



FCC EVALUATION REPORT FOR CERTIFICATION

Applicant : LG Electronics Inc.

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

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Sang-Wook Lee, Chief research engineer

Date of Issue : March 11, 2010

Order Number: GETEC-C1-10-054

Test Report Number: GETEC-E3-10-027

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJ37LE5300UC

Applicant: LG Electronics Inc.

Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: LED LCD TV/Monitor
Type of Authority	: Certification
Model Name	: 37LE5300-UC
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 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.

Tested by,

Reviewed by,

Soon Hoon

Soon-Hoon Jeong, Engineer
GUMI College EMC center

Jae-Hoon Jeong

Jae-Hoon Jeong, Senior Engineer
GUMI College EMC center



CONTENTS

1. GENERAL INFORMATION	3
2. INTRODUCTION	4
3. PRODUCT INFORMATION	5
3.1 DESCRIPTION OF EUT.....	5
3.2 SUPPORT EQUIPMENT / CABLES USED	6
3.3 MODIFICATION ITEM(S).....	7
4. DESCRIPTION OF TESTS.....	8
4.1 TEST CONDITION.....	8
4.2 CONDUCTED EMISSION	9
4.3 RADIATED EMISSION.....	10
5. CONDUCTED EMISSION.....	11
5.1 OPERATING ENVIRONMENT	11
5.2 TEST SET-UP	11
5.3 MEASUREMENT UNCERTAINTY.....	11
5.4 LIMIT	12
5.5 TEST EQUIPMENT USED.....	12
5.6 TEST DATA FOR CONDUCTED EMISSION	12
6. RADIATED EMISSION	23
6.1 OPERATING ENVIRONMENT	23
6.2 TEST SET-UP	23
6.3 MEASUREMENT UNCERTAINTY.....	23
6.4 LIMIT	24
6.5 TEST EQUIPMENT USED.....	24
6.6 TEST DATA FOR RADIATED EMISSION.....	25
7. SAMPLE CALCULATIONS.....	31
7.1 EXAMPLE 1 :	31
7.2 EXAMPLE 2 :	31
8. RECOMMENDATION & CONCLUSION.....	32
APPENDIX A – ATTESTATION STATEMENT	
APPENDIX B – ID SAMPLE LABEL & LOCATION	
APPENDIX C – BLOCK DIAGRAM	
APPENDIX D – TEST SET-UP PHOTOGRAPHS	
APPENDIX E – EXTERNAL PHOTOGRAPHS	
APPENDIX F – INTERNAL PHOTOGRAPHS	
APPENDIX G – USER’S MANUAL	



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. Sang-Wook Lee, Chief research engineer

Tel Number: +82-31-610-9623

- **FCC ID.** BEJ37LE5300UC
- **EUT Type** LED LCD TV/Monitor
- **Model Name** 37LE5300-UC
- **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** March 9 ~ 11, 2010
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-10-027
- **Dates of Issue** March 11, 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. LED LCD TV/Monitor (Model Name: 37LE5300-UC)**

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)



GUMI COLLEGE EMC CENTER
407, Bugok-dong, Gumi-si,
Gyeongbuk 730-711, Korea.
Tel: +82-54-440-1195
Fax: +82-54-440-1199

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. LED LCD TV/Monitor (Model Name: 37LE5300-UC) FCC ID.: BEJ37LE5300UC**

MODELS		32LE5300 (32LE5300-UC)	37LE5300 (37LE5300-UC)
Dimensions (Width x Height x Depth)	With stand	784.6 mm x 558.1 mm x 221.0 mm (30.9 inch x 22.0 inch x 8.7 inch)	905.0 mm x 630.0 mm x 270.0 mm (35.6 inch x 24.8 inch x 10.6 inch)
	Without stand	784.6 mm x 499.5 mm x 39.9 mm (30.9 inch x 19.7 inch x 1.6 inch)	905.0 mm x 568.0 mm x 39.9 mm (35.6 inch x 22.3 inch x 1.6 inch)
Weight	With stand	12.6 kg (27.9 lbs)	15.3 kg (33.7 lbs)
	Without stand	10.5 kg (23.1 lbs)	11.8 kg (26.0 lbs)
Power Requirement		AC 120 V ~ 50 / 60 Hz	
Television System		NTSC-M, ATSC, 64 & 256 QAM	
Program Coverage		VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135	
External Antenna Impedance		75 Ω	
Environment condition	Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)	
	Operating Humidity	Less than 80 %	
	Storage Temperature	-20 °C to 60 °C (-4 °F to 140 °F)	
	Storage Humidity	Less than 85 %	

-. Maximum Frequency range : 666 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
Key board	COMPAQ	16516-AD6	S/N: B13BBOR391006D FCC ID.: AQ6-23K15
PS2 mouse	LOGITECH	M-S69	S/N: 334684-108 FCC ID.: JNZ211443
Joy stick	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(Analog) cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
HDMI/DVI(Digital) cable	Connected to the EUT and PC	2.00 m shielded
Audio in(RGB/DVI) cable	Connected to the EUT and PC	1.80 m shielded
RS-232C in (Service & Control) cable	Connected to the EUT and PC	1.80 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
AV in 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
Headphone cable	Connected to the EUT and Headset	2.75 m shielded
Component in 2 cable	Connected to the EUT and DVD player	2.10 m shielded
AV in 2 cable	Connected to the EUT and DVD player	3.10 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: 1 920 × 1 080 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

Conducted emission: 1 920 × 1 080 / 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

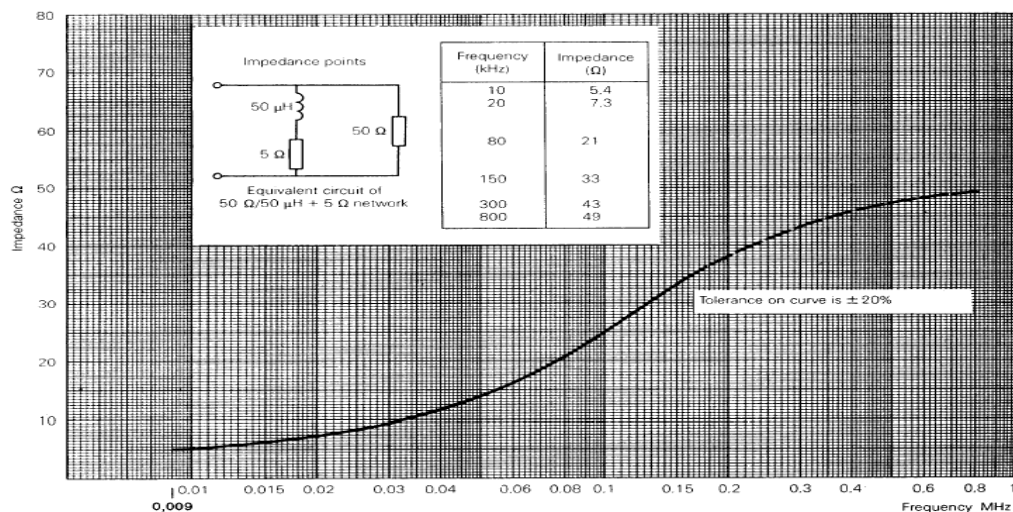


Fig 2. Impedance of LISN



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 : 28 °C
Relative Humidity : 43 % 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 μ V/m) 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

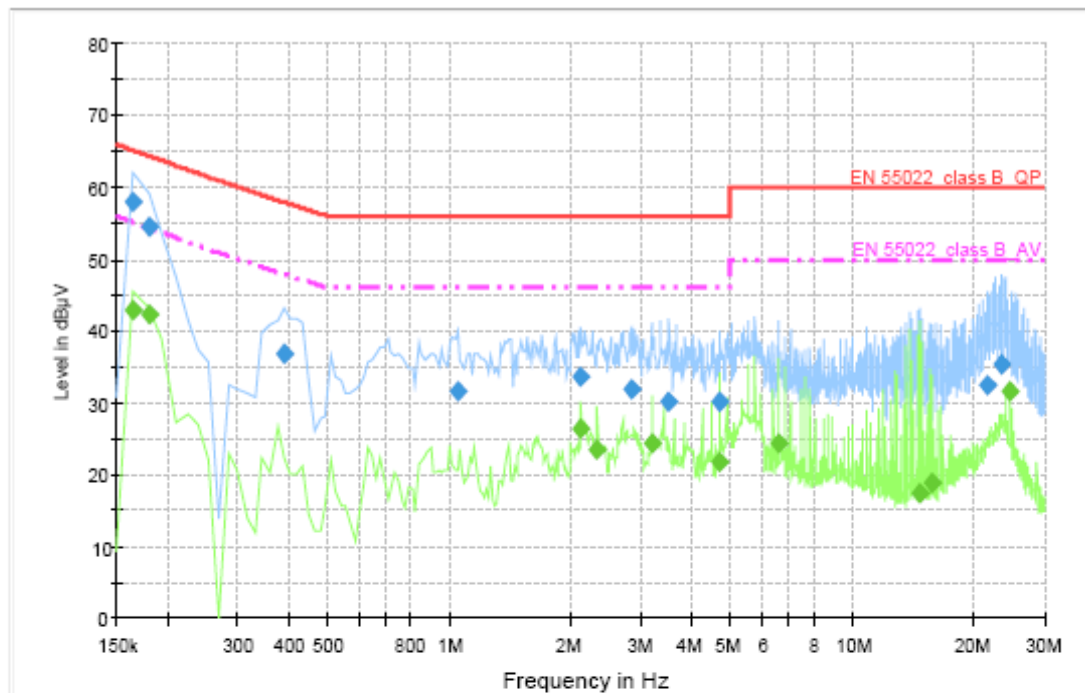
5.6 Test data for Conducted Emission

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



◆ Operating condition: 1 920 × 1 080 / 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
0.165000	58.0	1000.000	9.000	GND	L1	10.0	7.1	65.1	
0.180000	54.5	1000.000	9.000	GND	L1	10.0	9.9	64.4	
0.390000	36.7	1000.000	9.000	GND	L1	10.0	21.2	57.9	
1.050000	31.7	1000.000	9.000	GND	L1	10.0	24.3	56.0	
2.130000	33.6	1000.000	9.000	GND	L1	10.1	22.4	56.0	
2.835000	31.8	1000.000	9.000	GND	L1	10.1	24.2	56.0	
3.510000	30.3	1000.000	9.000	GND	L1	10.2	25.7	56.0	
4.680000	30.1	1000.000	9.000	GND	L1	10.2	25.9	56.0	
21.570000	32.5	1000.000	9.000	GND	L1	11.1	27.5	60.0	
23.385000	35.2	1000.000	9.000	GND	L1	11.2	24.8	60.0	

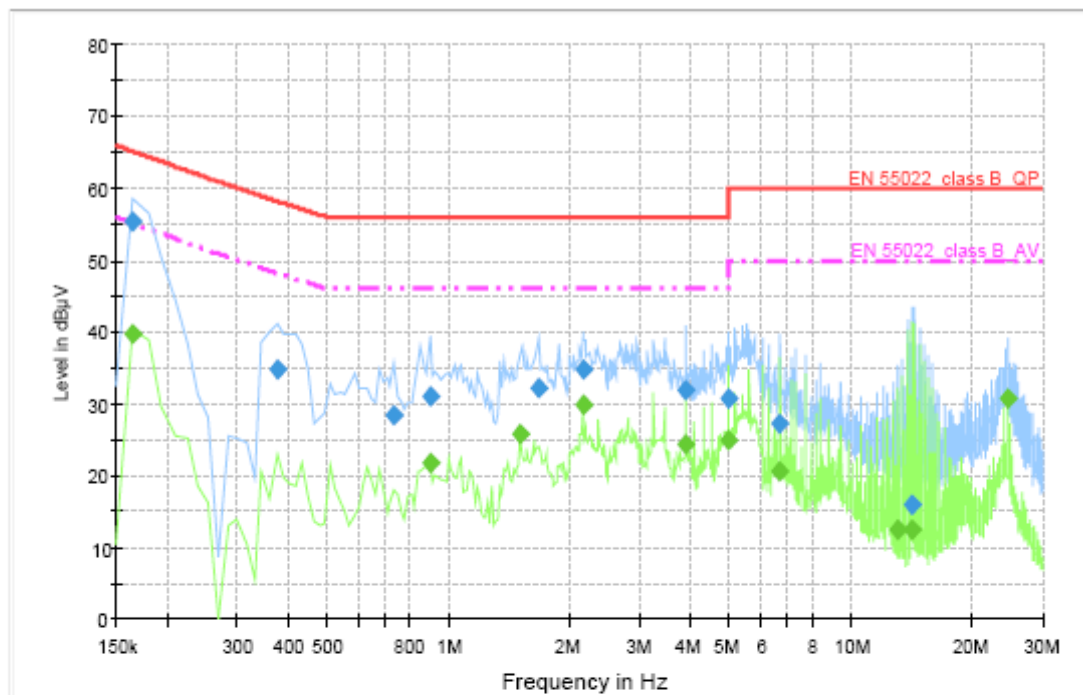
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	43.0	1000.000	9.000	GND	L1	10.0	12.1	55.1	
0.180000	42.3	1000.000	9.000	GND	L1	10.0	12.2	54.4	
2.130000	26.3	1000.000	9.000	GND	L1	10.1	19.7	46.0	
2.340000	23.5	1000.000	9.000	GND	L1	10.1	22.5	46.0	
3.195000	24.3	1000.000	9.000	GND	L1	10.1	21.7	46.0	
4.680000	21.7	1000.000	9.000	GND	L1	10.2	24.3	46.0	
6.600000	24.4	1000.000	9.000	GND	L1	10.3	25.6	50.0	
14.700000	17.3	1000.000	9.000	GND	L1	10.7	32.7	50.0	
15.765000	18.7	1000.000	9.000	GND	L1	10.8	31.3	50.0	
24.705000	31.5	1000.000	9.000	GND	L1	11.2	18.5	50.0	

< 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
0.165000	55.4	1000.000	9.000	GND	N	10.0	9.7	65.1	
0.375000	34.9	1000.000	9.000	GND	N	10.0	23.3	58.2	
0.735000	28.5	1000.000	9.000	GND	N	10.0	27.5	56.0	
0.900000	31.0	1000.000	9.000	GND	N	10.0	25.0	56.0	
1.680000	32.1	1000.000	9.000	GND	N	10.1	23.9	56.0	
2.160000	34.8	1000.000	9.000	GND	N	10.1	21.2	56.0	
3.885000	31.8	1000.000	9.000	GND	N	10.2	24.2	56.0	
4.965000	30.6	1000.000	9.000	GND	N	10.2	25.4	56.0	
6.690000	27.2	1000.000	9.000	GND	N	10.3	32.8	60.0	
14.250000	15.9	1000.000	9.000	GND	N	10.5	44.1	60.0	

Final Measurement Detector 2

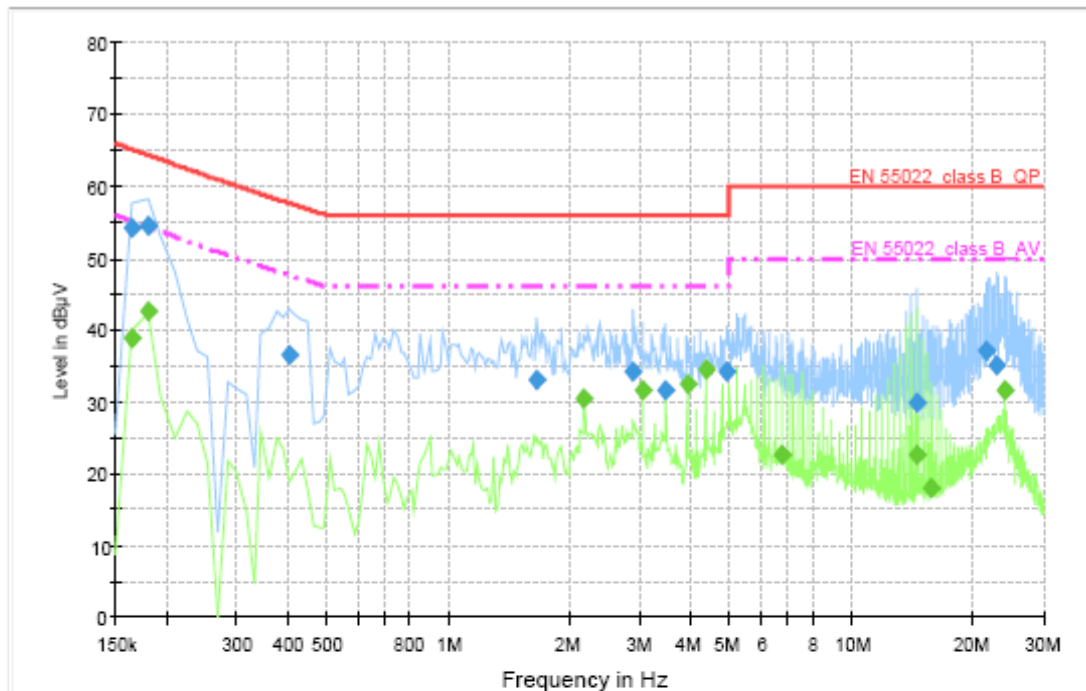
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	39.8	1000.000	9.000	GND	N	10.0	15.3	55.1	
0.900000	21.6	1000.000	9.000	GND	N	10.0	24.4	46.0	
1.515000	25.8	1000.000	9.000	GND	N	10.1	20.2	46.0	
2.160000	29.8	1000.000	9.000	GND	N	10.1	16.2	46.0	
3.885000	24.4	1000.000	9.000	GND	N	10.2	21.6	46.0	
4.965000	24.9	1000.000	9.000	GND	N	10.2	21.1	46.0	
6.690000	20.5	1000.000	9.000	GND	N	10.3	29.5	50.0	
13.170000	12.4	1000.000	9.000	GND	N	10.5	37.6	50.0	
14.250000	12.4	1000.000	9.000	GND	N	10.5	37.6	50.0	
24.705000	30.8	1000.000	9.000	GND	N	10.8	19.2	50.0	

< 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
0.165000	54.3	1000.000	9.000	GND	L1	10.0	10.8	65.1	
0.180000	54.6	1000.000	9.000	GND	L1	10.0	9.8	64.4	
0.405000	36.5	1000.000	9.000	GND	L1	10.0	21.1	57.6	
1.665000	33.0	1000.000	9.000	GND	L1	10.1	23.0	56.0	
2.880000	34.3	1000.000	9.000	GND	L1	10.1	21.7	56.0	
3.450000	31.6	1000.000	9.000	GND	L1	10.1	24.4	56.0	
4.905000	34.3	1000.000	9.000	GND	L1	10.2	21.7	56.0	
14.565000	29.8	1000.000	9.000	GND	L1	10.7	30.2	60.0	
21.645000	37.1	1000.000	9.000	GND	L1	11.1	22.9	60.0	
22.980000	35.0	1000.000	9.000	GND	L1	11.2	25.0	60.0	

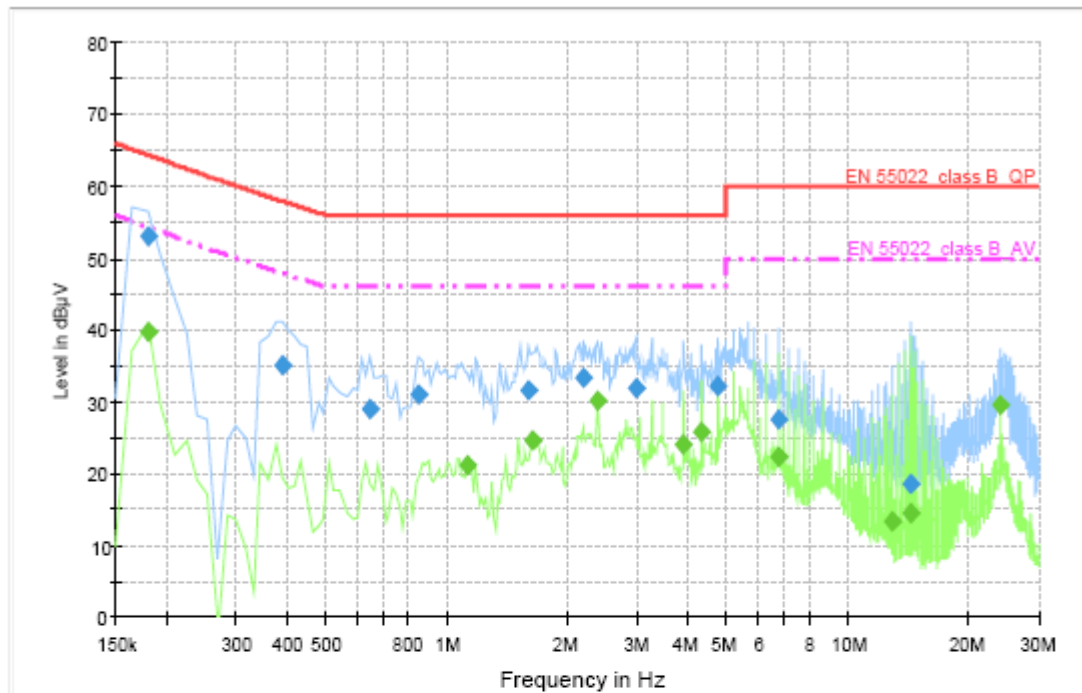
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	38.8	1000.000	9.000	GND	L1	10.0	16.3	55.1	
0.180000	42.6	1000.000	9.000	GND	L1	10.0	11.8	54.4	
2.175000	30.5	1000.000	9.000	GND	L1	10.1	15.5	46.0	
3.045000	31.5	1000.000	9.000	GND	L1	10.1	14.5	46.0	
3.915000	32.5	1000.000	9.000	GND	L1	10.2	13.5	46.0	
4.350000	34.3	1000.000	9.000	GND	L1	10.2	11.7	46.0	
6.735000	22.5	1000.000	9.000	GND	L1	10.3	27.5	50.0	
14.565000	22.5	1000.000	9.000	GND	L1	10.7	27.5	50.0	
15.870000	17.9	1000.000	9.000	GND	L1	10.8	32.1	50.0	
24.015000	31.5	1000.000	9.000	GND	L1	11.2	18.5	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
0.180000	52.9	1000.000	9.000	GND	N	10.0	11.5	64.4	
0.390000	35.0	1000.000	9.000	GND	N	10.0	22.9	57.9	
0.645000	29.0	1000.000	9.000	GND	N	10.0	27.0	56.0	
0.855000	30.9	1000.000	9.000	GND	N	10.0	25.1	56.0	
1.605000	31.7	1000.000	9.000	GND	N	10.1	24.3	56.0	
2.190000	33.4	1000.000	9.000	GND	N	10.1	22.6	56.0	
2.970000	32.0	1000.000	9.000	GND	N	10.1	24.0	56.0	
4.770000	32.3	1000.000	9.000	GND	N	10.2	23.7	56.0	
6.720000	27.5	1000.000	9.000	GND	N	10.3	32.5	60.0	
14.310000	18.6	1000.000	9.000	GND	N	10.5	41.4	60.0	

Final Measurement Detector 2

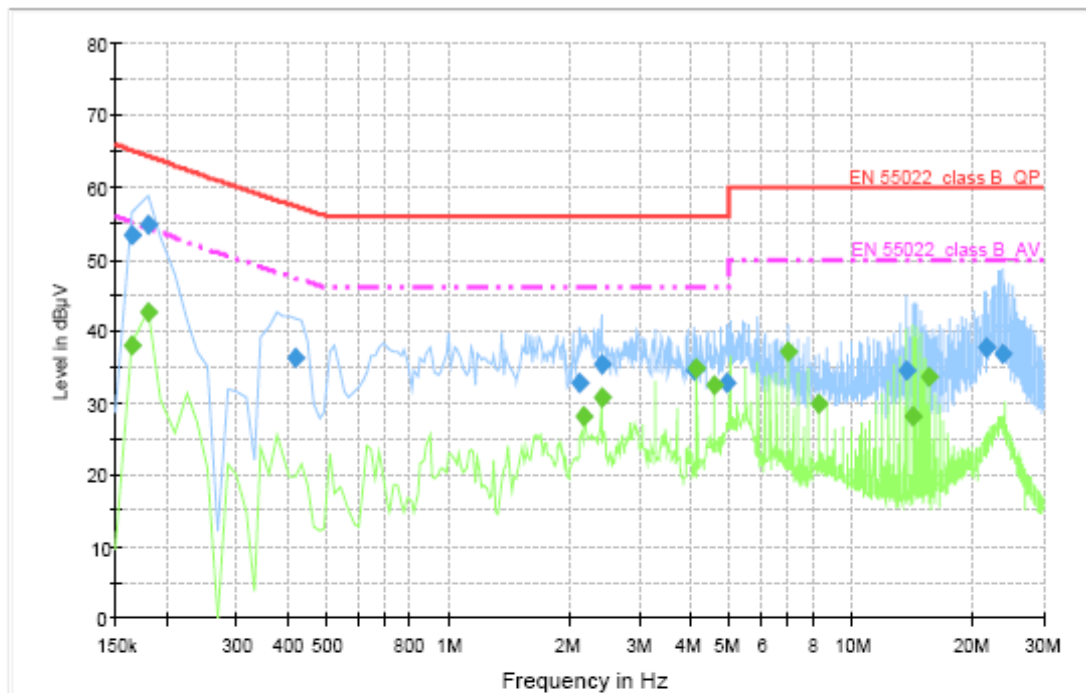
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.180000	39.6	1000.000	9.000	GND	N	10.0	14.8	54.4	
1.125000	21.2	1000.000	9.000	GND	N	10.1	24.8	46.0	
1.635000	24.6	1000.000	9.000	GND	N	10.1	21.4	46.0	
2.385000	30.1	1000.000	9.000	GND	N	10.1	15.9	46.0	
3.900000	24.2	1000.000	9.000	GND	N	10.2	21.8	46.0	
4.335000	25.7	1000.000	9.000	GND	N	10.2	20.3	46.0	
6.720000	22.4	1000.000	9.000	GND	N	10.3	27.6	50.0	
13.005000	13.3	1000.000	9.000	GND	N	10.5	36.7	50.0	
14.310000	14.4	1000.000	9.000	GND	N	10.5	35.6	50.0	
24.015000	29.4	1000.000	9.000	GND	N	10.8	20.6	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
0.165000	53.4	1000.000	9.000	GND	L1	10.0	11.7	65.1	
0.180000	54.7	1000.000	9.000	GND	L1	10.0	9.7	64.4	
0.420000	36.2	1000.000	9.000	GND	L1	10.0	21.1	57.3	
2.130000	32.8	1000.000	9.000	GND	L1	10.1	23.2	56.0	
2.400000	35.3	1000.000	9.000	GND	L1	10.1	20.7	56.0	
4.065000	34.5	1000.000	9.000	GND	L1	10.2	21.5	56.0	
4.935000	32.7	1000.000	9.000	GND	L1	10.2	23.3	56.0	
13.725000	34.6	1000.000	9.000	GND	L1	10.6	25.4	60.0	
21.675000	37.6	1000.000	9.000	GND	L1	11.1	22.4	60.0	
23.700000	36.7	1000.000	9.000	GND	L1	11.2	23.3	60.0	

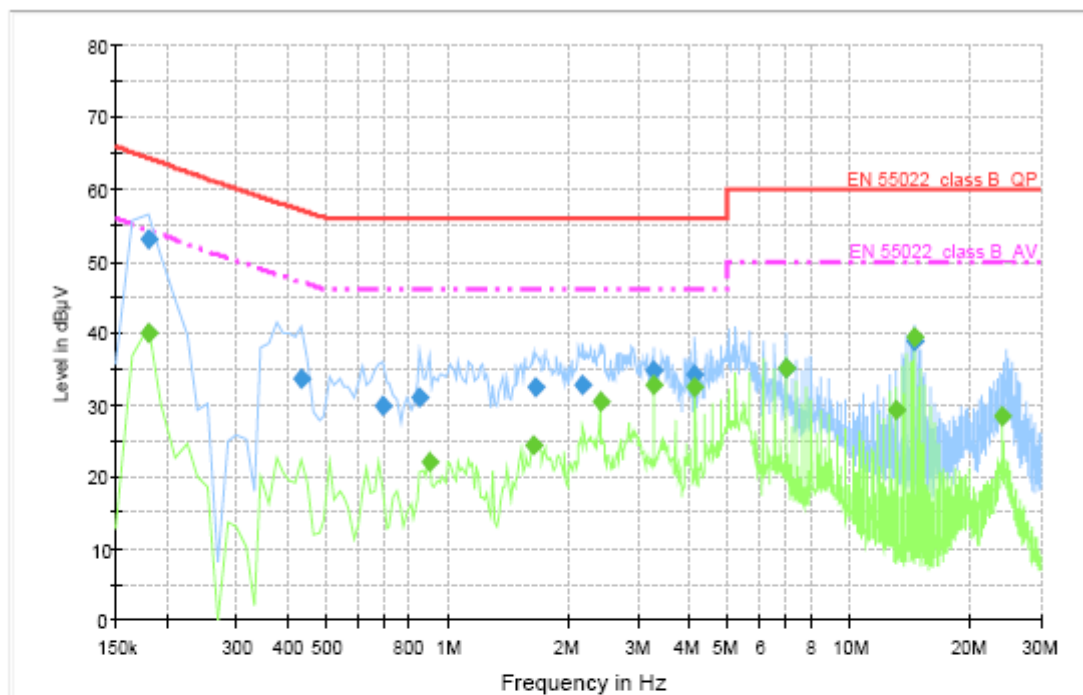
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	37.9	1000.000	9.000	GND	L1	10.0	17.2	55.1	
0.180000	42.6	1000.000	9.000	GND	L1	10.0	11.8	54.4	
2.175000	28.0	1000.000	9.000	GND	L1	10.1	18.0	46.0	
2.400000	30.6	1000.000	9.000	GND	L1	10.1	15.4	46.0	
4.140000	34.9	1000.000	9.000	GND	L1	10.2	11.1	46.0	
4.575000	32.4	1000.000	9.000	GND	L1	10.2	13.6	46.0	
6.975000	37.2	1000.000	9.000	GND	L1	10.3	12.8	50.0	
8.280000	30.0	1000.000	9.000	GND	L1	10.3	20.0	50.0	
14.160000	28.1	1000.000	9.000	GND	L1	10.7	21.9	50.0	
15.690000	33.5	1000.000	9.000	GND	L1	10.8	16.5	50.0	

< 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
0.180000	53.0	1000.000	9.000	GND	N	10.0	11.4	64.4	
0.435000	33.5	1000.000	9.000	GND	N	10.0	23.6	57.1	
0.690000	29.8	1000.000	9.000	GND	N	10.0	26.2	56.0	
0.855000	30.9	1000.000	9.000	GND	N	10.0	25.1	56.0	
1.665000	32.4	1000.000	9.000	GND	N	10.1	23.6	56.0	
2.175000	32.9	1000.000	9.000	GND	N	10.1	23.1	56.0	
3.270000	34.7	1000.000	9.000	GND	N	10.1	21.3	56.0	
4.140000	34.1	1000.000	9.000	GND	N	10.2	21.9	56.0	
6.975000	35.2	1000.000	9.000	GND	N	10.3	24.8	60.0	
14.610000	38.9	1000.000	9.000	GND	N	10.6	21.1	60.0	

Final Measurement Detector 2

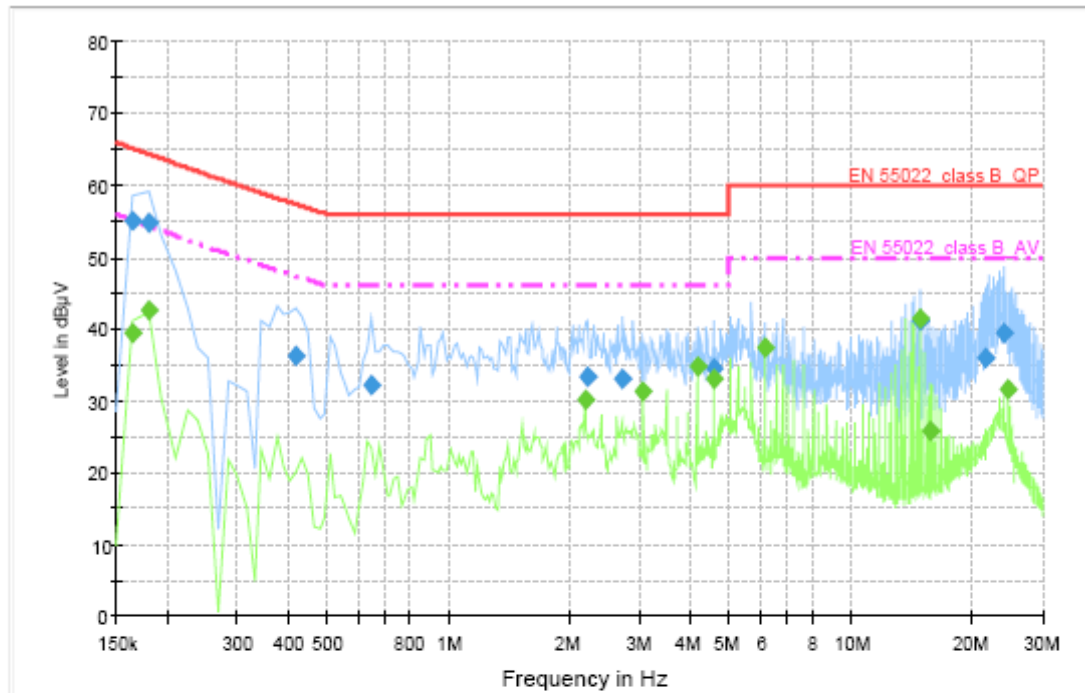
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.180000	39.9	1000.000	9.000	GND	N	10.0	14.5	54.4	
0.900000	22.2	1000.000	9.000	GND	N	10.0	23.8	46.0	
1.635000	24.5	1000.000	9.000	GND	N	10.1	21.5	46.0	
2.400000	30.6	1000.000	9.000	GND	N	10.1	15.4	46.0	
3.270000	32.7	1000.000	9.000	GND	N	10.1	13.3	46.0	
4.140000	32.5	1000.000	9.000	GND	N	10.2	13.5	46.0	
6.975000	35.0	1000.000	9.000	GND	N	10.3	15.0	50.0	
13.080000	29.3	1000.000	9.000	GND	N	10.5	20.7	50.0	
14.610000	39.5	1000.000	9.000	GND	N	10.6	10.5	50.0	
24.015000	28.4	1000.000	9.000	GND	N	10.8	21.6	50.0	

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



◆ Operating condition: 1 920 × 1 080 / 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
0.165000	55.0	1000.000	9.000	GND	L1	10.0	10.1	65.1	
0.180000	54.7	1000.000	9.000	GND	L1	10.0	9.7	64.4	
0.420000	36.2	1000.000	9.000	GND	L1	10.0	21.1	57.3	
0.645000	32.1	1000.000	9.000	GND	L1	10.0	23.9	56.0	
2.220000	33.3	1000.000	9.000	GND	L1	10.1	22.7	56.0	
2.715000	33.0	1000.000	9.000	GND	L1	10.1	23.0	56.0	
4.590000	34.6	1000.000	9.000	GND	L1	10.2	21.4	56.0	
14.865000	41.3	1000.000	9.000	GND	L1	10.7	18.7	60.0	
21.615000	36.0	1000.000	9.000	GND	L1	11.1	24.0	60.0	
23.970000	39.4	1000.000	9.000	GND	L1	11.2	20.6	60.0	

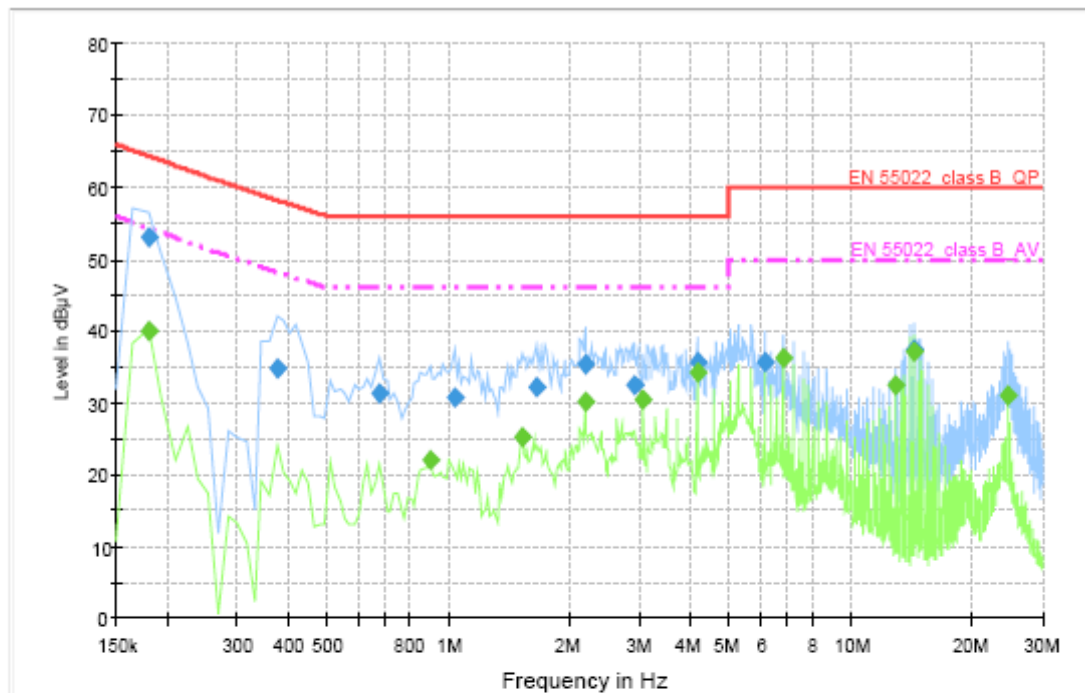
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	39.4	1000.000	9.000	GND	L1	10.0	15.7	55.1	
0.180000	42.7	1000.000	9.000	GND	L1	10.0	11.7	54.4	
2.190000	30.3	1000.000	9.000	GND	L1	10.1	15.7	46.0	
3.060000	31.3	1000.000	9.000	GND	L1	10.1	14.7	46.0	
4.155000	34.8	1000.000	9.000	GND	L1	10.2	11.2	46.0	
4.590000	33.0	1000.000	9.000	GND	L1	10.2	13.0	46.0	
6.120000	37.3	1000.000	9.000	GND	L1	10.2	12.7	50.0	
14.865000	41.5	1000.000	9.000	GND	L1	10.7	8.5	50.0	
15.735000	25.8	1000.000	9.000	GND	L1	10.8	24.2	50.0	
24.705000	31.7	1000.000	9.000	GND	L1	11.2	18.3	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
0.180000	53.0	1000.000	9.000	GND	N	10.0	11.4	64.4	
0.375000	34.8	1000.000	9.000	GND	N	10.0	23.4	58.2	
0.675000	31.2	1000.000	9.000	GND	N	10.0	24.8	56.0	
1.035000	30.7	1000.000	9.000	GND	N	10.1	25.3	56.0	
1.665000	32.3	1000.000	9.000	GND	N	10.1	23.7	56.0	
2.190000	35.3	1000.000	9.000	GND	N	10.1	20.7	56.0	
2.895000	32.4	1000.000	9.000	GND	N	10.1	23.6	56.0	
4.155000	35.6	1000.000	9.000	GND	N	10.2	20.4	56.0	
6.120000	35.7	1000.000	9.000	GND	N	10.2	24.3	60.0	
14.430000	37.5	1000.000	9.000	GND	N	10.5	22.5	60.0	

Final Measurement Detector 2

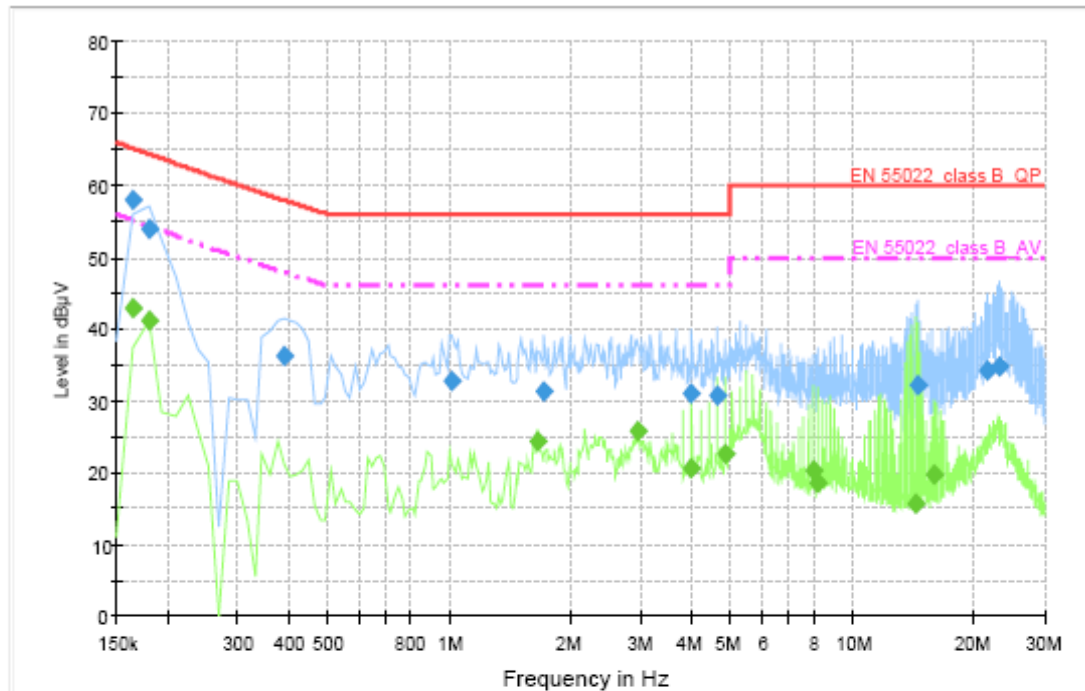
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.180000	39.9	1000.000	9.000	GND	N	10.0	14.5	54.4	
0.900000	21.9	1000.000	9.000	GND	N	10.0	24.1	46.0	
1.530000	25.3	1000.000	9.000	GND	N	10.1	20.7	46.0	
2.190000	30.2	1000.000	9.000	GND	N	10.1	15.8	46.0	
3.060000	30.5	1000.000	9.000	GND	N	10.1	15.5	46.0	
4.155000	34.3	1000.000	9.000	GND	N	10.2	11.7	46.0	
6.780000	36.3	1000.000	9.000	GND	N	10.3	13.7	50.0	
12.900000	32.4	1000.000	9.000	GND	N	10.5	17.6	50.0	
14.430000	37.1	1000.000	9.000	GND	N	10.5	12.9	50.0	
24.705000	30.9	1000.000	9.000	GND	N	10.8	19.1	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
0.165000	58.0	1000.000	9.000	GND	L1	10.0	7.1	65.1	
0.180000	53.8	1000.000	9.000	GND	L1	10.0	10.6	64.4	
0.390000	36.3	1000.000	9.000	GND	L1	10.0	21.6	57.9	
1.020000	32.7	1000.000	9.000	GND	L1	10.0	23.3	56.0	
1.725000	31.3	1000.000	9.000	GND	L1	10.1	24.7	56.0	
4.005000	31.2	1000.000	9.000	GND	L1	10.2	24.8	56.0	
4.635000	30.8	1000.000	9.000	GND	L1	10.2	25.2	56.0	
14.550000	32.3	1000.000	9.000	GND	L1	10.7	27.7	60.0	
21.600000	34.2	1000.000	9.000	GND	L1	11.1	25.8	60.0	
23.145000	34.7	1000.000	9.000	GND	L1	11.2	25.3	60.0	

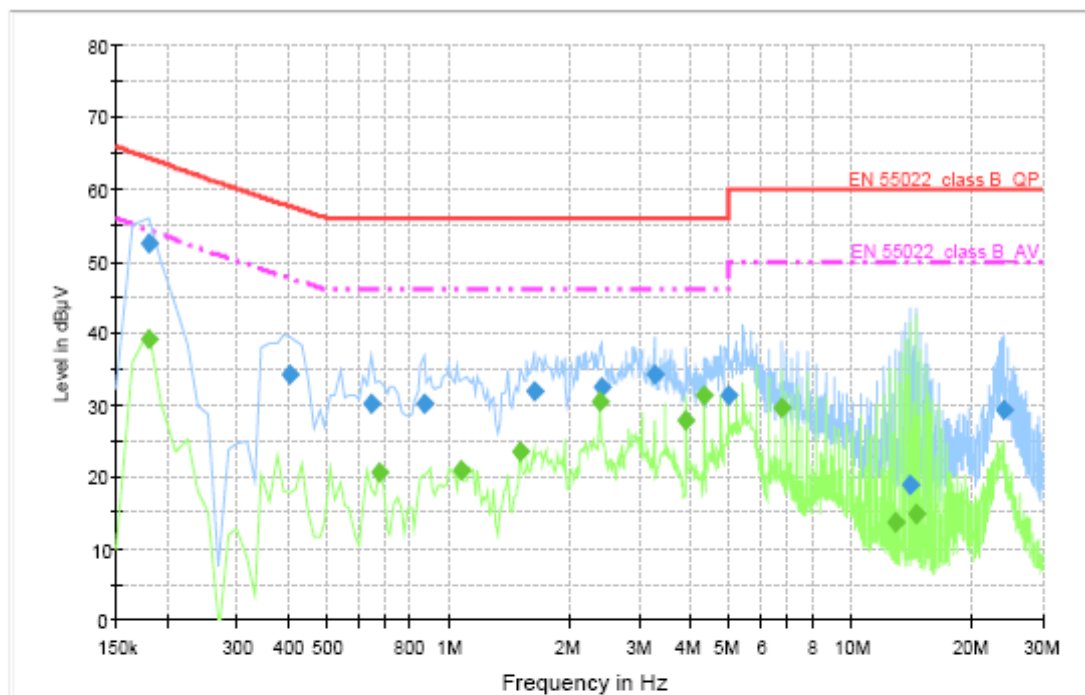
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.165000	43.0	1000.000	9.000	GND	L1	10.0	12.1	55.1	
0.180000	41.1	1000.000	9.000	GND	L1	10.0	13.3	54.4	
1.665000	24.5	1000.000	9.000	GND	L1	10.1	21.5	46.0	
2.955000	25.8	1000.000	9.000	GND	L1	10.1	20.2	46.0	
4.005000	20.6	1000.000	9.000	GND	L1	10.2	25.4	46.0	
4.845000	22.7	1000.000	9.000	GND	L1	10.2	23.3	46.0	
8.010000	20.4	1000.000	9.000	GND	L1	10.3	29.6	50.0	
8.220000	18.5	1000.000	9.000	GND	L1	10.3	31.5	50.0	
14.340000	15.6	1000.000	9.000	GND	L1	10.7	34.4	50.0	
16.035000	19.7	1000.000	9.000	GND	L1	10.8	30.3	50.0	

< 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
0.180000	52.4	1000.000	9.000	GND	N	10.0	12.0	64.4	
0.405000	34.2	1000.000	9.000	GND	N	10.0	23.4	57.6	
0.645000	30.1	1000.000	9.000	GND	N	10.0	25.9	56.0	
0.870000	30.0	1000.000	9.000	GND	N	10.0	26.0	56.0	
1.635000	31.8	1000.000	9.000	GND	N	10.1	24.2	56.0	
2.400000	32.4	1000.000	9.000	GND	N	10.1	23.6	56.0	
3.255000	34.3	1000.000	9.000	GND	N	10.1	21.7	56.0	
4.980000	31.3	1000.000	9.000	GND	N	10.2	24.7	56.0	
14.085000	18.7	1000.000	9.000	GND	N	10.5	41.3	60.0	
23.970000	29.4	1000.000	9.000	GND	N	10.8	30.6	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.180000	39.0	1000.000	9.000	GND	N	10.0	15.4	54.4	
0.675000	20.7	1000.000	9.000	GND	N	10.0	25.3	46.0	
1.080000	20.8	1000.000	9.000	GND	N	10.1	25.2	46.0	
1.515000	23.5	1000.000	9.000	GND	N	10.1	22.5	46.0	
2.385000	30.4	1000.000	9.000	GND	N	10.1	15.6	46.0	
3.900000	28.0	1000.000	9.000	GND	N	10.2	18.0	46.0	
4.335000	31.2	1000.000	9.000	GND	N	10.2	14.8	46.0	
6.720000	29.4	1000.000	9.000	GND	N	10.3	20.6	50.0	
13.005000	13.8	1000.000	9.000	GND	N	10.5	36.2	50.0	
14.520000	14.8	1000.000	9.000	GND	N	10.6	35.2	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 23 °C
Relative Humidity : 43 % 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	207	12. 22. 2011
■ - 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



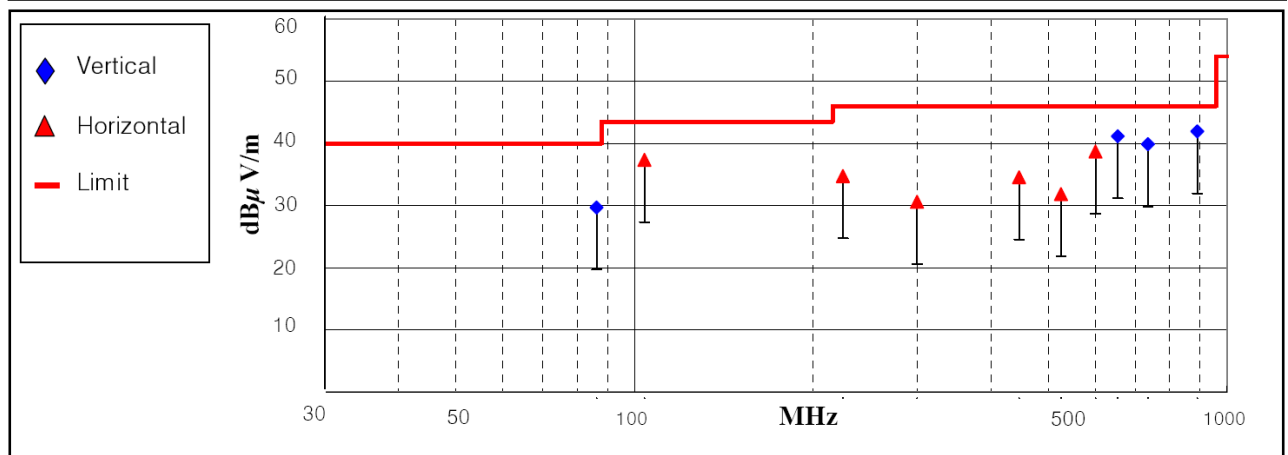
6.6 Test data for Radiated Emission

- Test Date : March 9, 2010
- Resolution Bandwidth : 120 kHz/1 MHz
- Frequency Range : 30 MHz ~ 5 000 MHz
- Measurement Distance : 3 m
- Note : The highest frequency of the internal source of the EUT is between 500 MHz and 1 000 MHz (666 MHz). The measurement was made up to 5 000 MHz.

◆ Operating Condition: 1 920 × 1 080 / 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)	(°)
86.29	18.61	8.18	2.90	29.69	40.00	10.31	V	117	310
103.95	24.39	9.83	3.12	37.34	43.50	6.16	H	268	235
224.87	19.69	10.40	4.62	34.71	46.00	11.29	H	147	262
299.79	11.69	13.27	5.62	30.58	46.00	15.42	H	100	263
445.93	10.37	16.99	7.19	34.55	46.00	11.45	H	100	249
524.78	6.71	18.06	7.07	31.84	46.00	14.16	H	211	345
599.85	10.93	20.33	7.41	38.67	46.00	7.33	H	190	174
653.81	12.34	21.08	7.73	41.15	46.00	4.85	V	189	20
735.49	9.28	22.39	8.21	39.88	46.00	6.12	V	100	15
891.00	8.72	24.11	9.11	41.94	46.00	4.06	V	100	13

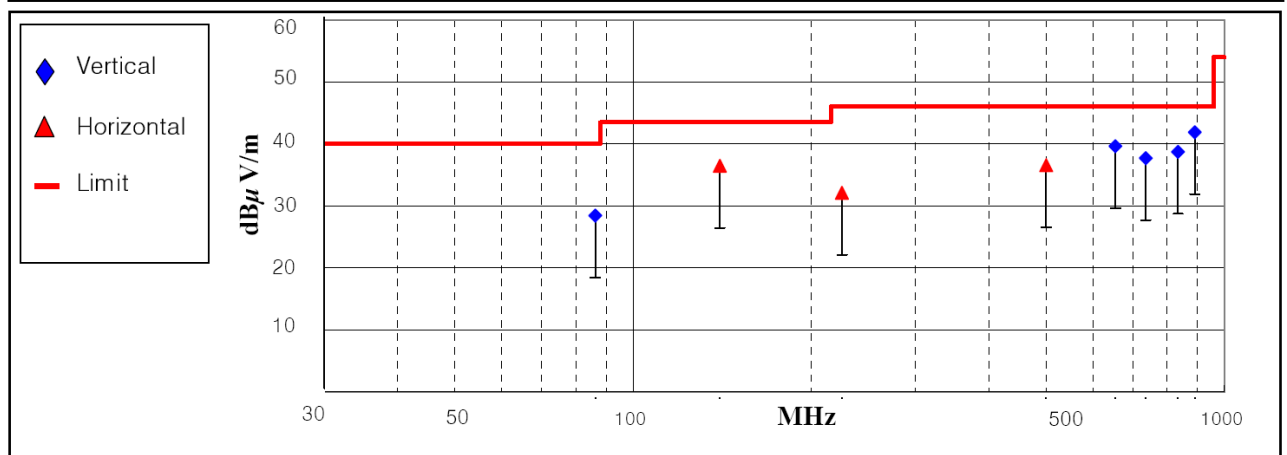


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dB μ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dB μ V)	Factor(dB/m)	Loss(dB)	(dB μ V/m)			(H/V)	(cm)	(°)
86.25	17.34	8.18	2.90	28.42	40.00	11.58	V	100	294
140.15	20.22	12.69	3.57	36.48	43.50	7.02	H	216	85
225.44	17.05	10.43	4.62	32.10	46.00	13.90	H	100	270
499.52	11.99	17.54	7.01	36.54	46.00	9.46	H	206	184
654.32	10.82	21.08	7.73	39.63	46.00	6.37	V	184	10
736.81	7.06	22.42	8.22	37.70	46.00	8.30	V	100	9
834.39	6.43	23.52	8.78	38.73	46.00	7.27	V	100	13
891.00	8.67	24.11	9.11	41.89	46.00	4.11	V	100	0

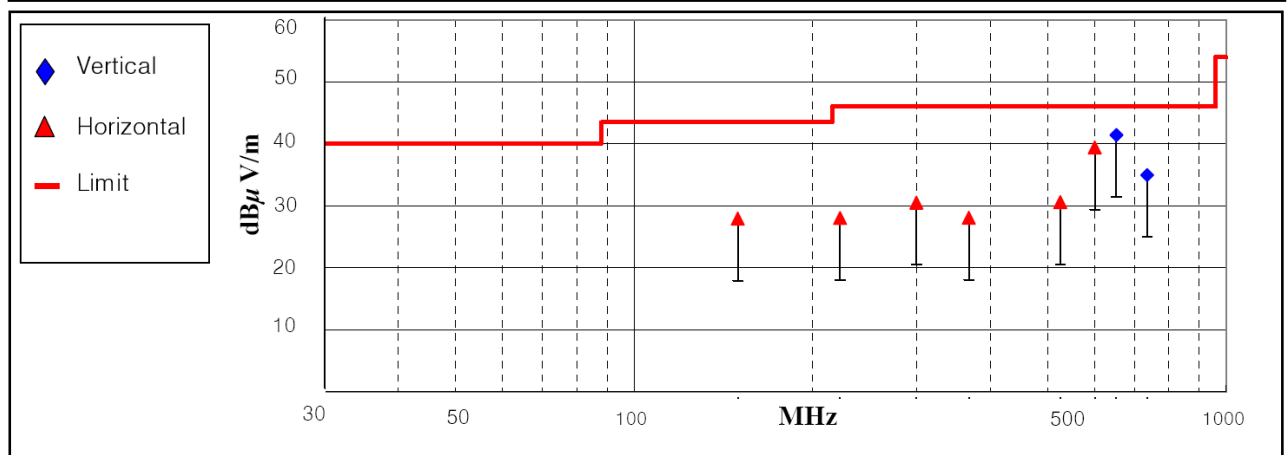


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



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

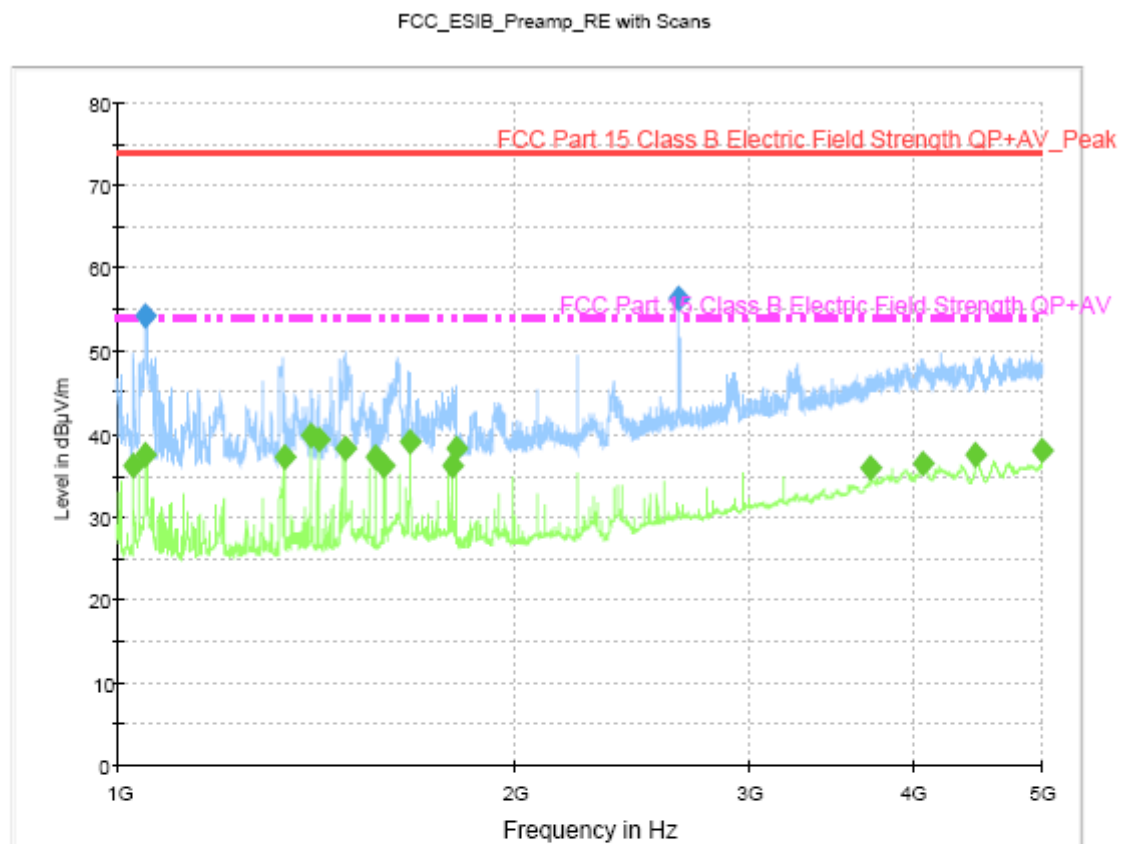
Frequency (MHz)	Measurement Level				Limit (dB μ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dB μ V)	Factor(dB/m)	Loss(dB)	(dB μ V/m)			(H/V)	(cm)	(°)
149.76	11.48	12.76	3.69	27.93	43.50	15.57	H	218	339
222.77	13.15	10.31	4.59	28.05	46.00	17.95	H	100	285
300.00	11.59	13.28	5.62	30.49	46.00	15.51	H	119	180
367.81	6.11	14.83	7.12	28.06	46.00	17.94	H	100	47
524.87	5.46	18.06	7.07	30.59	46.00	15.41	H	128	251
600.00	11.66	20.34	7.41	39.41	46.00	6.59	H	248	43
652.98	12.63	21.07	7.72	41.42	46.00	4.58	V	132	47
735.44	4.36	22.39	8.21	34.96	46.00	11.04	V	100	319



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



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Detector mode: Peak detector mode / Average detector mode



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1052.000000	54.3	200.0	H	0.0	-15.6	19.7	74.0	
2657.200000	56.3	200.0	H	0.0	-9.7	17.7	74.0	

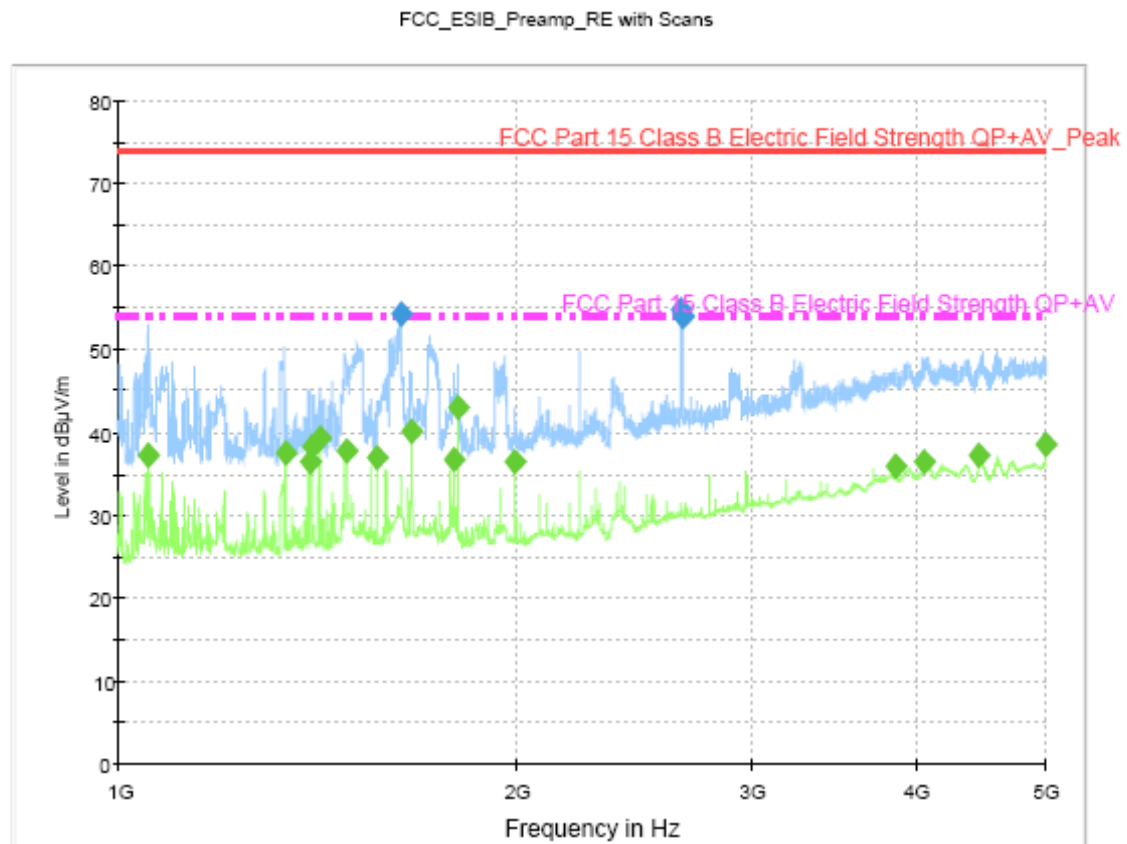
Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1029.600000	36.3	200.0	H	0.0	-15.7	17.7	54.0	
1052.000000	37.6	200.0	H	0.0	-15.6	16.4	54.0	
1336.400000	37.4	100.0	V	90.0	-14.4	16.6	54.0	
1402.400000	39.8	100.0	V	90.0	-14.5	14.2	54.0	
1419.200000	39.4	200.0	H	180.0	-14.4	14.6	54.0	
1485.200000	38.3	100.0	V	180.0	-14.3	15.7	54.0	
1567.600000	37.2	100.0	V	180.0	-13.8	16.8	54.0	
1592.800000	36.2	200.0	H	180.0	-13.7	17.8	54.0	
1666.800000	39.0	100.0	V	180.0	-13.6	15.0	54.0	
1792.000000	36.2	200.0	H	0.0	-13.1	17.8	54.0	
1805.600000	38.3	100.0	V	180.0	-13.1	15.7	54.0	
3712.400000	36.0	200.0	H	180.0	-4.8	18.0	54.0	
4064.800000	36.4	100.0	V	0.0	-3.1	17.6	54.0	
4454.800000	37.6	200.0	H	180.0	-3.3	16.4	54.0	
5000.000000	37.9	100.0	V	180.0	-2.4	16.1	54.0	

< Fig 17. Radiated emission result (1 000 MHz ~ 5 000 MHz)>



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Detector mode: Peak detector mode / Average detector mode



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1636.400000	54.4	200.0	H	0.0	-13.6	19.6	74.0	
2654.000000	54.9	200.0	H	0.0	-9.7	19.1	74.0	
2663.600000	54.0	100.0	H	180.0	-9.7	20.0	74.0	
2665.200000	54.0	200.0	H	0.0	-9.7	20.0	74.0	

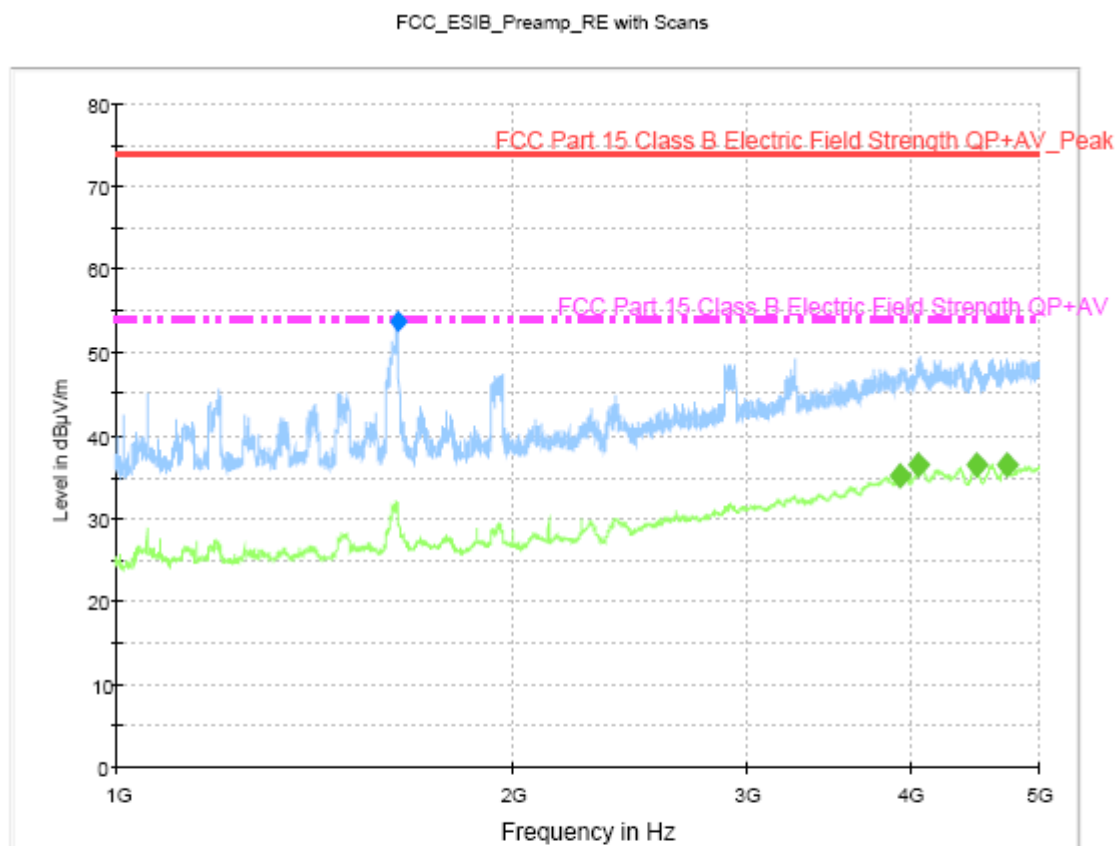
Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1052.800000	37.3	100.0	H	0.0	-15.6	16.7	54.0	
1336.400000	37.6	200.0	V	180.0	-14.4	16.4	54.0	
1394.000000	36.5	100.0	V	180.0	-14.5	17.5	54.0	
1402.400000	38.3	200.0	H	180.0	-14.5	15.7	54.0	
1418.800000	39.3	200.0	H	180.0	-14.4	14.7	54.0	
1485.200000	37.8	100.0	V	90.0	-14.3	16.2	54.0	
1567.600000	36.9	100.0	V	180.0	-13.8	17.1	54.0	
1666.800000	40.2	100.0	V	180.0	-13.6	13.8	54.0	
1792.000000	36.6	200.0	H	0.0	-13.1	17.4	54.0	
1804.800000	42.9	100.0	H	180.0	-13.1	11.1	54.0	
1991.200000	36.5	100.0	H	0.0	-12.8	17.5	54.0	
3861.200000	35.9	200.0	H	180.0	-3.9	18.1	54.0	
4054.800000	36.4	200.0	H	0.0	-3.1	17.6	54.0	
4454.800000	37.3	200.0	H	180.0	-3.3	16.7	54.0	
5000.000000	38.6	100.0	V	180.0	-2.4	15.4	54.0	

< Fig 18. Radiated emission result (1 000 MHz ~ 5 000 MHz)>



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



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1636.000000	53.6	100.0	H	180.0	-13.6	20.4	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
3919.200000	35.1	100.0	H	0.0	-3.6	18.9	54.0	
4054.000000	36.4	200.0	V	90.0	-3.1	17.6	54.0	
4478.000000	36.4	100.0	H	0.0	-3.3	17.6	54.0	
4719.600000	36.4	100.0	H	0.0	-2.9	17.6	54.0	

< Fig 19. Radiated emission result (1 000 MHz ~ 5 000 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. LED LCD TV/Monitor (Model Name: 37LE5300-UC)** was complies with §15.107 and 15.109 of the FCC Rules.