

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 : November 2, 2009

Order Number: GETEC-C1-09-218

Test Report Number: GETEC-E3-09-125

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJ26LD350UA

Applicant: LG Electronics Inc.

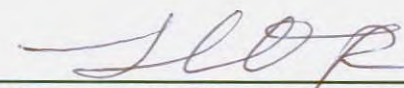
Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: LCD TV/Monitor
Type of Authority	: Certification
Model Name	: 26LD350-UA
Trade Name	: LG

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

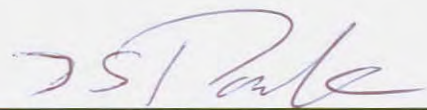
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested by,

Reviewed by,



Hyoungh Seop Kim, Associate Engineer
GUMI College EMC center



Tae-Sig Park, Technical Manager
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. Sang-Wook Lee, Chief research engineer

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- **FCC ID.** BEJ26LD350UA
- **EUT Type** LCD TV/Monitor
- **Model Name** 26LD350-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** October 23 ~ 26, 2009
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-09-125
- **Dates of Issue** November 2, 2009



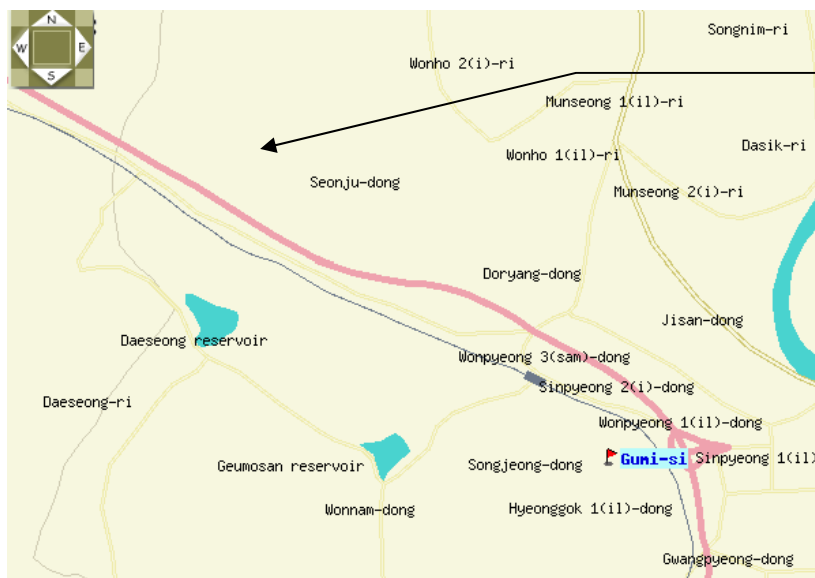
2. Introduction

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: 26LD350-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 on October 19, 1992



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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: 26LD350-UA) FCC ID.: BEJ26LD350UA**

MODELS		26LD350 (26LD350-UA)	32LD350 (32LD350-UA)
Dimensions (Width x Height x Depth)	With stand	26.1 x 19.0 x 8.1 inches 663.0 x 484.0 x 206.8 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
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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	ARI RV360(9600)	S/N: SN0402017176 FCC ID: DoC
Key-board	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
Headset	GOWOONSORI	GW-500M	S/N: N/A FCC ID: DoC
Printer	Hewlett Packard	970CXI	S/N: MY9B01F1FG FCC ID: DoC
TV signal generator	FLUKE	54200	S/N: 831011 FCC ID: DoC

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



3.2.2 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.8 m unshielded
Video(RGB) input cable	Connected to the EUT and PC	1.8 m shielded with two ferrite cores
Video(HDMI/DVI) input cable	Connected to the EUT and PC	2.0 m shielded
RS-232C input cable	Connected to the EUT and PC	1.8 m shielded
PC sound input cable	Connected to the EUT and PC	2.0 m shielded
Component input cable	Connected to the EUT and DVD Player	1.8 m shielded
Component sound input cable	Connected to the EUT and DVD Player	3.0 m shielded
AV input cable	Connected to the EUT and DVD Player	3.0 m shielded
Headset cable	Connected to the EUT	2.75 m shielded
Antenna cable	Connected to the EUT and TV signal generator	10.0 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), 1 360 * 768 / 60 Hz (HDMI/DVI: Digital)
 - . Conducted emission: 1 360 * 768 / 60 Hz (RGB: Analog), 1 360 * 768 / 60 Hz (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

"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

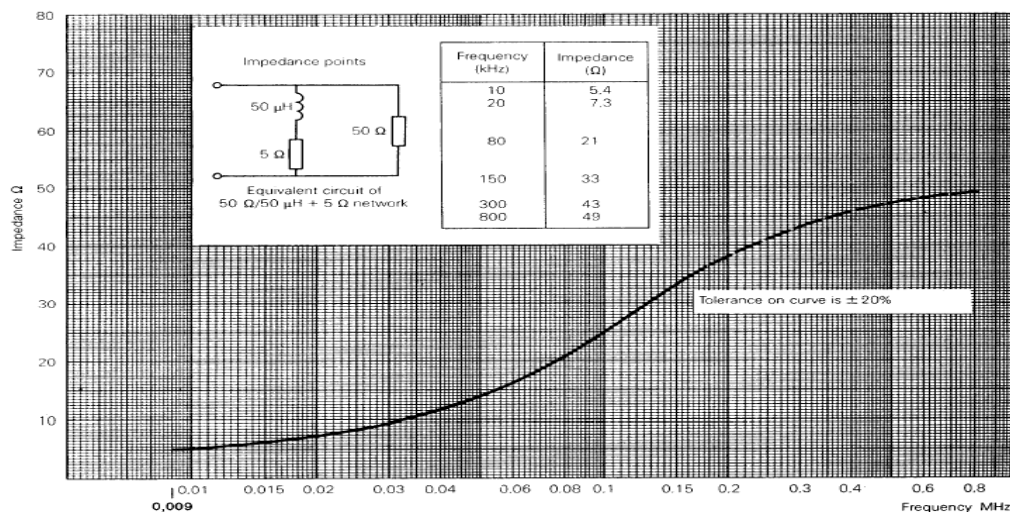


Fig 2. Impedance of LISN



4.3 Radiated Emission

The measurements were conducted 3 m anechoic chamber (FCC Registration No.: 443957) 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.

The spectrum was scanned from 30 to 1000 MHz, using bicornical log antenna (Schwarzbeck, VULB9160).

Above 1 GHz, horn antenna (Schwarzbeck, BBHA9120D / EMCO 3160) was used.

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 1MHz 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 m to 4 m and stopped at the azimuth or height producing the maximum emission.

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

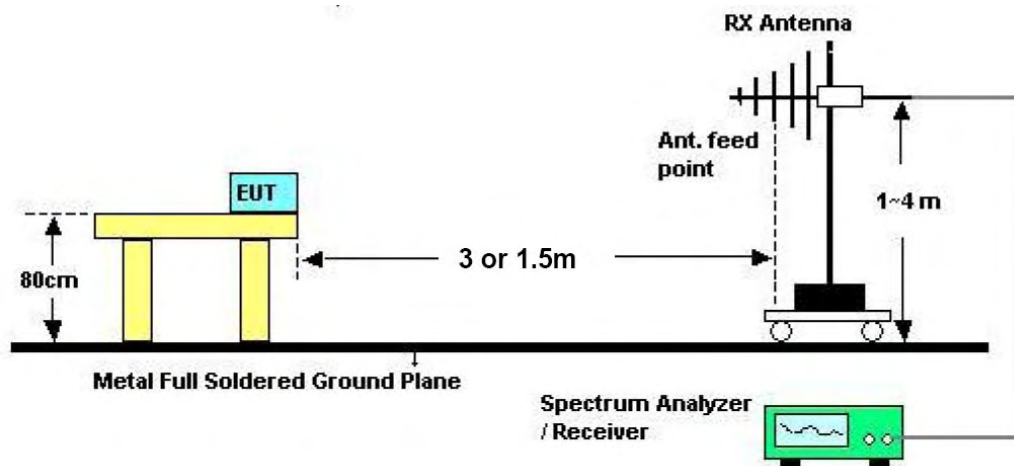


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 25 °C
Relative Humidity : 37 % 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)	± 2.97 dB	Confidence levels of 95 % (k=2)
Conducted emission (150 kHz ~ 30 MHz)	± 4.05 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

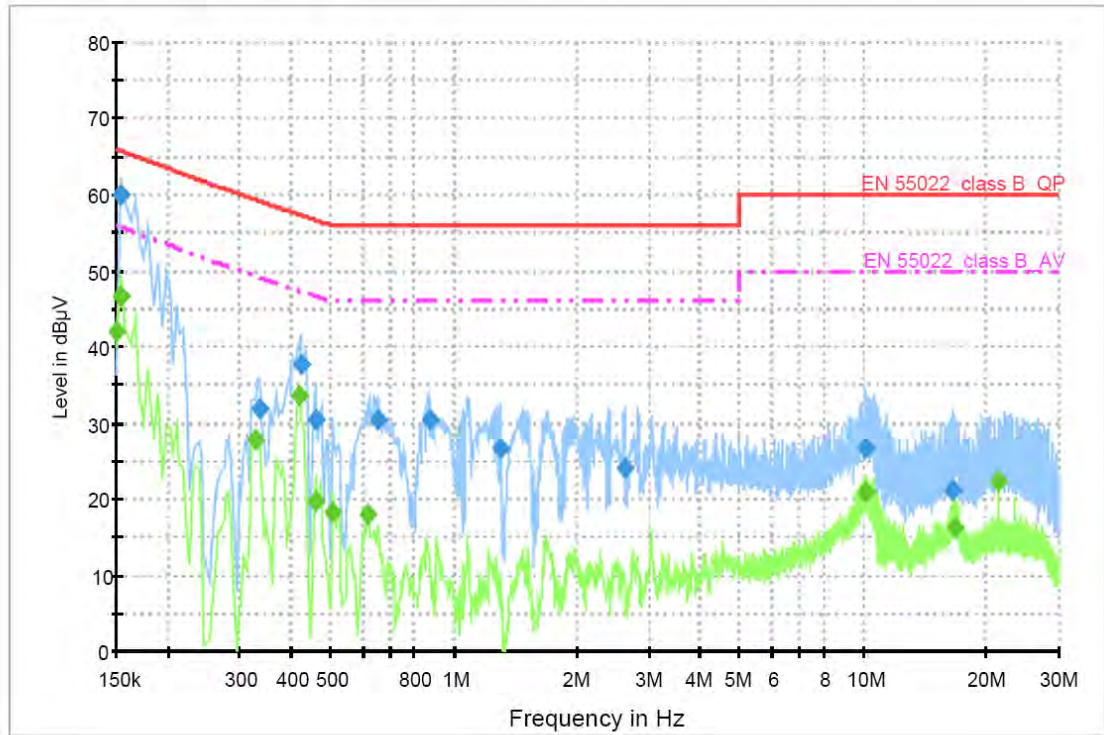
Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 13. 2009
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 12. 2009
■ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 12. 2009
□ - ISN T8	TESEQ. GmbH	ISN	24568	10. 16. 2010

5.6 Test data for Conducted Emission

- . Test Date : October 26, 2009
- . Resolution Bandwidth : 9 kHz
- . Frequency Range : 0.15 MHz ~ 30 MHz



◆ Test resolution: 1 360 * 768 / 60 Hz (RGB: Analog 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
0.154000	60.1	1000.000	9.000	GND	L1	9.9	5.7	65.8	
0.334000	31.8	1000.000	9.000	GND	L1	10.0	27.4	59.2	
0.422000	37.7	1000.000	9.000	GND	L1	10.0	19.6	57.3	
0.458000	30.4	1000.000	9.000	GND	L1	10.0	26.3	56.7	
0.654000	30.3	1000.000	9.000	GND	L1	10.0	25.7	56.0	
0.874000	30.5	1000.000	9.000	GND	L1	10.0	25.5	56.0	
1.306000	26.7	1000.000	9.000	GND	L1	10.0	29.3	56.0	
2.618000	24.2	1000.000	9.000	GND	L1	10.1	31.8	56.0	
10.170000	26.7	1000.000	9.000	GND	L1	10.3	33.3	60.0	
16.522000	21.1	1000.000	9.000	GND	L1	10.7	38.9	60.0	

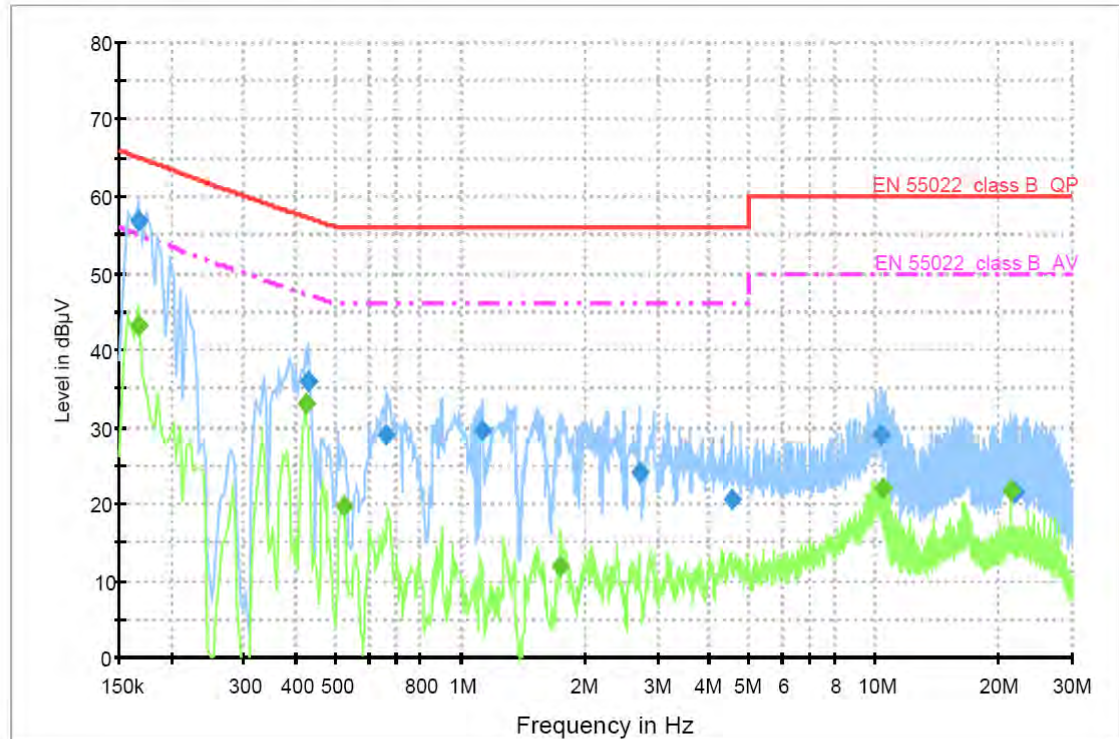
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	42.1	1000.000	9.000	GND	L1	9.9	13.9	56.0	
0.154000	46.7	1000.000	9.000	GND	L1	9.9	9.1	55.8	
0.326000	27.9	1000.000	9.000	GND	L1	10.0	21.4	49.3	
0.418000	33.6	1000.000	9.000	GND	L1	10.0	13.8	47.4	
0.458000	19.7	1000.000	9.000	GND	L1	10.0	27.0	46.7	
0.506000	18.1	1000.000	9.000	GND	L1	10.0	27.9	46.0	
0.618000	18.1	1000.000	9.000	GND	L1	10.0	27.9	46.0	
10.170000	21.0	1000.000	9.000	GND	L1	10.3	29.0	50.0	
16.746000	16.2	1000.000	9.000	GND	L1	10.7	33.8	50.0	
21.506000	22.5	1000.000	9.000	GND	L1	10.9	27.5	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
0.166000	56.7	1000.000	9.000	GND	N	9.9	8.4	65.1	
0.430000	36.1	1000.000	9.000	GND	N	10.0	21.1	57.2	
0.662000	28.9	1000.000	9.000	GND	N	10.0	27.1	56.0	
1.134000	29.6	1000.000	9.000	GND	N	10.0	26.4	56.0	
2.722000	24.2	1000.000	9.000	GND	N	10.1	31.8	56.0	
4.542000	20.6	1000.000	9.000	GND	N	10.2	35.4	56.0	
10.358000	28.9	1000.000	9.000	GND	N	10.3	31.1	60.0	
21.774000	21.4	1000.000	9.000	GND	N	10.8	38.6	60.0	

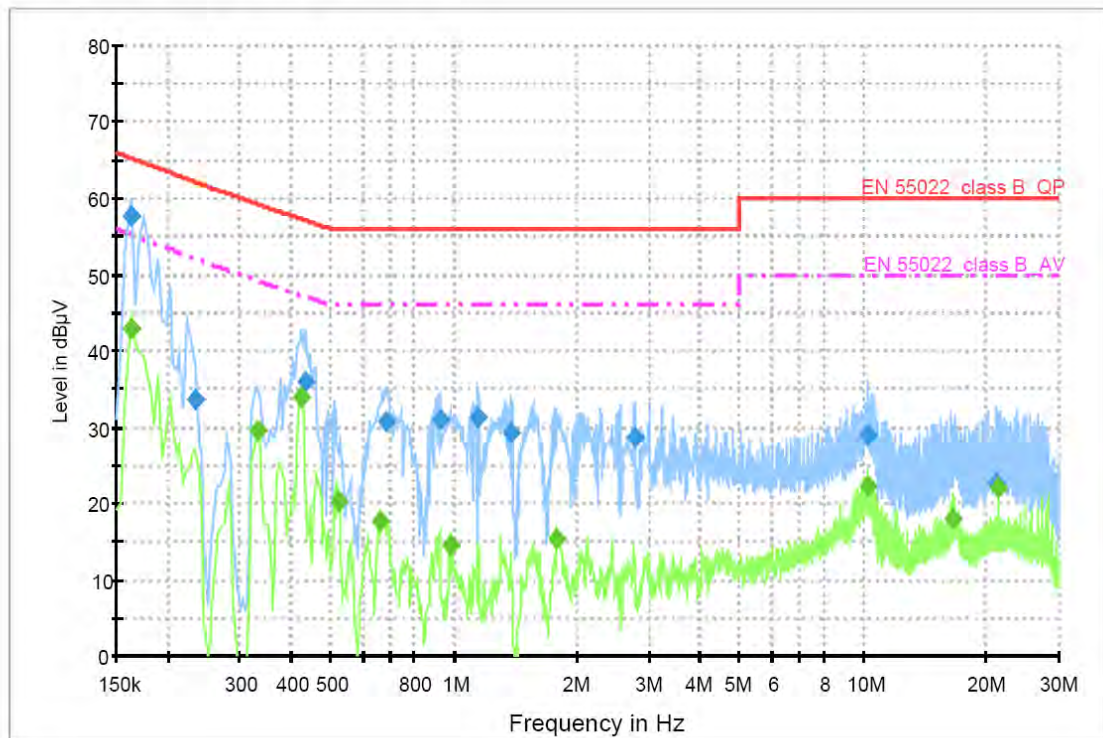
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.166000	43.3	1000.000	9.000	GND	N	9.9	11.8	55.1	
0.422000	32.9	1000.000	9.000	GND	N	10.0	14.4	47.3	
0.522000	19.6	1000.000	9.000	GND	N	10.0	26.4	46.0	
1.746000	11.9	1000.000	9.000	GND	N	10.1	34.1	46.0	
10.466000	22.1	1000.000	9.000	GND	N	10.3	27.9	50.0	
21.502000	21.9	1000.000	9.000	GND	N	10.8	28.1	50.0	

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



◆ Test resolution: 1 360 * 768 / 60 Hz (HDMI/DVI: Digital 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
0.162000	57.8	1000.000	9.000	GND	L1	9.9	7.5	65.3	
0.234000	33.6	1000.000	9.000	GND	L1	9.9	28.5	62.1	
0.434000	35.8	1000.000	9.000	GND	L1	10.0	21.3	57.1	
0.682000	30.7	1000.000	9.000	GND	L1	10.0	25.3	56.0	
0.926000	31.0	1000.000	9.000	GND	L1	10.0	25.0	56.0	
1.146000	31.3	1000.000	9.000	GND	L1	10.0	24.7	56.0	
1.374000	29.3	1000.000	9.000	GND	L1	10.0	26.7	56.0	
2.774000	28.6	1000.000	9.000	GND	L1	10.1	27.4	56.0	
10.302000	29.0	1000.000	9.000	GND	L1	10.3	31.0	60.0	
21.234000	22.5	1000.000	9.000	GND	L1	10.9	37.5	60.0	

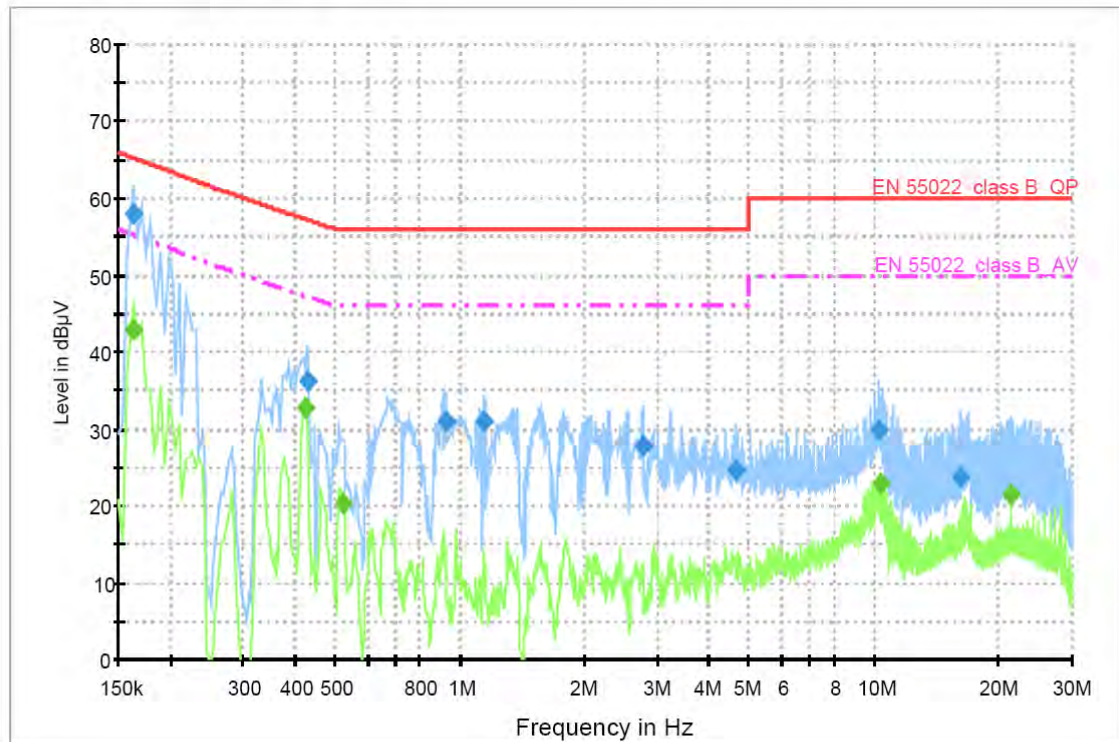
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	42.9	1000.000	9.000	GND	L1	9.9	12.4	55.3	
0.330000	29.5	1000.000	9.000	GND	L1	10.0	19.7	49.2	
0.422000	34.0	1000.000	9.000	GND	L1	10.0	13.3	47.3	
0.522000	20.3	1000.000	9.000	GND	L1	10.0	25.7	46.0	
0.662000	17.8	1000.000	9.000	GND	L1	10.0	28.2	46.0	
0.978000	14.4	1000.000	9.000	GND	L1	10.0	31.6	46.0	
1.786000	15.4	1000.000	9.000	GND	L1	10.1	30.6	46.0	
10.298000	22.4	1000.000	9.000	GND	L1	10.3	27.6	50.0	
16.486000	18.0	1000.000	9.000	GND	L1	10.7	32.0	50.0	
21.506000	21.9	1000.000	9.000	GND	L1	10.9	28.1	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
0.162000	58.0	1000.000	9.000	GND	N	9.9	7.3	65.3	
0.430000	36.3	1000.000	9.000	GND	N	10.0	20.9	57.2	
0.926000	31.1	1000.000	9.000	GND	N	10.0	24.9	56.0	
1.146000	30.9	1000.000	9.000	GND	N	10.0	25.1	56.0	
2.774000	27.9	1000.000	9.000	GND	N	10.1	28.1	56.0	
4.626000	24.7	1000.000	9.000	GND	N	10.2	31.3	56.0	
10.302000	29.9	1000.000	9.000	GND	N	10.3	30.1	60.0	
16.238000	23.8	1000.000	9.000	GND	N	10.6	36.2	60.0	

Final Measurement Detector 2

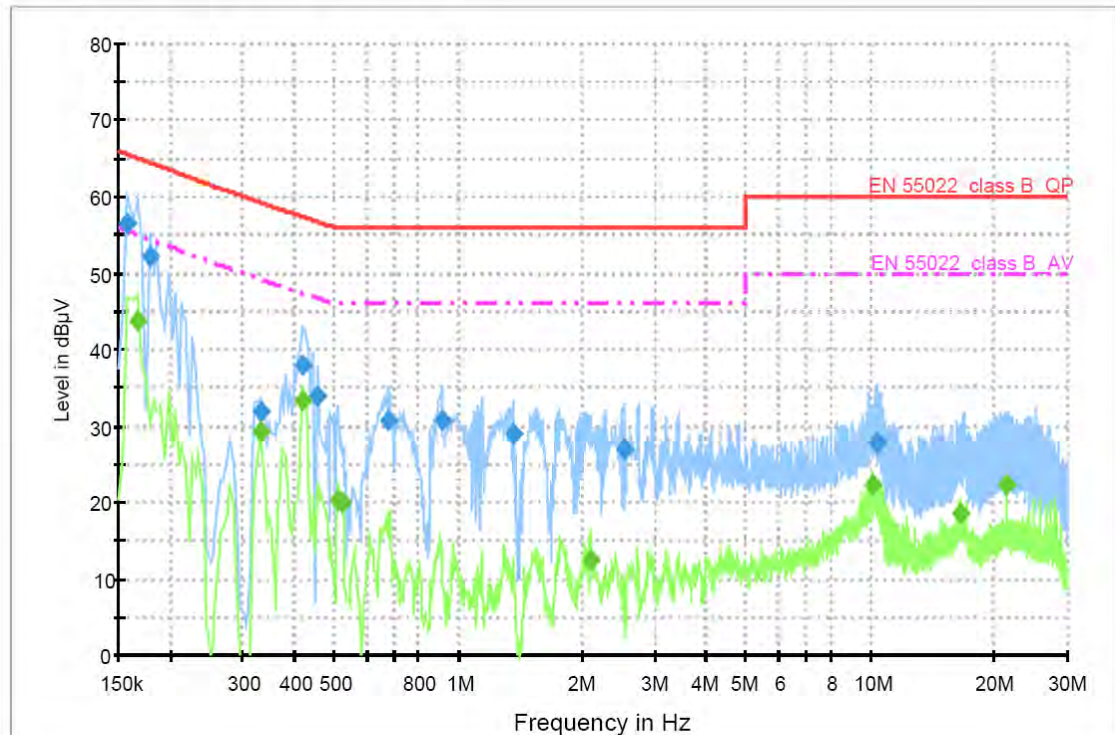
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	42.8	1000.000	9.000	GND	N	9.9	12.5	55.3	
0.426000	32.8	1000.000	9.000	GND	N	10.0	14.4	47.2	
0.522000	20.2	1000.000	9.000	GND	N	10.0	25.8	46.0	
10.366000	22.8	1000.000	9.000	GND	N	10.3	27.2	50.0	
21.506000	21.6	1000.000	9.000	GND	N	10.8	28.4	50.0	

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



◆ Test resolution: 1 024 * 768 / 60 Hz (RGB: Analog 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
0.158000	56.6	1000.000	9.000	GND	L1	9.9	8.9	65.5	
0.178000	52.1	1000.000	9.000	GND	L1	9.9	12.4	64.5	
0.330000	32.0	1000.000	9.000	GND	L1	10.0	27.3	59.3	
0.418000	38.0	1000.000	9.000	GND	L1	10.0	19.4	57.4	
0.454000	33.9	1000.000	9.000	GND	L1	10.0	22.8	56.7	
0.678000	30.7	1000.000	9.000	GND	L1	10.0	25.3	56.0	
0.914000	30.8	1000.000	9.000	GND	L1	10.0	25.2	56.0	
1.362000	29.0	1000.000	9.000	GND	L1	10.0	27.0	56.0	
2.518000	26.8	1000.000	9.000	GND	L1	10.1	29.2	56.0	
10.378000	27.9	1000.000	9.000	GND	L1	10.3	32.1	60.0	

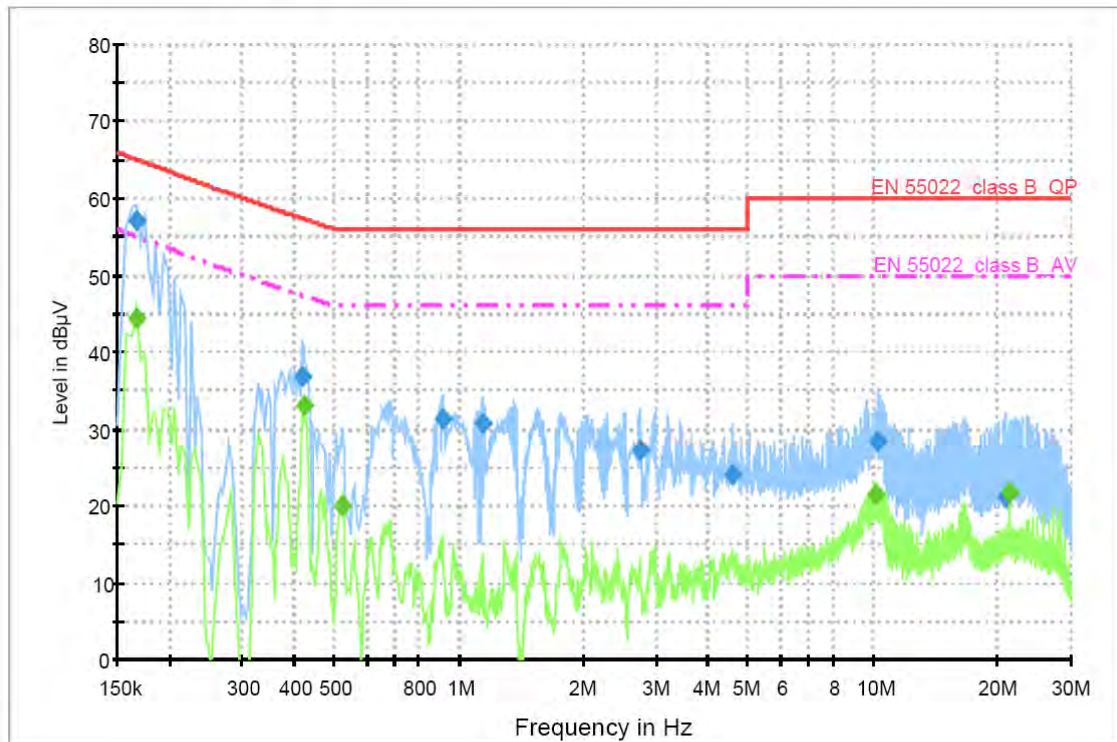
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.166000	43.9	1000.000	9.000	GND	L1	9.9	11.2	55.1	
0.330000	29.2	1000.000	9.000	GND	L1	10.0	20.0	49.2	
0.418000	33.3	1000.000	9.000	GND	L1	10.0	14.1	47.4	
0.510000	20.3	1000.000	9.000	GND	L1	10.0	25.7	46.0	
0.522000	19.9	1000.000	9.000	GND	L1	10.0	26.1	46.0	
2.086000	12.3	1000.000	9.000	GND	L1	10.1	33.7	46.0	
10.182000	22.3	1000.000	9.000	GND	L1	10.3	27.7	50.0	
16.622000	18.7	1000.000	9.000	GND	L1	10.7	31.3	50.0	
21.506000	22.3	1000.000	9.000	GND	L1	10.9	27.7	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
0.166000	57.0	1000.000	9.000	GND	N	9.9	8.1	65.1	
0.418000	36.7	1000.000	9.000	GND	N	10.0	20.7	57.4	
0.918000	31.3	1000.000	9.000	GND	N	10.0	24.7	56.0	
1.138000	30.8	1000.000	9.000	GND	N	10.0	25.2	56.0	
2.754000	27.3	1000.000	9.000	GND	N	10.1	28.8	56.0	
4.562000	24.1	1000.000	9.000	GND	N	10.2	31.9	56.0	
10.262000	28.3	1000.000	9.000	GND	N	10.3	31.7	60.0	
20.914000	21.2	1000.000	9.000	GND	N	10.8	38.8	60.0	

Final Measurement Detector 2

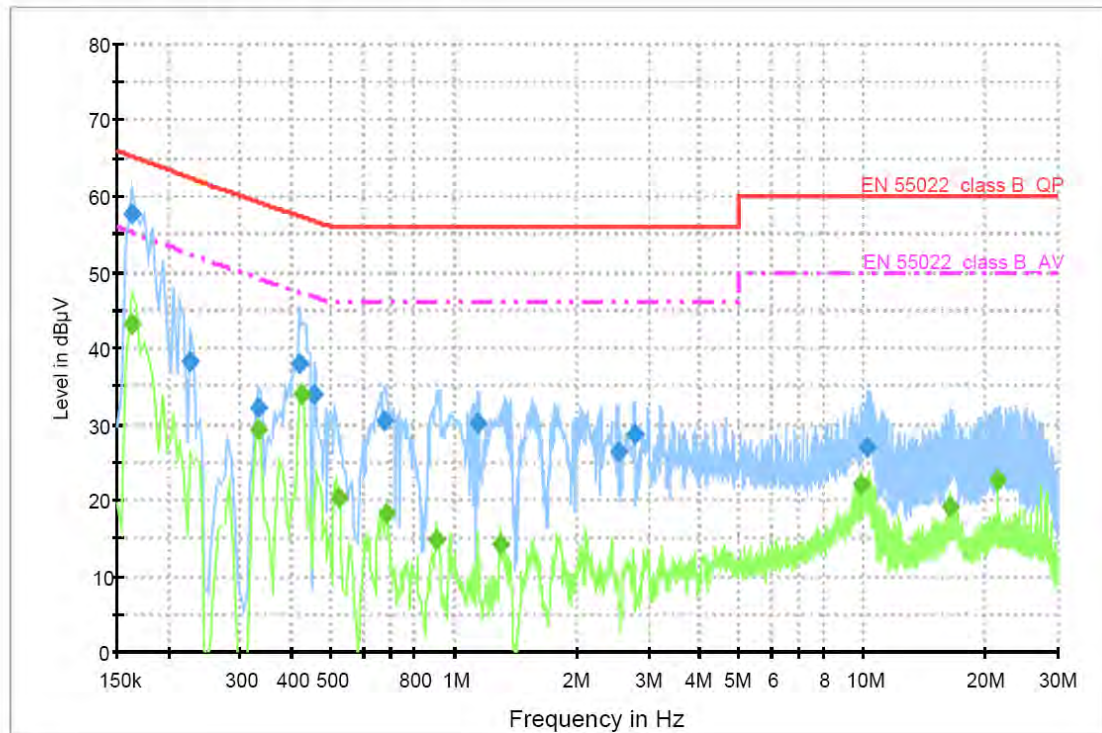
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.166000	44.3	1000.000	9.000	GND	N	9.9	10.8	55.1	
0.422000	33.1	1000.000	9.000	GND	N	10.0	14.2	47.3	
0.522000	20.0	1000.000	9.000	GND	N	10.0	26.0	46.0	
10.150000	21.3	1000.000	9.000	GND	N	10.3	28.7	50.0	
21.502000	21.7	1000.000	9.000	GND	N	10.8	28.3	50.0	

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



◆ Test resolution: 640 * 480 / 60 Hz (RGB: Analog 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
0.162000	57.8	1000.000	9.000	GND	L1	9.9	7.5	65.3	
0.226000	38.4	1000.000	9.000	GND	L1	9.9	24.0	62.4	
0.330000	32.2	1000.000	9.000	GND	L1	10.0	27.1	59.3	
0.418000	38.0	1000.000	9.000	GND	L1	10.0	19.4	57.4	
0.454000	34.0	1000.000	9.000	GND	L1	10.0	22.7	56.7	
0.678000	30.3	1000.000	9.000	GND	L1	10.0	25.7	56.0	
1.142000	30.2	1000.000	9.000	GND	L1	10.0	25.8	56.0	
2.514000	26.5	1000.000	9.000	GND	L1	10.1	29.5	56.0	
2.770000	28.6	1000.000	9.000	GND	L1	10.1	27.4	56.0	
10.258000	26.9	1000.000	9.000	GND	L1	10.3	33.1	60.0	

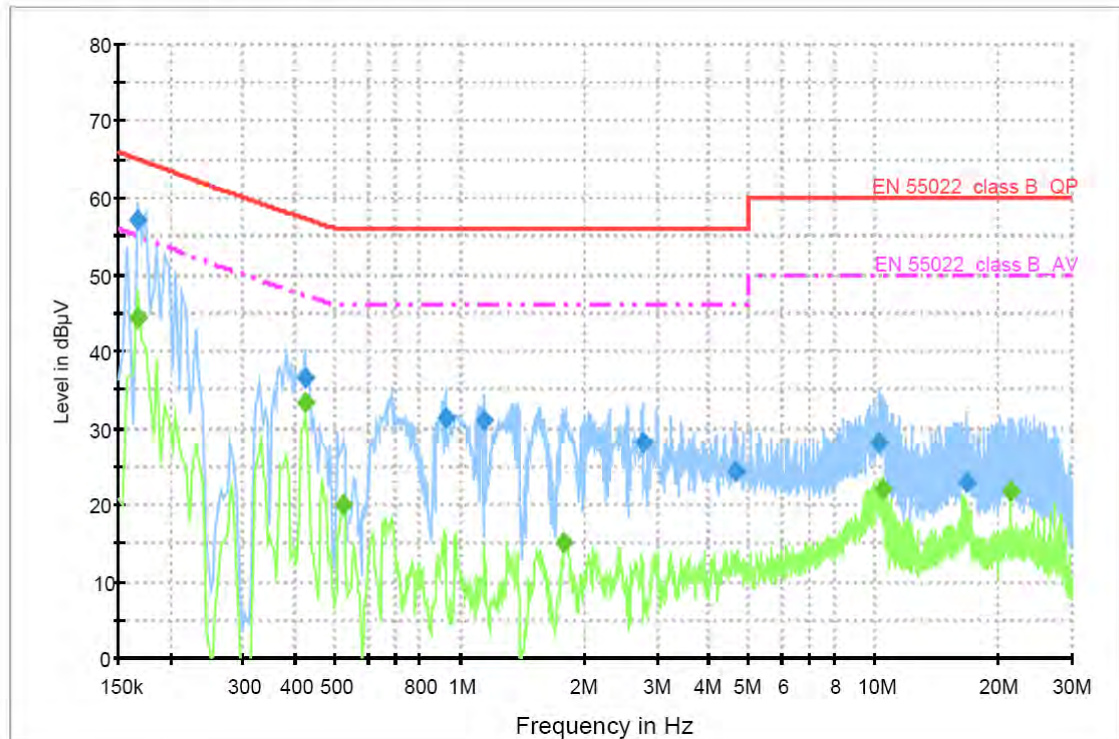
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.162000	43.1	1000.000	9.000	GND	L1	9.9	12.2	55.3	
0.330000	29.3	1000.000	9.000	GND	L1	10.0	19.9	49.2	
0.422000	33.9	1000.000	9.000	GND	L1	10.0	13.4	47.3	
0.522000	20.2	1000.000	9.000	GND	L1	10.0	25.8	46.0	
0.686000	18.2	1000.000	9.000	GND	L1	10.0	27.8	46.0	
0.910000	14.8	1000.000	9.000	GND	L1	10.0	31.2	46.0	
1.298000	14.3	1000.000	9.000	GND	L1	10.0	31.7	46.0	
9.898000	22.1	1000.000	9.000	GND	L1	10.4	27.9	50.0	
16.342000	19.1	1000.000	9.000	GND	L1	10.7	30.9	50.0	
21.506000	22.7	1000.000	9.000	GND	L1	10.9	27.3	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
0.166000	57.2	1000.000	9.000	GND	N	9.9	7.9	65.1	
0.422000	36.4	1000.000	9.000	GND	N	10.0	20.9	57.3	
0.922000	31.2	1000.000	9.000	GND	N	10.0	24.8	56.0	
1.146000	31.0	1000.000	9.000	GND	N	10.0	25.0	56.0	
2.774000	28.2	1000.000	9.000	GND	N	10.1	27.8	56.0	
4.622000	24.3	1000.000	9.000	GND	N	10.2	31.7	56.0	
10.266000	28.2	1000.000	9.000	GND	N	10.3	31.8	60.0	
16.678000	23.0	1000.000	9.000	GND	N	10.6	37.0	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.166000	44.4	1000.000	9.000	GND	N	9.9	10.7	55.1	
0.422000	33.3	1000.000	9.000	GND	N	10.0	14.0	47.3	
0.522000	20.1	1000.000	9.000	GND	N	10.0	25.9	46.0	
1.786000	15.1	1000.000	9.000	GND	N	10.1	30.9	46.0	
10.474000	22.1	1000.000	9.000	GND	N	10.3	27.9	50.0	
21.502000	21.7	1000.000	9.000	GND	N	10.8	28.3	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 22 °C
Relative Humidity : 47 % R.H.

6.2 Test Set-up

A preliminary scan with peak mode was performed in the semi anechoic chamber and found frequency for open area test site.

The formal radiated emission was measured at 3 m / 10 m distance open area test site.

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. 14. 2009
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3193	12. 11. 2009
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 26. 2009
■ - MCU066	maturo GmbH	MCU066	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	N/A



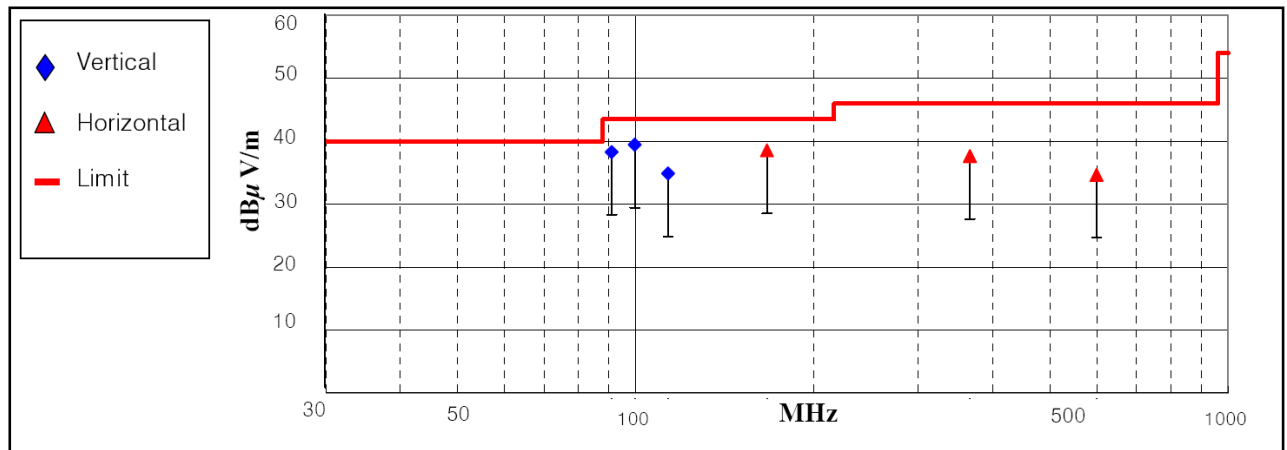
6.6 Test data for Radiated Emission

- Test Date : October 23, 2009
- 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 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)	(°)
91.08	28.58	7.93	1.80	38.31	43.50	5.19	V	113	343
99.60	28.76	9.00	1.69	39.45	43.50	4.05	V	103	347
113.40	22.63	10.48	1.77	34.88	43.50	8.62	V	100	347
166.56	24.18	12.10	2.27	38.55	43.50	4.95	H	185	124
366.54	20.30	14.13	3.23	37.66	46.00	8.34	H	100	73
599.64	11.33	19.22	4.12	34.67	46.00	11.33	H	108	179

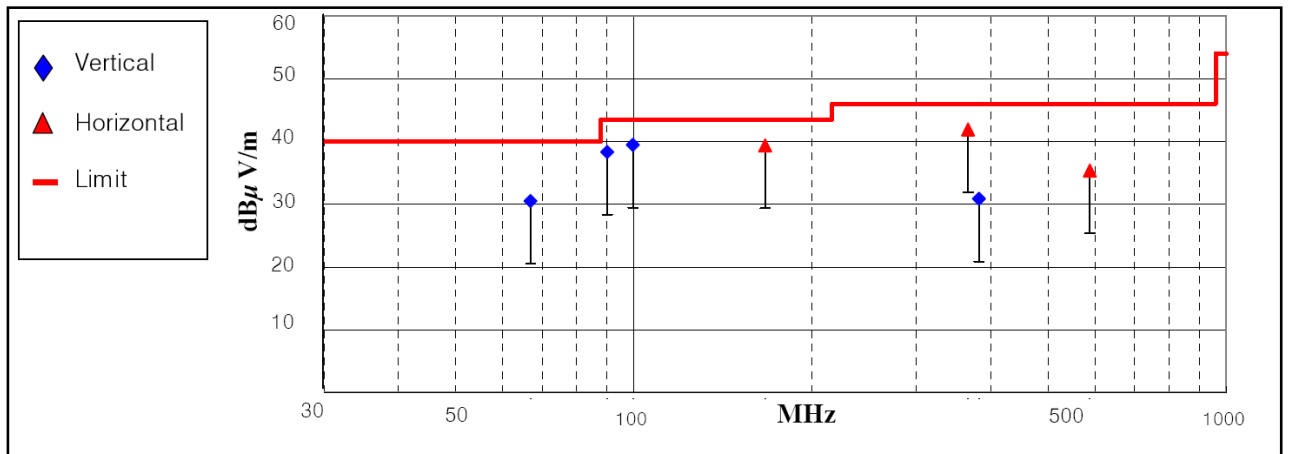


< Fig 12. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 360 * 768 / 60 Hz (HDMI/DVI: Digital 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)	(°)
66.90	18.64	10.21	1.66	30.51	40.00	9.49	V	100	197
90.18	28.73	7.81	1.81	38.35	43.50	5.15	V	116	341
99.60	28.78	9.00	1.69	39.47	43.50	4.03	V	123	347
166.56	25.02	12.10	2.27	39.39	43.50	4.11	H	184	126
366.48	24.56	14.13	3.23	41.92	46.00	4.08	H	100	81
382.08	13.14	14.44	3.29	30.87	46.00	15.13	V	149	150
588.36	12.43	18.92	4.05	35.40	46.00	10.60	H	112	181

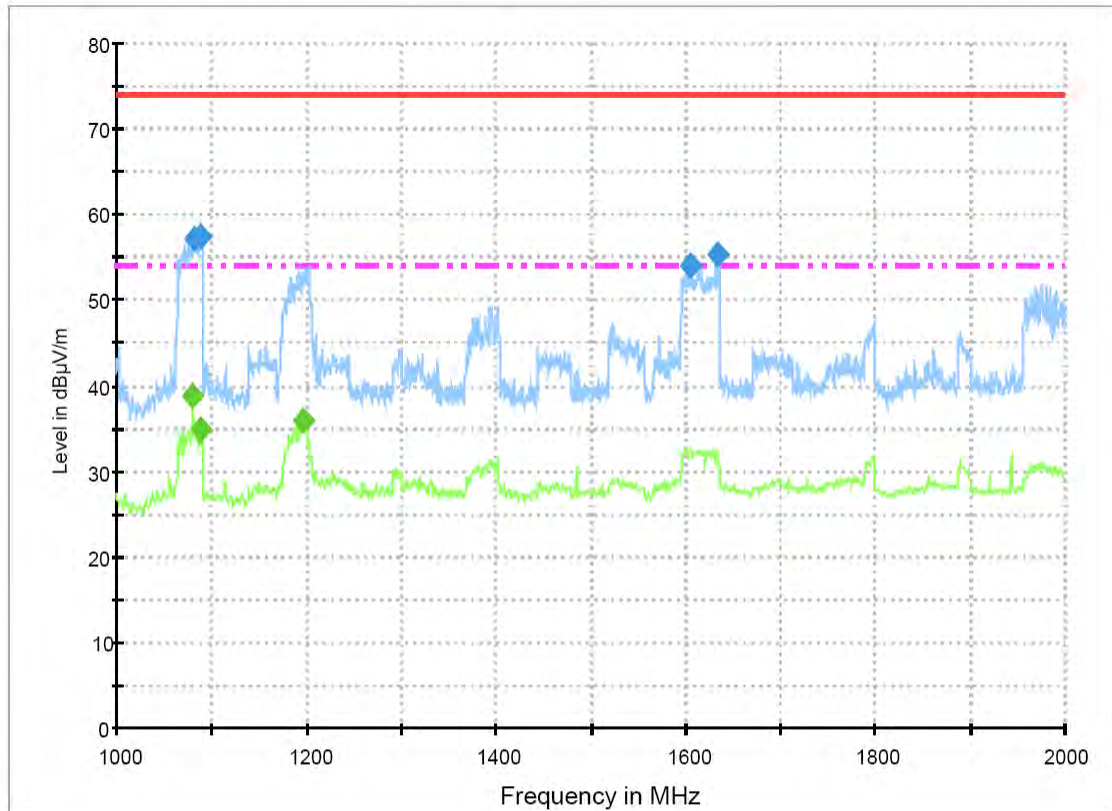


< Fig 13. Radiated emission result (30 MHz ~ 1 000 MHz)>



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

FCC_ESIB_Preamplifier_RE with Scans



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1082.000000	57.2	100.0	V	180.0	-15.5	16.8	74.0	
1089.200000	57.4	100.0	V	180.0	-15.5	16.6	74.0	
1605.600000	54.0	100.0	V	180.0	-13.6	20.0	74.0	
1633.600000	55.5	100.0	V	180.0	-13.6	18.5	74.0	

Final Result 2

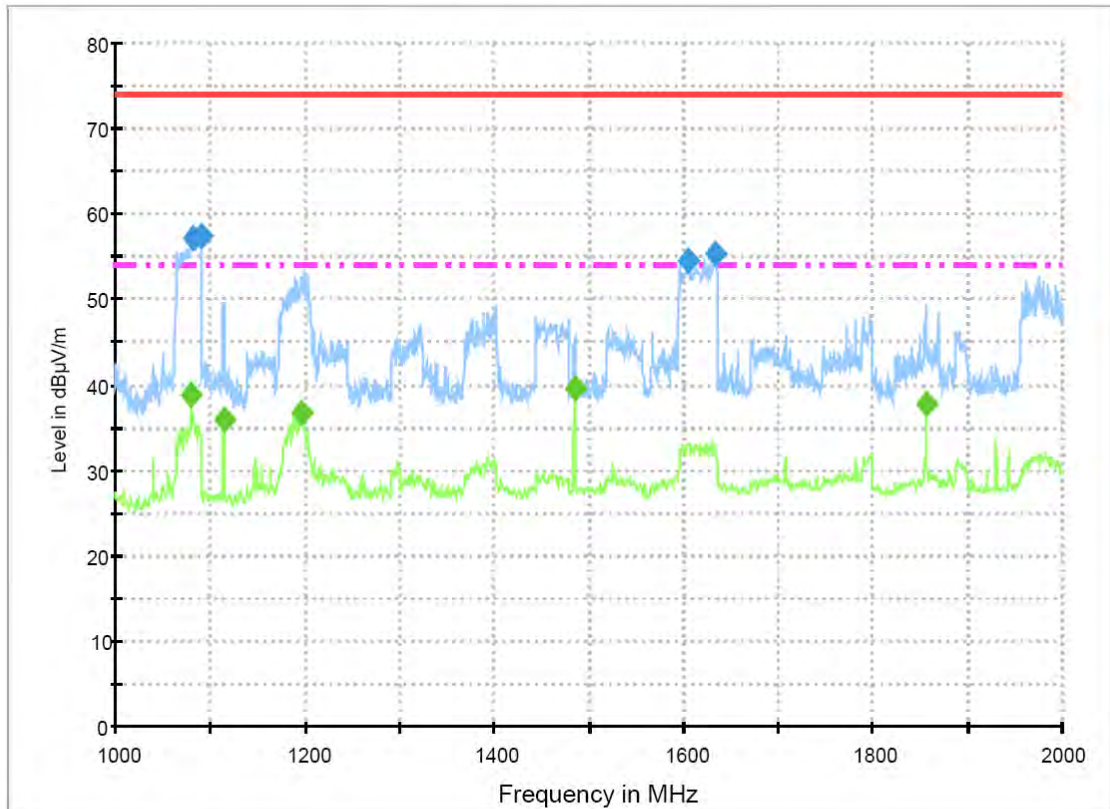
Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1080.000000	38.9	100.0	V	180.0	-15.5	15.1	54.0	
1088.000000	34.9	100.0	V	180.0	-15.5	19.1	54.0	
1196.800000	35.9	100.0	H	180.0	-15.2	18.1	54.0	

< Fig 14. Radiated emission result (1 000 MHz ~ 2 000 MHz)>



- ◆ Operating Condition: 1 360 * 768 / 60 Hz (HDMI/DVI: Digital mode)
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
1081.600000	57.3	100.0	V	180.0	-15.5	16.7	74.0	
1089.600000	57.6	100.0	V	180.0	-15.5	16.4	74.0	
1604.800000	54.5	100.0	V	180.0	-13.6	19.5	74.0	
1634.400000	55.5	100.0	V	180.0	-13.6	18.5	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1080.000000	38.9	100.0	V	180.0	-15.5	15.1	54.0	
1114.000000	36.0	150.0	V	180.0	-15.4	18.0	54.0	
1196.800000	36.9	100.0	H	180.0	-15.2	17.1	54.0	
1485.200000	39.6	100.0	V	180.0	-14.2	14.4	54.0	
1856.400000	37.8	200.0	V	180.0	-13.0	16.2	54.0	

< Fig 15. 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: 26LD350-UA)** was complies with §15.107 and 15.109 of the FCC Rules.