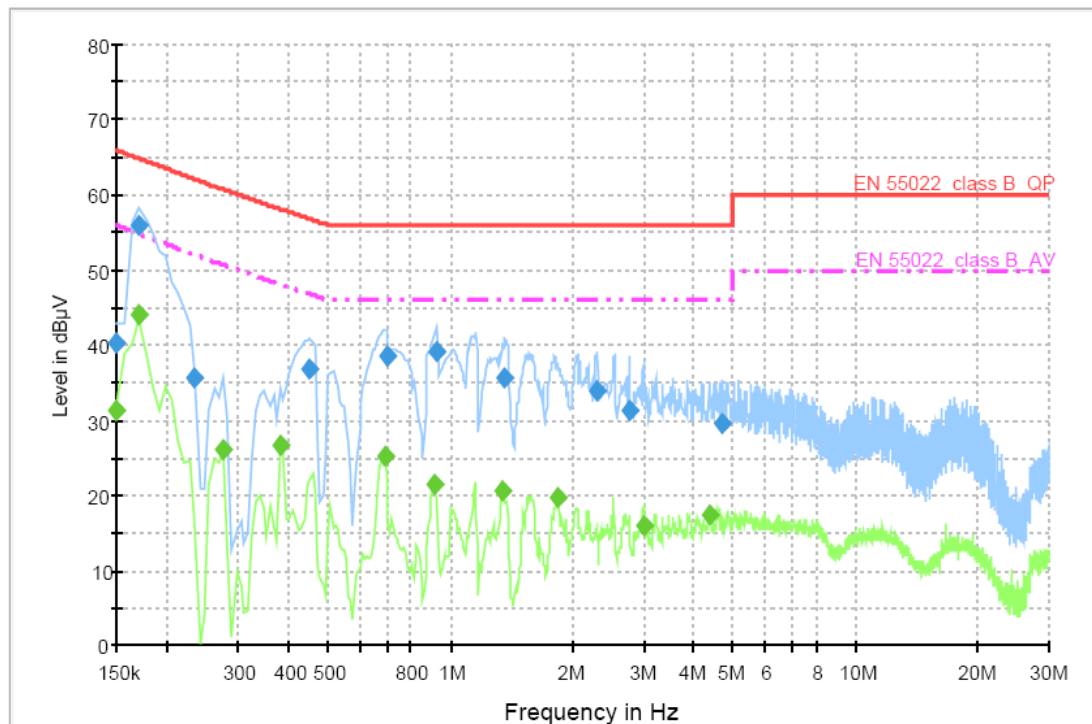
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.164000	38.3	1000.000	9.000	GND	N	10.0	16.9	55.2	
0.171000	43.1	1000.000	9.000	GND	N	10.0	11.7	54.8	
0.276000	26.5	1000.000	9.000	GND	N	10.0	24.2	50.7	
0.381000	26.8	1000.000	9.000	GND	N	10.0	21.3	48.1	
0.458000	24.8	1000.000	9.000	GND	N	10.0	21.9	46.7	
0.682000	25.4	1000.000	9.000	GND	N	10.0	20.6	46.0	
0.920000	21.8	1000.000	9.000	GND	N	10.0	24.2	46.0	
1.347000	20.5	1000.000	9.000	GND	N	10.1	25.5	46.0	
1.830000	19.6	1000.000	9.000	GND	N	10.1	26.4	46.0	
2.523000	18.3	1000.000	9.000	GND	N	10.1	27.7	46.0	
4.847000	16.0	1000.000	9.000	GND	N	10.2	30.0	46.0	
21.598000	27.1	1000.000	9.000	GND	N	10.8	22.9	50.0	

< Fig 7. Conducted emission result (Neutral line)>



◆ Operating condition: 640 × 480 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	40.3	1000.000	9.000	GND	L1	10.0	25.7	66.0	
0.171000	56.1	1000.000	9.000	GND	L1	10.0	8.8	64.8	
0.234000	35.6	1000.000	9.000	GND	L1	10.0	26.5	62.1	
0.451000	36.9	1000.000	9.000	GND	L1	10.0	19.9	56.8	
0.696000	38.7	1000.000	9.000	GND	L1	10.0	17.4	56.0	
0.927000	39.0	1000.000	9.000	GND	L1	10.0	17.0	56.0	
1.368000	35.6	1000.000	9.000	GND	L1	10.1	20.4	56.0	
2.313000	33.8	1000.000	9.000	GND	L1	10.1	22.2	56.0	
2.782000	31.2	1000.000	9.000	GND	L1	10.1	24.8	56.0	
4.714000	29.7	1000.000	9.000	GND	L1	10.2	26.3	56.0	

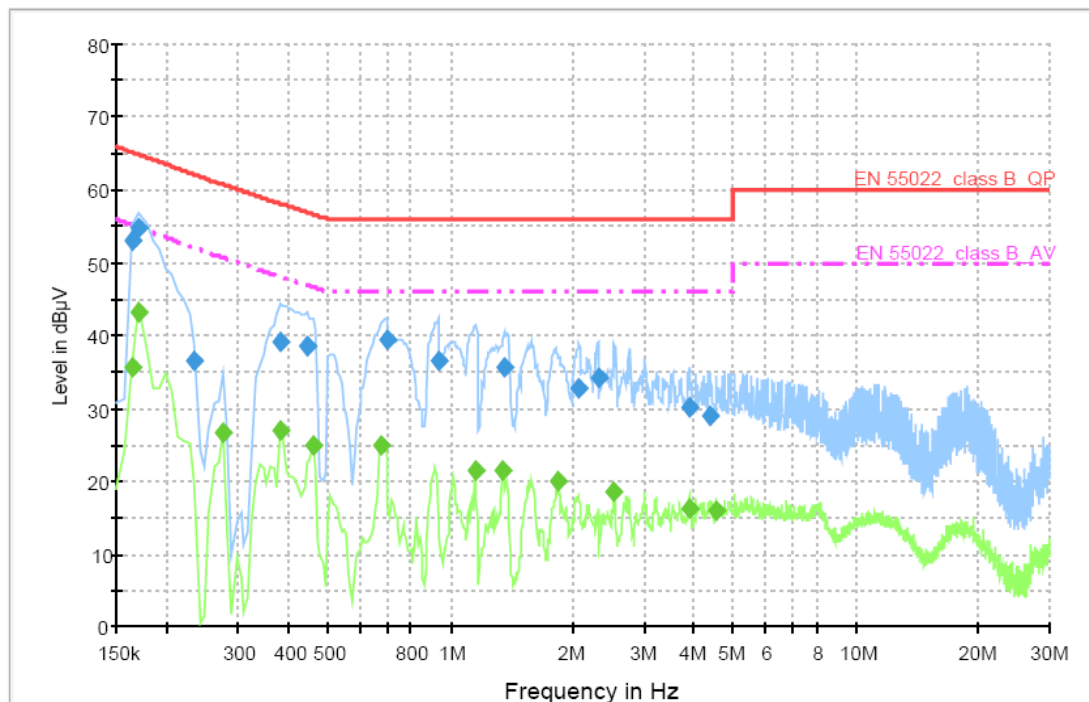
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	31.3	1000.000	9.000	GND	L1	10.0	24.7	56.0	
0.171000	44.0	1000.000	9.000	GND	L1	10.0	10.8	54.8	
0.276000	26.0	1000.000	9.000	GND	L1	10.0	24.7	50.7	
0.381000	26.7	1000.000	9.000	GND	L1	10.0	21.4	48.1	
0.689000	25.2	1000.000	9.000	GND	L1	10.0	20.8	46.0	
0.913000	21.5	1000.000	9.000	GND	L1	10.0	24.5	46.0	
1.340000	20.7	1000.000	9.000	GND	L1	10.1	25.3	46.0	
1.844000	19.7	1000.000	9.000	GND	L1	10.1	26.3	46.0	
2.999000	16.0	1000.000	9.000	GND	L1	10.1	30.0	46.0	
4.357000	17.4	1000.000	9.000	GND	L1	10.2	28.6	46.0	

< Fig 8. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.164000	53.1	1000.000	9.000	GND	N	10.0	12.1	65.2	
0.171000	54.9	1000.000	9.000	GND	N	10.0	9.9	64.8	
0.234000	36.6	1000.000	9.000	GND	N	10.0	25.5	62.1	
0.381000	39.0	1000.000	9.000	GND	N	10.0	19.1	58.1	
0.444000	38.6	1000.000	9.000	GND	N	10.0	18.3	56.9	
0.696000	39.3	1000.000	9.000	GND	N	10.0	16.7	56.0	
0.934000	36.6	1000.000	9.000	GND	N	10.0	19.4	56.0	
1.368000	35.5	1000.000	9.000	GND	N	10.1	20.5	56.0	
2.082000	32.8	1000.000	9.000	GND	N	10.1	23.2	56.0	
2.320000	34.1	1000.000	9.000	GND	N	10.1	21.9	56.0	
3.874000	30.1	1000.000	9.000	GND	N	10.2	25.9	56.0	
4.385000	29.1	1000.000	9.000	GND	N	10.2	26.9	56.0	

Final Measurement Detector 2

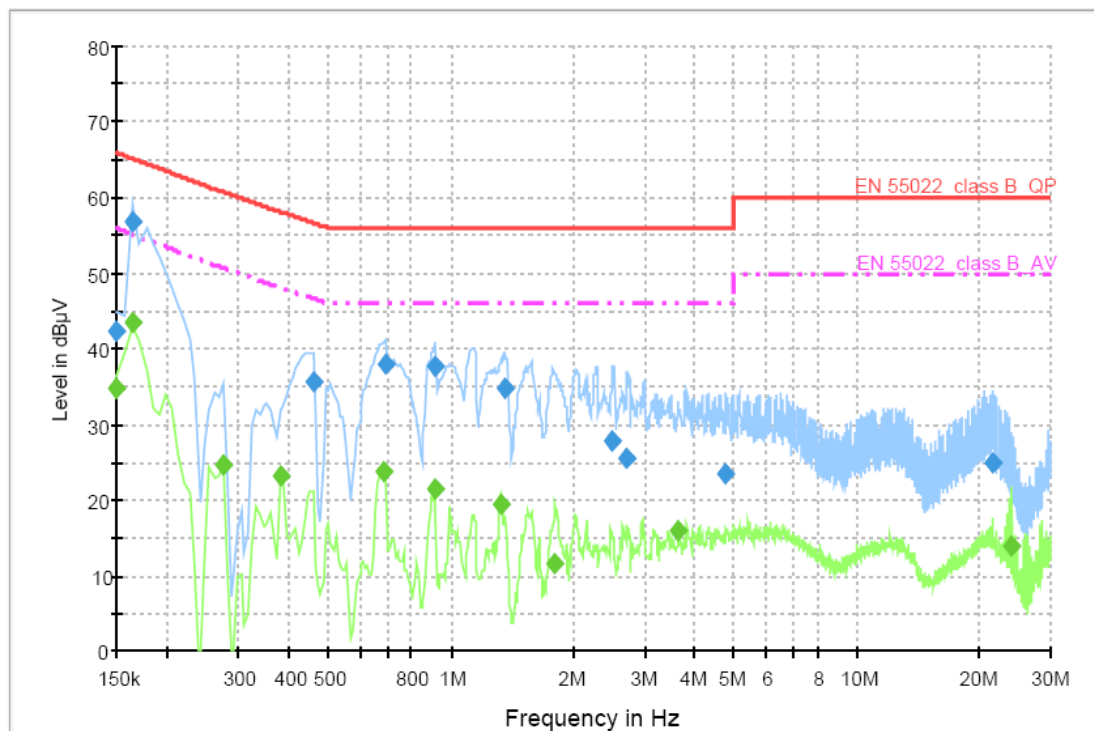
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.164000	35.8	1000.000	9.000	GND	N	10.0	19.4	55.2	
0.171000	43.1	1000.000	9.000	GND	N	10.0	11.7	54.8	
0.276000	26.7	1000.000	9.000	GND	N	10.0	24.0	50.7	
0.381000	26.9	1000.000	9.000	GND	N	10.0	21.2	48.1	
0.458000	24.9	1000.000	9.000	GND	N	10.0	21.8	46.7	
0.675000	24.9	1000.000	9.000	GND	N	10.0	21.1	46.0	
1.151000	21.4	1000.000	9.000	GND	N	10.1	24.6	46.0	
1.347000	21.4	1000.000	9.000	GND	N	10.1	24.6	46.0	
1.851000	20.0	1000.000	9.000	GND	N	10.1	26.0	46.0	
2.537000	18.7	1000.000	9.000	GND	N	10.1	27.3	46.0	
3.874000	16.2	1000.000	9.000	GND	N	10.2	29.8	46.0	
4.532000	15.8	1000.000	9.000	GND	N	10.2	30.2	46.0	

< Fig 9. Conducted emission result (Neutral line)>



◆ Operating condition: 1 360 × 768 / 60 Hz (HDMI/DVI: Digital)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	42.4	1000.000	9.000	GND	L1	10.0	23.6	66.0	
0.164000	56.9	1000.000	9.000	GND	L1	10.0	8.3	65.2	
0.458000	35.6	1000.000	9.000	GND	L1	10.0	21.1	56.7	
0.689000	38.0	1000.000	9.000	GND	L1	10.0	18.0	56.0	
0.920000	37.8	1000.000	9.000	GND	L1	10.0	18.2	56.0	
1.368000	34.7	1000.000	9.000	GND	L1	10.1	21.3	56.0	
2.509000	27.7	1000.000	9.000	GND	L1	10.1	28.3	56.0	
2.726000	25.5	1000.000	9.000	GND	L1	10.1	30.5	56.0	
4.770000	23.6	1000.000	9.000	GND	L1	10.2	32.4	56.0	
21.542000	24.8	1000.000	9.000	GND	L1	11.1	35.2	60.0	

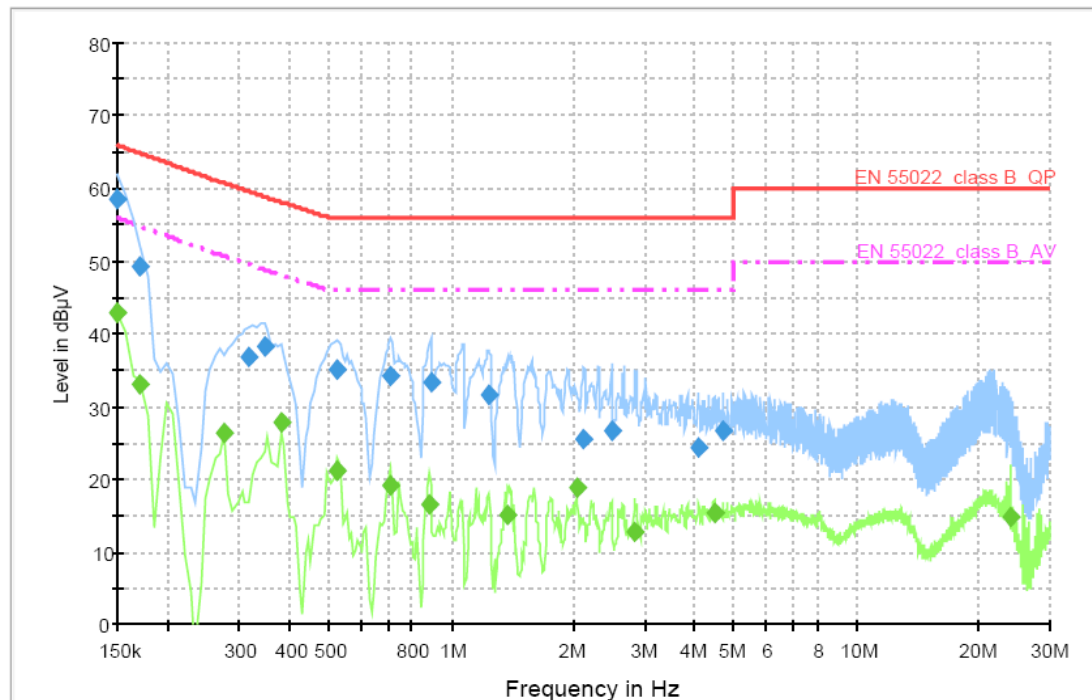
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	34.8	1000.000	9.000	GND	L1	10.0	21.2	56.0	
0.164000	43.4	1000.000	9.000	GND	L1	10.0	11.8	55.2	
0.276000	24.6	1000.000	9.000	GND	L1	10.0	26.1	50.7	
0.381000	23.3	1000.000	9.000	GND	L1	10.0	24.8	48.1	
0.682000	23.8	1000.000	9.000	GND	L1	10.0	22.2	46.0	
0.913000	21.5	1000.000	9.000	GND	L1	10.0	24.5	46.0	
1.326000	19.3	1000.000	9.000	GND	L1	10.1	26.7	46.0	
1.809000	11.6	1000.000	9.000	GND	L1	10.1	34.4	46.0	
3.629000	15.8	1000.000	9.000	GND	L1	10.2	30.2	46.0	
24.174000	14.0	1000.000	9.000	GND	L1	11.2	36.0	50.0	

< Fig 10. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	58.6	1000.000	9.000	GND	N	10.0	7.4	66.0	
0.171000	49.3	1000.000	9.000	GND	N	10.0	15.5	64.8	
0.318000	36.7	1000.000	9.000	GND	N	10.0	22.9	59.6	
0.346000	38.3	1000.000	9.000	GND	N	10.0	20.6	58.9	
0.521000	35.0	1000.000	9.000	GND	N	10.0	21.0	56.0	
0.710000	34.2	1000.000	9.000	GND	N	10.0	21.8	56.0	
0.892000	33.4	1000.000	9.000	GND	N	10.0	22.6	56.0	
1.235000	31.7	1000.000	9.000	GND	N	10.1	24.3	56.0	
2.131000	25.4	1000.000	9.000	GND	N	10.1	30.6	56.0	
2.495000	26.8	1000.000	9.000	GND	N	10.1	29.2	56.0	
4.077000	24.4	1000.000	9.000	GND	N	10.2	31.6	56.0	
4.693000	26.6	1000.000	9.000	GND	N	10.2	29.4	56.0	

Final Measurement Detector 2

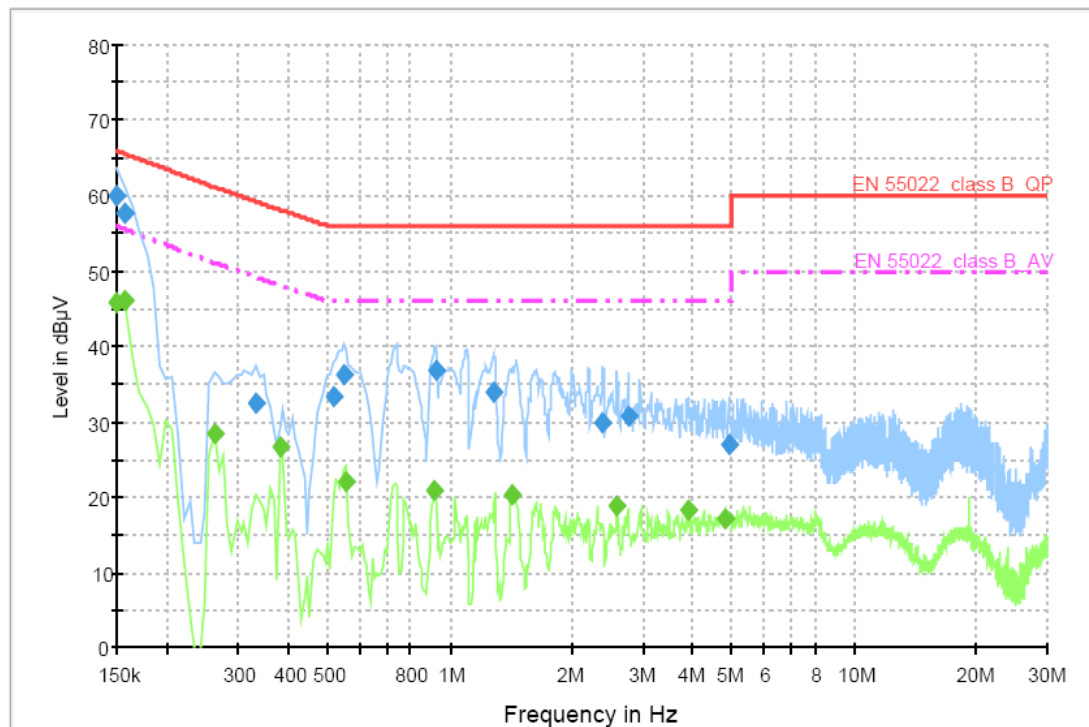
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.0	1000.000	9.000	GND	N	10.0	13.0	56.0	
0.171000	33.0	1000.000	9.000	GND	N	10.0	21.8	54.8	
0.276000	26.3	1000.000	9.000	GND	N	10.0	24.4	50.7	
0.381000	27.8	1000.000	9.000	GND	N	10.0	20.3	48.1	
0.521000	21.2	1000.000	9.000	GND	N	10.0	24.8	46.0	
0.710000	19.1	1000.000	9.000	GND	N	10.0	26.9	46.0	
0.885000	16.6	1000.000	9.000	GND	N	10.0	29.4	46.0	
1.382000	15.1	1000.000	9.000	GND	N	10.1	30.9	46.0	
2.047000	18.9	1000.000	9.000	GND	N	10.1	27.1	46.0	
2.838000	12.9	1000.000	9.000	GND	N	10.1	33.1	46.0	
4.455000	15.5	1000.000	9.000	GND	N	10.2	30.5	46.0	
24.146000	14.8	1000.000	9.000	GND	N	10.8	35.2	50.0	

< Fig 11. Conducted emission result (Neutral line)>



◆ Operating condition: USB play mode

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	60.0	1000.000	9.000	GND	L1	10.0	6.0	66.0	
0.157000	57.5	1000.000	9.000	GND	L1	10.0	8.1	65.6	
0.332000	32.4	1000.000	9.000	GND	L1	10.0	26.8	59.2	
0.514000	33.3	1000.000	9.000	GND	L1	10.0	22.7	56.0	
0.549000	36.1	1000.000	9.000	GND	L1	10.0	19.9	56.0	
0.927000	36.7	1000.000	9.000	GND	L1	10.0	19.3	56.0	
1.284000	34.0	1000.000	9.000	GND	L1	10.1	22.0	56.0	
2.390000	29.8	1000.000	9.000	GND	L1	10.1	26.2	56.0	
2.768000	30.7	1000.000	9.000	GND	L1	10.1	25.3	56.0	
4.910000	26.8	1000.000	9.000	GND	L1	10.2	29.2	56.0	

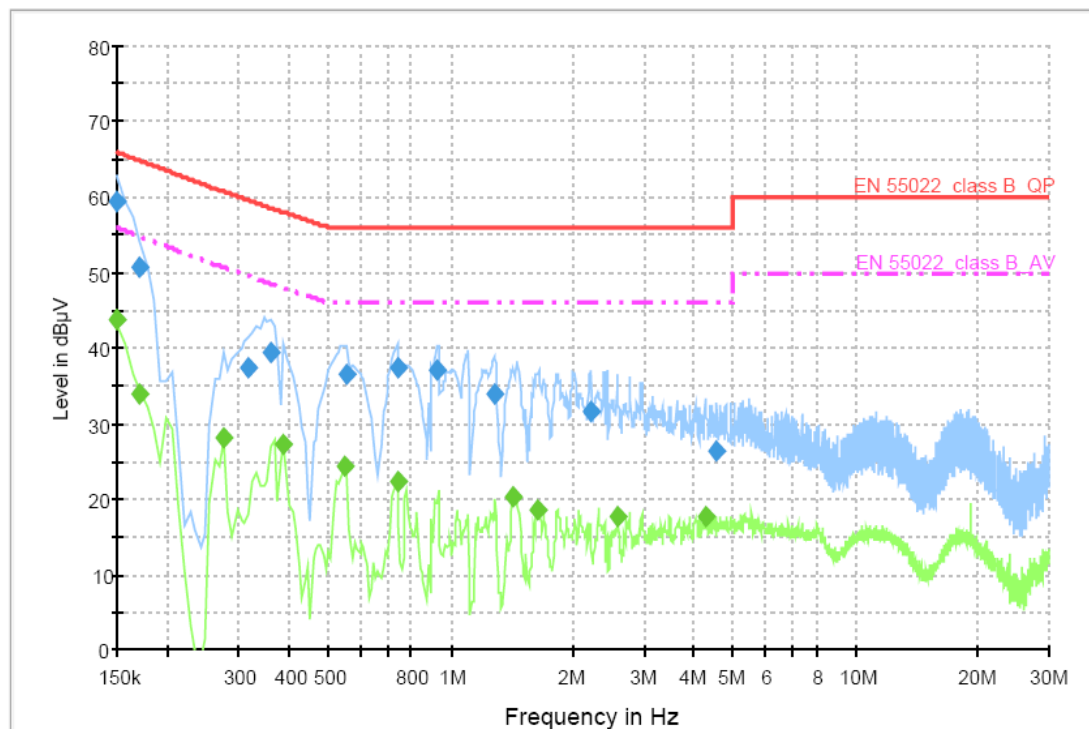
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	45.8	1000.000	9.000	GND	L1	10.0	10.2	56.0	
0.157000	46.1	1000.000	9.000	GND	L1	10.0	9.5	55.6	
0.262000	28.5	1000.000	9.000	GND	L1	10.0	22.6	51.1	
0.381000	26.7	1000.000	9.000	GND	L1	10.0	21.4	48.1	
0.556000	22.1	1000.000	9.000	GND	L1	10.0	23.9	46.0	
0.920000	21.0	1000.000	9.000	GND	L1	10.0	25.0	46.0	
1.424000	20.2	1000.000	9.000	GND	L1	10.1	25.8	46.0	
2.600000	18.9	1000.000	9.000	GND	L1	10.1	27.1	46.0	
3.874000	18.3	1000.000	9.000	GND	L1	10.2	27.7	46.0	
4.777000	17.0	1000.000	9.000	GND	L1	10.2	29.0	46.0	

< Fig 12. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	59.5	1000.000	9.000	GND	N	10.0	6.5	66.0	
0.171000	50.7	1000.000	9.000	GND	N	10.0	14.1	64.8	
0.318000	37.3	1000.000	9.000	GND	N	10.0	22.3	59.6	
0.360000	39.5	1000.000	9.000	GND	N	10.0	19.1	58.6	
0.556000	36.6	1000.000	9.000	GND	N	10.0	19.4	56.0	
0.738000	37.4	1000.000	9.000	GND	N	10.0	18.6	56.0	
0.927000	37.0	1000.000	9.000	GND	N	10.0	19.0	56.0	
1.277000	34.0	1000.000	9.000	GND	N	10.1	22.0	56.0	
2.222000	31.5	1000.000	9.000	GND	N	10.1	24.5	56.0	
4.553000	26.5	1000.000	9.000	GND	N	10.2	29.5	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.8	1000.000	9.000	GND	N	10.0	12.2	56.0	
0.171000	33.8	1000.000	9.000	GND	N	10.0	21.0	54.8	
0.276000	28.0	1000.000	9.000	GND	N	10.0	22.7	50.7	
0.388000	27.3	1000.000	9.000	GND	N	10.0	20.6	47.9	
0.549000	24.4	1000.000	9.000	GND	N	10.0	21.6	46.0	
0.738000	22.4	1000.000	9.000	GND	N	10.0	23.6	46.0	
1.424000	20.4	1000.000	9.000	GND	N	10.1	25.6	46.0	
1.648000	18.4	1000.000	9.000	GND	N	10.1	27.6	46.0	
2.586000	17.8	1000.000	9.000	GND	N	10.1	28.2	46.0	
4.266000	17.7	1000.000	9.000	GND	N	10.2	28.3	46.0	

< Fig 13. Conducted emission result (Neutral line)>



6. Radiated Emission

6.1 Operating Environment

Temperature : 21 °C
Relative Humidity : 42 % R.H.

6.2 Test Set-up

A preliminary and final measurement was at 3 m anechoic chamber.

The EUT was placed on a non-conductive turntable approximately 0.8 m above the ground plane.

The turntable with EUT was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m 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 %.

Test Items	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 3.54 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.49 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.85 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.76 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 10 m, Vertical)	± 3.21 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 10 m, Horizontal)	± 3.32 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Vertical)	± 3.77 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Horizontal)	± 3.84 dB	Confidence levels of 95 % (k=2)



6.4 Limit

Frequency (MHz)	FCC Limit @ 3 m. dB μ V/m	CISPR Limit @ 10 m. dB μ V/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 ~ 1 000	54.0	37.0
> 1 000	54.0	No Specified limit

6.5 Test Equipment used

Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESI	Rohde & Schwarz	EMI test receiver	830482/010	12. 11. 2010
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3099	07. 21. 2011
■ - BBHA9120D	Schwarzbeck	Horn ANT	597	12. 18. 2010
■ - MCU066	maturo GmbH	Position Controller	1390306	N/A
■ - TT2.5SI	maturo GmbH	Turntable	1390307	N/A
■ - AM 4.0	maturo GmbH	Antenna Mast	1390308	N/A
■ - AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 12. 2010



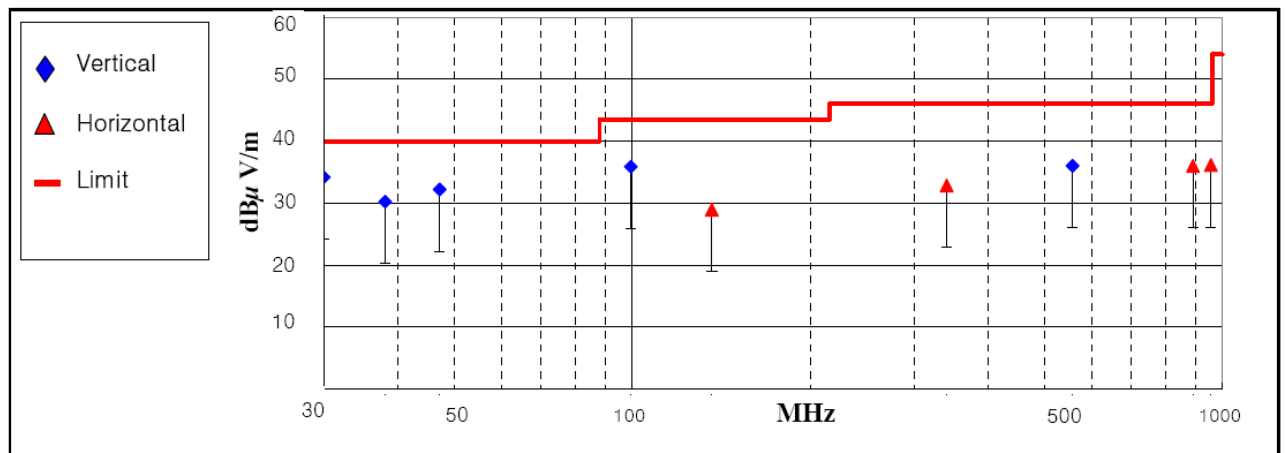
6.6 Test data for Radiated Emission

- Test Date : January 27, 2010
- Resolution Bandwidth : 120 kHz/1 MHz
- Frequency Range : 30 MHz ~ 2 000 MHz
- Measurement Distance : 3 m
- Note : The highest frequency of the internal source of the EUT is between 108 MHz and 500 MHz (400 MHz). The measurement was made up to 2 000 MHz.

◆ Operating Condition: 1 360 × 768 / 60 Hz (RGB: Analog)

Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
30.01	20.32	11.95	1.89	34.16	40.00	5.84	V	116	126
38.15	16.28	11.92	2.05	30.25	40.00	9.75	V	123	199
47.18	17.68	12.29	2.24	32.21	40.00	7.79	V	100	230
99.41	23.43	9.38	3.06	35.87	43.50	7.63	V	105	21
136.39	12.95	12.45	3.53	28.93	43.50	14.57	H	213	107
340.97	11.85	14.25	6.76	32.86	46.00	13.14	H	202	199
557.05	9.99	18.84	7.18	36.01	46.00	9.99	V	100	176
891.00	2.77	24.11	9.11	35.99	46.00	10.01	H	117	250
956.00	1.02	25.55	9.56	36.13	46.00	9.87	H	100	180

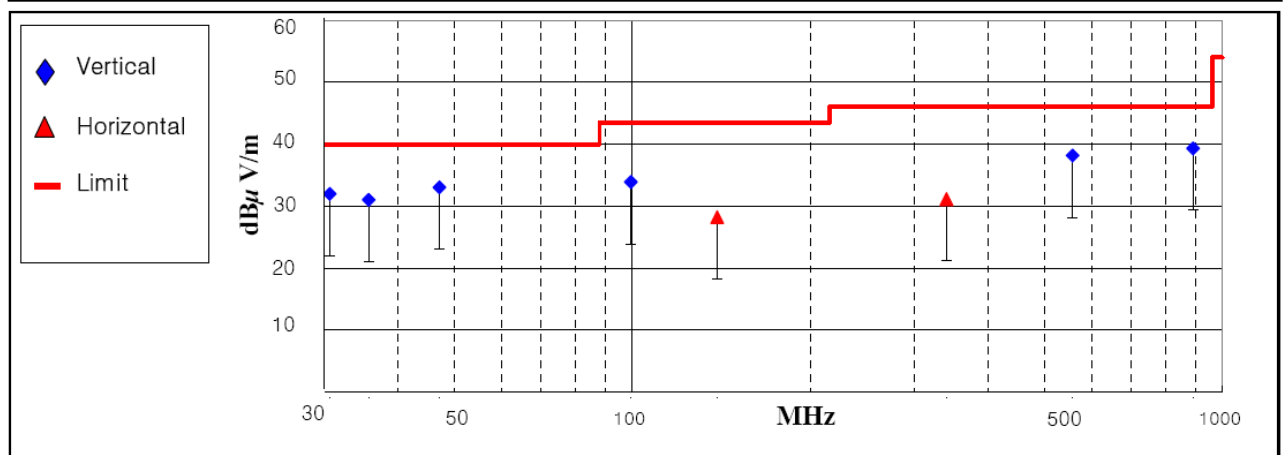


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 360 × 768 / 60 Hz (HDMI/DVI: Digital)
Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
30.71	18.13	11.93	1.90	31.96	40.00	8.04	V	110	144
35.77	17.15	11.86	2.00	31.01	40.00	8.99	V	105	82
47.15	18.50	12.29	2.24	33.03	40.00	6.97	V	112	116
99.43	21.46	9.38	3.06	33.90	43.50	9.60	V	100	356
139.26	12.01	12.64	3.56	28.21	43.50	15.29	H	199	101
340.44	10.16	14.23	6.74	31.13	46.00	14.87	H	170	212
557.10	12.13	18.84	7.18	38.15	46.00	7.85	V	100	190
890.99	6.10	24.11	9.11	39.32	46.00	6.68	V	117	185

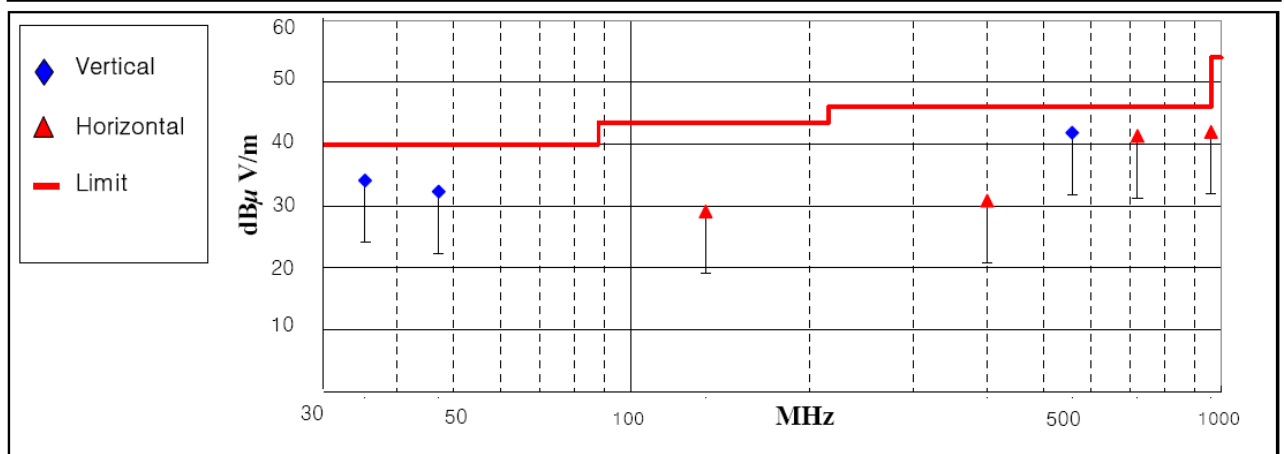


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: USB play mode
Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
35.40	20.28	11.85	1.99	34.12	40.00	5.88	V	115	150
47.17	17.80	12.29	2.24	32.33	40.00	7.67	V	121	75
133.70	13.37	12.28	3.50	29.15	43.50	14.35	H	230	96
400.79	8.00	15.53	7.32	30.85	46.00	15.15	H	185	192
558.31	15.79	18.88	7.18	41.85	46.00	4.15	V	150	150
720.00	11.21	22.02	8.10	41.33	46.00	4.67	H	131	166
959.99	6.80	25.56	9.59	41.95	46.00	4.05	H	145	187

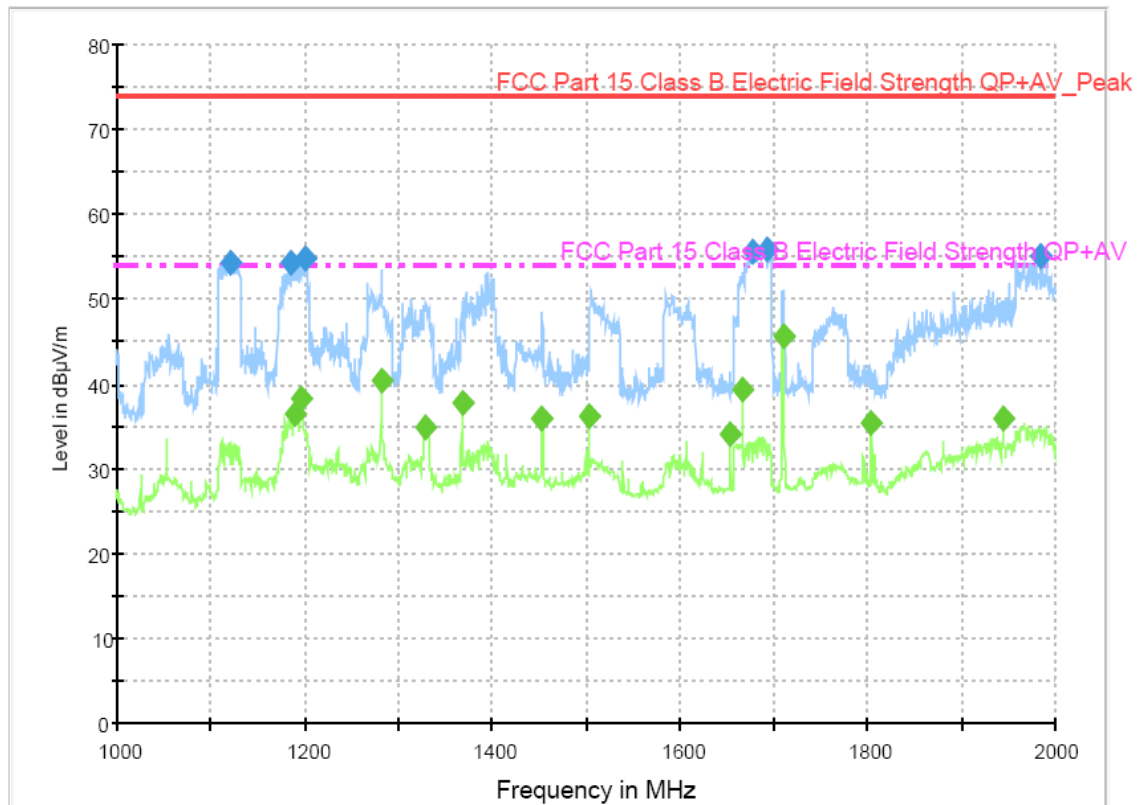


< Fig 16. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 360 × 768 / 60 Hz (RGB: Analog)
Detector mode: Peak detector mode / Average detector mode

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Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1120.400000	54.2	100.0	V	180.0	-16.1	19.8	74.0	
1184.800000	54.3	100.0	V	180.0	-15.9	19.7	74.0	
1200.000000	54.8	100.0	V	180.0	-15.9	19.2	74.0	
1676.800000	55.6	100.0	H	270.0	-14.4	18.4	74.0	
1692.800000	55.8	100.0	H	270.0	-14.4	18.2	74.0	
1984.000000	55.1	100.0	H	270.0	-12.9	18.9	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1189.200000	36.5	100.0	V	180.0	-15.9	17.5	54.0	
1196.800000	38.2	100.0	V	180.0	-15.9	15.8	54.0	
1282.800000	40.5	200.0	V	90.0	-15.1	13.5	54.0	
1329.600000	34.9	200.0	V	0.0	-14.9	19.1	54.0	
1368.000000	37.7	200.0	H	0.0	-14.8	16.3	54.0	
1453.600000	36.0	100.0	H	180.0	-14.8	18.0	54.0	
1503.600000	36.1	100.0	V	90.0	-14.8	17.9	54.0	
1654.000000	34.0	100.0	H	0.0	-14.4	20.0	54.0	
1666.800000	39.3	200.0	V	180.0	-14.4	14.7	54.0	
1710.000000	45.6	100.0	V	180.0	-14.3	8.4	54.0	
1804.400000	35.4	100.0	H	0.0	-13.9	18.6	54.0	
1944.400000	35.8	100.0	H	180.0	-13.2	18.2	54.0	

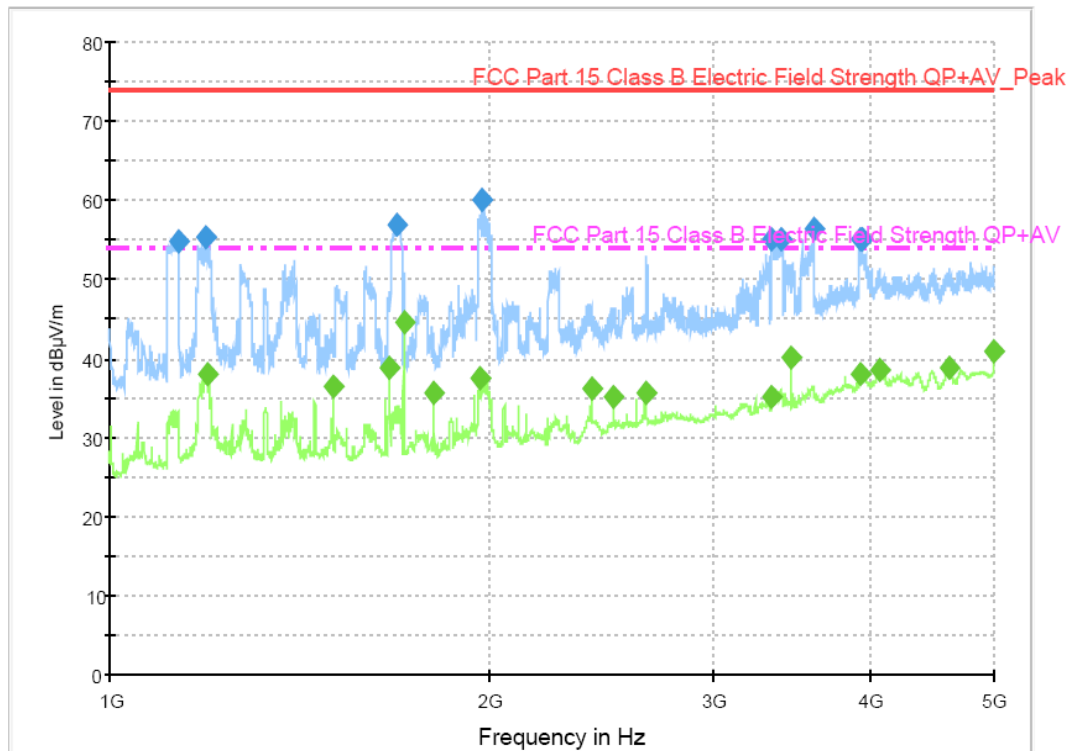
< Fig 17. Radiated emission result (1 000 MHz ~ 2 000 MHz)>



◆ Operating Condition: 1 360 × 768 / 60 Hz (HDMI/DVI: Digital)

Detector mode: Peak detector mode / Average detector mode

FCC_ESIB_Preamplifier with Scans



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1134.800000	54.9	100.0	V	180.0	-16.0	19.1	74.0	
1193.200000	55.4	100.0	V	180.0	-15.9	18.6	74.0	
1688.800000	56.9	100.0	H	270.0	-14.4	17.1	74.0	
1970.800000	60.0	100.0	H	270.0	-13.0	14.0	74.0	
3343.600000	55.0	100.0	H	180.0	-7.4	19.0	74.0	
3395.200000	55.1	100.0	H	180.0	-7.2	18.9	74.0	
3605.200000	56.4	100.0	H	180.0	-6.1	17.6	74.0	
3917.600000	55.1	100.0	H	180.0	-3.8	18.9	74.0	
3943.200000	55.0	100.0	H	180.0	-3.6	19.0	74.0	

Final Result 2

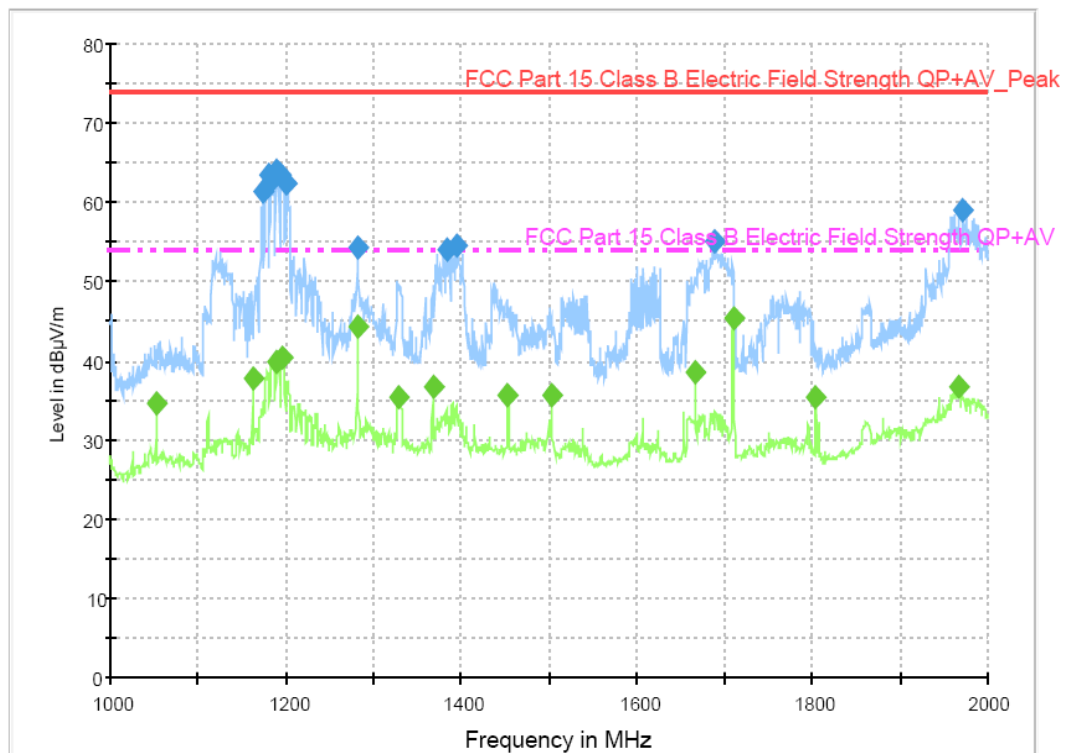
Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1196.800000	38.2	100.0	V	180.0	-15.9	15.8	54.0	
1503.600000	36.4	100.0	V	180.0	-14.8	17.6	54.0	
1666.800000	38.9	200.0	V	180.0	-14.4	15.1	54.0	
1710.000000	44.6	100.0	V	180.0	-14.3	9.4	54.0	
1804.400000	35.8	200.0	V	0.0	-13.9	18.2	54.0	
1966.000000	37.5	100.0	H	270.0	-13.0	16.5	54.0	
2409.600000	36.1	100.0	V	180.0	-10.7	17.9	54.0	
2500.000000	35.1	100.0	V	180.0	-10.2	18.9	54.0	
2651.600000	35.7	200.0	H	0.0	-9.7	18.3	54.0	
3340.800000	35.2	100.0	H	180.0	-7.4	18.8	54.0	
3456.000000	40.2	100.0	H	180.0	-7.0	13.8	54.0	
3918.800000	38.1	100.0	H	180.0	-3.8	15.9	54.0	
4066.400000	38.6	100.0	V	180.0	-3.2	15.4	54.0	
4608.000000	38.7	100.0	H	270.0	-3.2	15.3	54.0	
5000.000000	40.8	100.0	V	0.0	-2.4	13.2	54.0	

< Fig 18. Radiated emission result (1 000 MHz ~ 2 000 MHz)>



- ◆ Operating Condition: USB play mode
Detector mode: Peak detector mode / Average detector mode

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Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1174.400000	61.5	100.0	V	180.0	-15.9	12.5	74.0	
1180.000000	63.4	100.0	V	180.0	-15.9	10.6	74.0	
1185.600000	63.0	100.0	V	180.0	-15.9	11.0	74.0	
1190.400000	64.1	100.0	V	180.0	-15.9	9.9	74.0	
1195.200000	63.6	100.0	V	180.0	-15.9	10.4	74.0	
1201.600000	62.5	100.0	V	180.0	-15.9	11.5	74.0	
1282.400000	54.2	100.0	V	180.0	-15.1	19.8	74.0	
1384.400000	54.1	100.0	V	180.0	-14.8	19.9	74.0	
1396.000000	54.7	100.0	V	180.0	-14.8	19.3	74.0	
1688.800000	55.1	100.0	H	270.0	-14.4	18.9	74.0	
1970.800000	59.0	100.0	V	180.0	-13.0	15.0	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1052.400000	34.5	100.0	V	0.0	-16.4	19.5	54.0	
1162.800000	37.8	200.0	V	0.0	-16.0	16.2	54.0	
1189.200000	39.8	100.0	V	180.0	-15.9	14.2	54.0	
1196.800000	40.3	100.0	V	180.0	-15.9	13.7	54.0	
1282.400000	44.4	100.0	V	180.0	-15.1	9.6	54.0	
1330.000000	35.5	200.0	V	0.0	-14.9	18.5	54.0	
1368.000000	36.8	200.0	H	180.0	-14.8	17.2	54.0	
1453.600000	35.6	100.0	H	180.0	-14.8	18.4	54.0	
1503.600000	35.6	100.0	V	90.0	-14.8	18.4	54.0	
1666.800000	38.5	200.0	V	180.0	-14.4	15.5	54.0	
1710.000000	45.2	100.0	V	180.0	-14.3	8.8	54.0	
1804.400000	35.4	100.0	H	0.0	-13.9	18.6	54.0	
1966.400000	36.7	100.0	V	180.0	-13.0	17.3	54.0	

< Fig 19. Radiated emission result (1 000 MHz ~ 2 000 MHz)>



7. Sample Calculations

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

7.1 Example 1 :

■ 20.3 MHz

Class B Limit	= 250 μV = 48 dB μV
Reading	= 39.2 dB μV
$10^{(39.2\text{dB}\mu\text{V}/20)}$	= 91.2 μV
Margin	= 48 dB μV - 39.2 dB μV = 8.8 dB

7.2 Example 2 :

■ 66.7 MHz

Class B Limit	= 100 $\mu\text{V}/\text{m}$ = 40.0 dB $\mu\text{V}/\text{m}$
Reading	= 31.0 dB μV
Antenna Factor + Cable Loss = 5.8 dB	
Total	= 36.8 dB $\mu\text{V}/\text{m}$
Margin	= 40.0 dB $\mu\text{V}/\text{m}$ – 36.8 dB $\mu\text{V}/\text{m}$ = 3.2 dB



8. Recommendation & Conclusion

The data collected shows that the **LG Electronics Inc. LCD TV/Monitor (Model Name: 32LD360L-UA)** was complies with §15.107 and 15.109 of the FCC Rules.