



FCC EVALUATION REPORT FOR CERTIFICATION

Manufacturer : LG Electronics Inc.

642, Jinpyeong-dong, Gumi-si,

Gyeongbuk, 730-360, Korea.

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

Date of Issue : June 16, 2009

Order Number: GETEC-C1-09-139

Test Report Number: GETEC-E3-09-075

Test Site: Gumi College EMC Center

FCC Registration Number: (100749)

FCC ID.: BEJ55SL80UB

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	: 55SL80-UB
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,

Jae-Hoon Jeong, Senior 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: 642, Jinpyeong-dong, Gumi-si, Gyeongbuk, Korea.
Manufacturer: LG Electronics Inc.
Manufacturer Address: 642, Jinpyeong-dong, Gumi-si, Gyeongbuk, Korea.
Contact Person: Mr. Sang -Wook Lee, Chief research engineer
Tel Number: +82-54-470-5430

- **FCC ID.** BEJ55SL80UB
- **EUT Type** LCD TV/Monitor
- **Model Name** 55SL80-UB
- **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** June 9 ~ 10, 2009
- **Place of Test** **Gumi College EMC Center** (FCC Registration No.: 100749)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-09-075
- **Dates of Issue** June 16, 2009



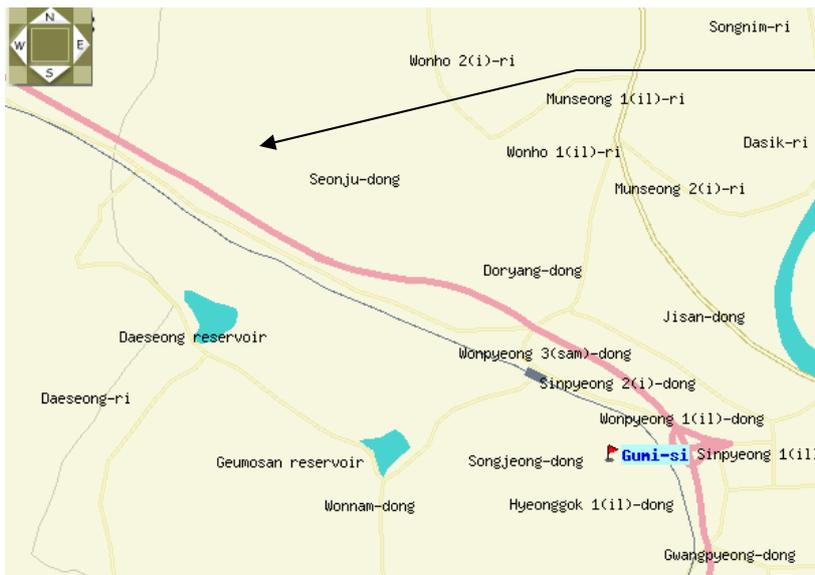
2. Introduction

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: 55SL80-UB)**

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 FCC §2.948 according to ANSI C63.4 (2003)



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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: 55SL80-UB) FCC ID.: BEJ55SL80UB**

MODELS		42SL80 (42SL80-UB)	47SL80 (47SL80-UB)	55SL80 (55SL80-UB)
Dimensions (Width x Height x Depth)	With stand	39.4 x 27.1 x 10.3 inches 1001.2 x 688.7 x 261.0 mm	43.7 x 29.6 x 10.3 inches 1109.6 x 751.2 x 261.0 mm	50.4 x 33.6 x 12.6 inches 1279 x 853.3 x 320.2 mm
	Without stand	39.4 x 24.5 x 1.8 inches 1001.2 x 623.2 x 45.0 mm	43.7 x 27.0 x 1.8 inches 1109.6 x 685.3 x 45.5mm	50.4x 30.7 x 1.8 inches 1279 x 780.5 x 45.5 mm
Weight	With stand	21.0 kg / 46.3 lbs	26.0 kg / 57.3 lbs	37.2 kg / 82.0 lbs
	Without stand	18.7 kg / 41.2 lbs	23.7 kg / 52.2 lbs	32.0 kg / 70.5 lbs
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:		200 MHz		

EUT Type: LCD TV/ Monitor

FCC ID.: BEJ55SL80UB



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	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 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.8 m unshielded
RGB in (Analog)cable	Connected to the EUT and PC	1.8 m shielded with two ferrite cores
HDMI/DVI (Digital)cable	Connected to the EUT and PC	1.95 m shielded
PC sound cable	Connected to the EUT and PC	1.8 m shielded
Component cable	Connected to the EUT and DVD player	3.0 m shielded
Component sound cable	Connected to the EUT and DVD player	3.0 m shielded
AV input cable	Connected to the EUT and DVD player	1.8 m shielded
ANT 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: 1 920 * 1 080 / 60 Hz (RGB: Analog), 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital)
 - . Conducted emission: 1 920 * 1 080 / 60 Hz (RGB: Analog), 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital)
1 024 * 768 / 60 Hz (RGB: Analog), 640 * 480 / 60 Hz (RGB: Analog)
 - . USB memory stick play mode: Continuous play mode of Picture file and 1 kHz audio file.

- 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.

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

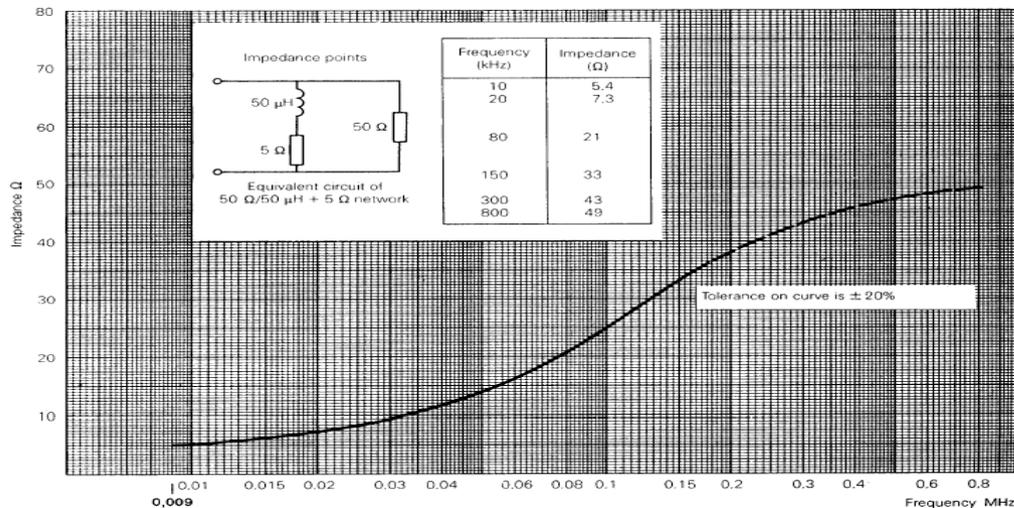


Fig 2. Impedance of LISN



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.

The spectrum was scanned from 30 MHz to 1 000 MHz using bicornical log antenna (Schwarzbeck, VULB9160). Above 1 GHz, horn antenna (Schwarzbeck, BBHA9120D) was used.

Final measurements were made outdoors at 3 m /10 m test range.

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

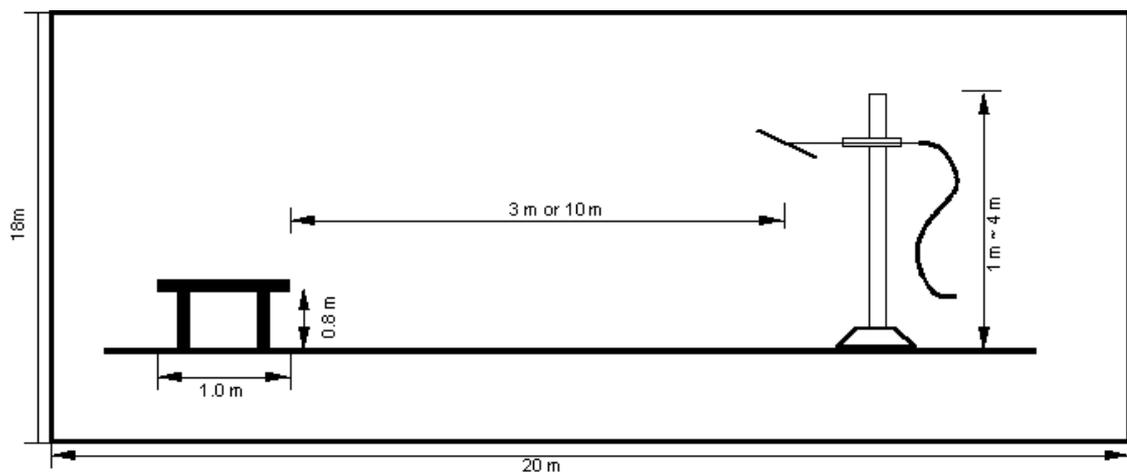


Fig 3. Dimensions of Open Site Test Area



5. Conducted Emission

5.1 Operating Environment

Temperature : 25 °C
Relative Humidity : 42 % 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	
	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

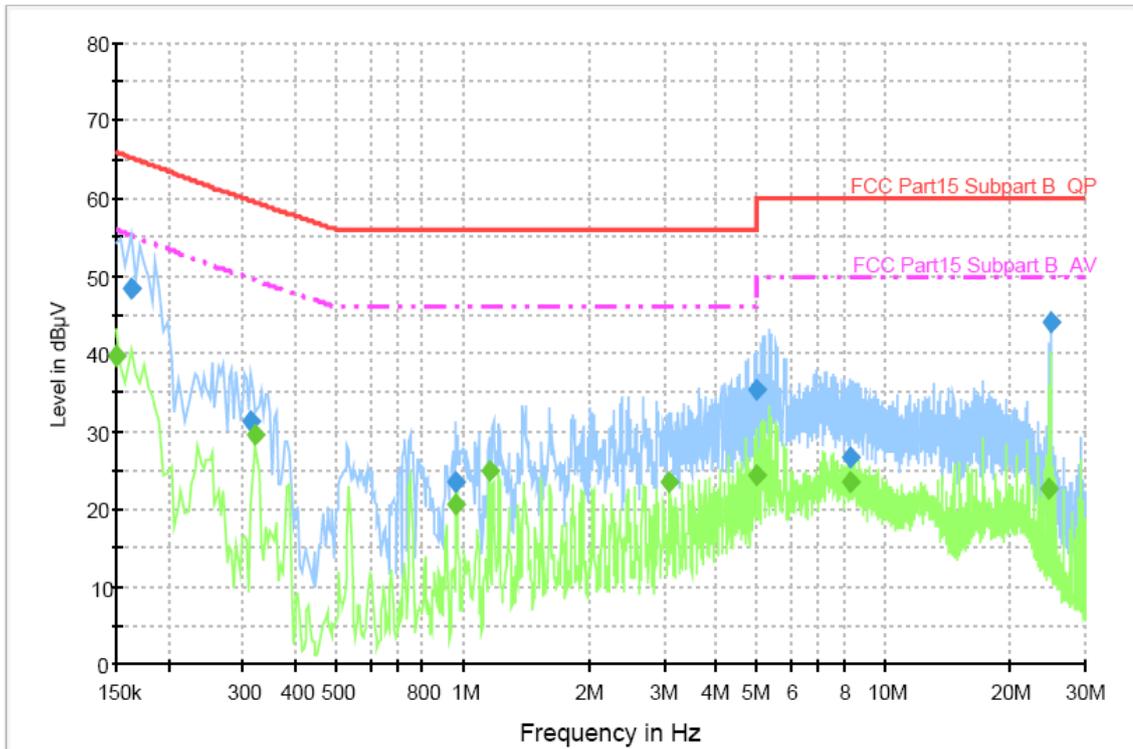
5.6 Test data for Conducted Emission

- Test Date : June 10, 2009
- Resolution Bandwidth : 9 kHz
- Frequency Range : 0.15 MHz ~ 30 MHz



◆ Test resolution: 1 920 * 1 080 / 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	48.4	1000.000	9.000	GND	L1	9.9	16.9	65.3	
0.314000	31.4	1000.000	9.000	GND	L1	10.0	28.3	59.7	
0.958000	23.6	1000.000	9.000	GND	L1	10.0	32.4	56.0	
4.962000	35.5	1000.000	9.000	GND	L1	10.2	20.5	56.0	
8.318000	26.7	1000.000	9.000	GND	L1	10.3	33.3	60.0	
24.774000	44.1	1000.000	9.000	GND	L1	11.0	15.9	60.0	

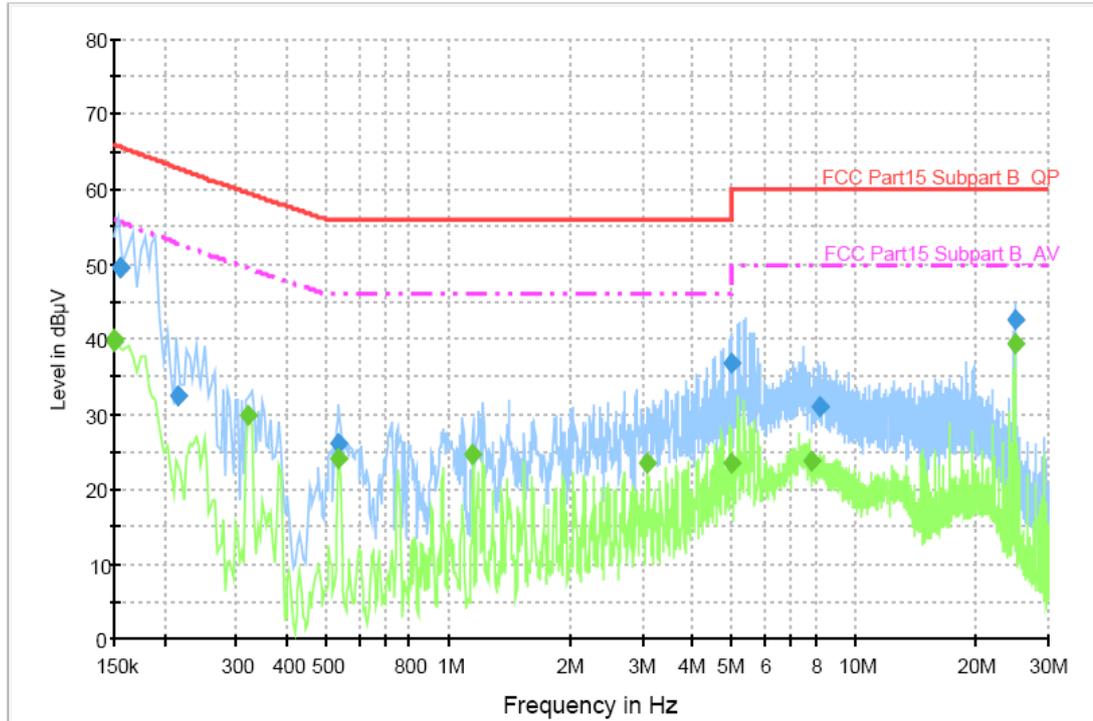
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.6	1000.000	9.000	GND	L1	9.9	16.4	56.0	
0.322000	29.4	1000.000	9.000	GND	L1	10.0	20.0	49.4	
0.962000	20.6	1000.000	9.000	GND	L1	10.0	25.4	46.0	
1.150000	24.9	1000.000	9.000	GND	L1	10.0	21.1	46.0	
3.074000	23.4	1000.000	9.000	GND	L1	10.1	22.6	46.0	
4.966000	24.4	1000.000	9.000	GND	L1	10.2	21.6	46.0	
8.318000	23.5	1000.000	9.000	GND	L1	10.3	26.5	50.0	
24.740000	22.6	1000.000	9.000	GND	L1	11.0	27.4	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
0.154500	49.7	1000.000	9.000	GND	N	9.9	16.0	65.7	
0.154500	49.7	1000.000	9.000	GND	N	9.9	16.0	65.7	
0.216000	32.4	1000.000	9.000	GND	N	9.9	30.4	62.8	
0.537500	26.1	1000.000	9.000	GND	N	10.0	29.9	56.0	
4.963000	36.9	1000.000	9.000	GND	N	10.2	19.1	56.0	
8.167000	30.9	1000.000	9.000	GND	N	10.3	29.1	60.0	
24.773500	42.6	1000.000	9.000	GND	N	10.8	17.4	60.0	

Final Measurement Detector 2

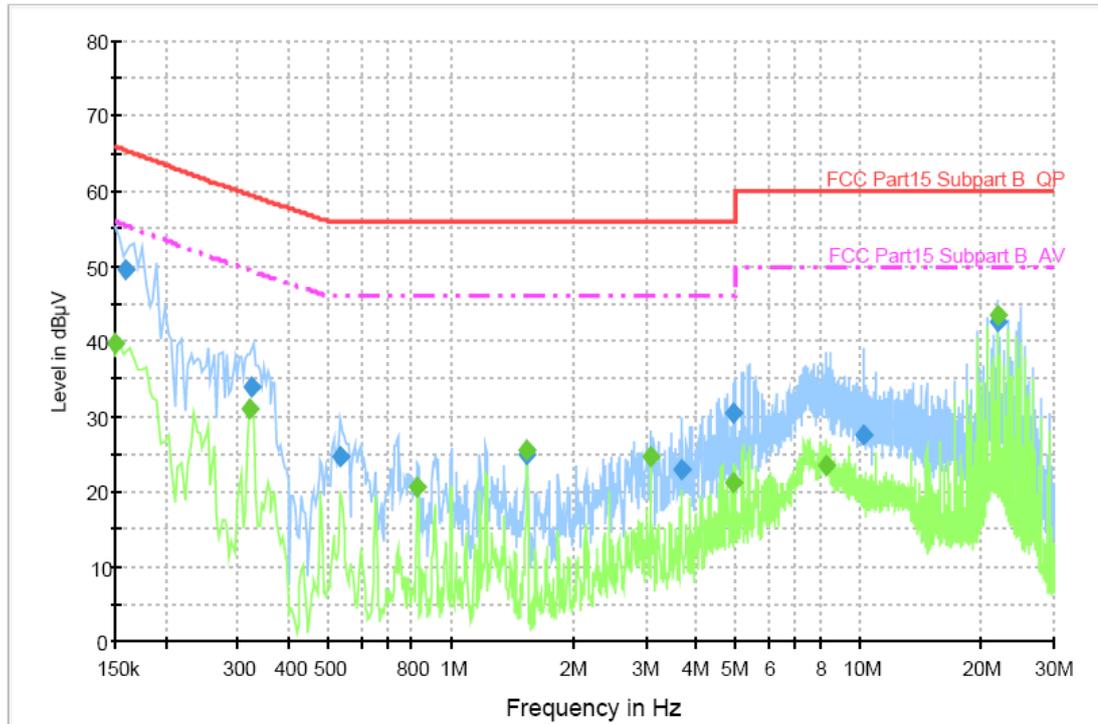
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.7	1000.000	9.000	GND	N	9.9	16.3	56.0	
0.150000	39.9	1000.000	9.000	GND	N	9.9	16.1	56.0	
0.321500	30.0	1000.000	9.000	GND	N	10.0	19.4	49.4	
0.537500	24.1	1000.000	9.000	GND	N	10.0	21.9	46.0	
1.149500	24.6	1000.000	9.000	GND	N	10.0	21.4	46.0	
3.069500	23.4	1000.000	9.000	GND	N	10.1	22.6	46.0	
4.962000	23.6	1000.000	9.000	GND	N	10.2	22.4	46.0	
7.795000	23.8	1000.000	9.000	GND	N	10.3	26.2	50.0	
24.773500	39.5	1000.000	9.000	GND	N	10.8	10.5	50.0	

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



◆ Test resolution: 1 920 * 1 080 / 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
0.159000	49.6	1000.000	9.000	GND	L1	9.9	15.9	65.5	
0.325500	33.9	1000.000	9.000	GND	L1	10.0	25.5	59.4	
0.537500	24.6	1000.000	9.000	GND	L1	10.0	31.4	56.0	
1.537500	24.9	1000.000	9.000	GND	L1	10.1	31.1	56.0	
3.662000	23.0	1000.000	9.000	GND	L1	10.1	33.0	56.0	
4.936500	30.5	1000.000	9.000	GND	L1	10.2	25.5	56.0	
10.247000	27.6	1000.000	9.000	GND	L1	10.3	32.4	60.0	
21.953500	42.5	1000.000	9.000	GND	L1	10.9	17.5	60.0	

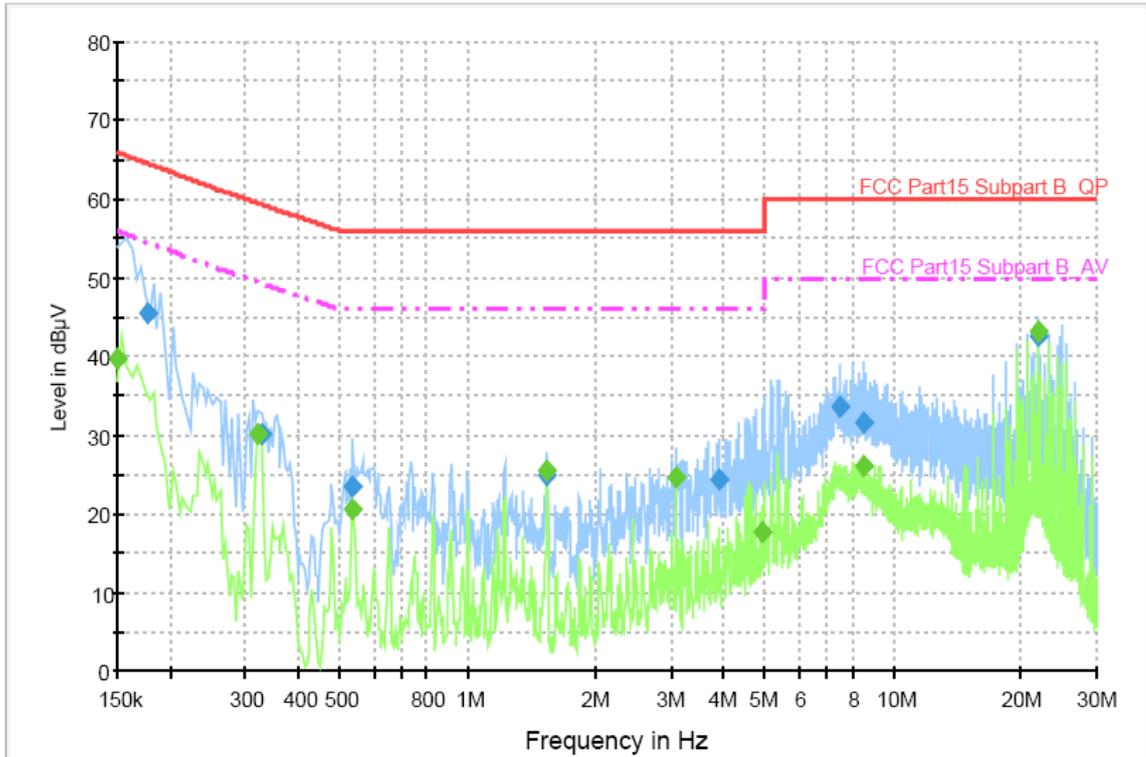
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.9	1000.000	9.000	GND	L1	9.9	16.1	56.0	
0.321500	31.0	1000.000	9.000	GND	L1	10.0	18.4	49.4	
0.825500	20.5	1000.000	9.000	GND	L1	10.0	25.5	46.0	
1.538000	25.4	1000.000	9.000	GND	L1	10.1	20.6	46.0	
3.074000	24.7	1000.000	9.000	GND	L1	10.1	21.3	46.0	
4.934500	21.1	1000.000	9.000	GND	L1	10.2	24.9	46.0	
8.337500	23.6	1000.000	9.000	GND	L1	10.3	26.4	50.0	
21.953500	43.5	1000.000	9.000	GND	L1	10.9	6.5	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
0.177000	45.5	1000.000	9.000	GND	N	9.9	19.0	64.5	
0.327000	30.0	1000.000	9.000	GND	N	10.0	29.3	59.3	
0.533000	23.4	1000.000	9.000	GND	N	10.0	32.6	56.0	
1.537500	24.9	1000.000	9.000	GND	N	10.1	31.1	56.0	
3.893000	24.2	1000.000	9.000	GND	N	10.2	31.8	56.0	
7.522000	33.7	1000.000	9.000	GND	N	10.3	26.4	60.0	
8.537500	31.6	1000.000	9.000	GND	N	10.3	28.4	60.0	
21.953000	42.5	1000.000	9.000	GND	N	10.8	17.5	60.0	

Final Measurement Detector 2

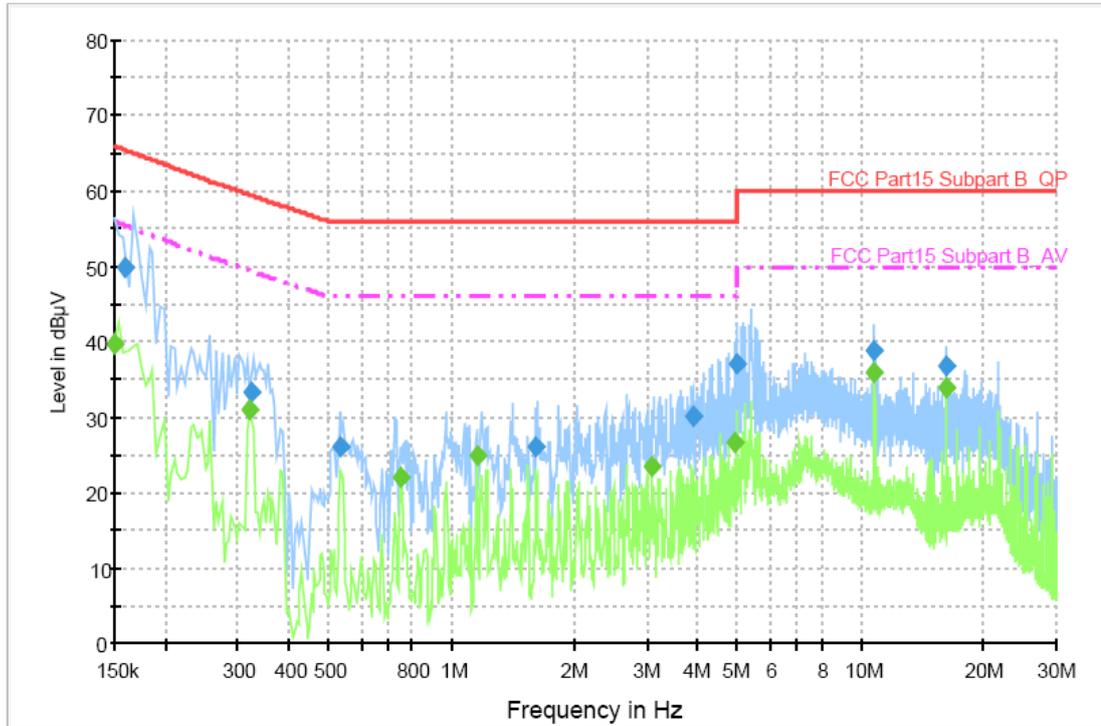
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.7	1000.000	9.000	GND	N	9.9	16.3	56.0	
0.321500	30.1	1000.000	9.000	GND	N	10.0	19.3	49.4	
0.537500	20.5	1000.000	9.000	GND	N	10.0	25.5	46.0	
1.538000	25.4	1000.000	9.000	GND	N	10.1	20.6	46.0	
3.074000	24.7	1000.000	9.000	GND	N	10.1	21.3	46.0	
4.921000	17.7	1000.000	9.000	GND	N	10.2	28.3	46.0	
8.537500	26.2	1000.000	9.000	GND	N	10.3	23.8	50.0	
21.953000	43.2	1000.000	9.000	GND	N	10.8	6.8	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
0.159000	50.0	1000.000	9.000	GND	L1	9.9	15.5	65.5	
0.325500	33.5	1000.000	9.000	GND	L1	10.0	25.9	59.4	
0.533500	26.0	1000.000	9.000	GND	L1	10.0	30.0	56.0	
1.608500	26.0	1000.000	9.000	GND	L1	10.1	30.0	56.0	
3.899000	30.3	1000.000	9.000	GND	L1	10.2	25.7	56.0	
4.976500	37.2	1000.000	9.000	GND	L1	10.2	18.8	56.0	
10.802000	38.8	1000.000	9.000	GND	L1	10.3	21.2	60.0	
16.201500	36.9	1000.000	9.000	GND	L1	10.7	23.1	60.0	

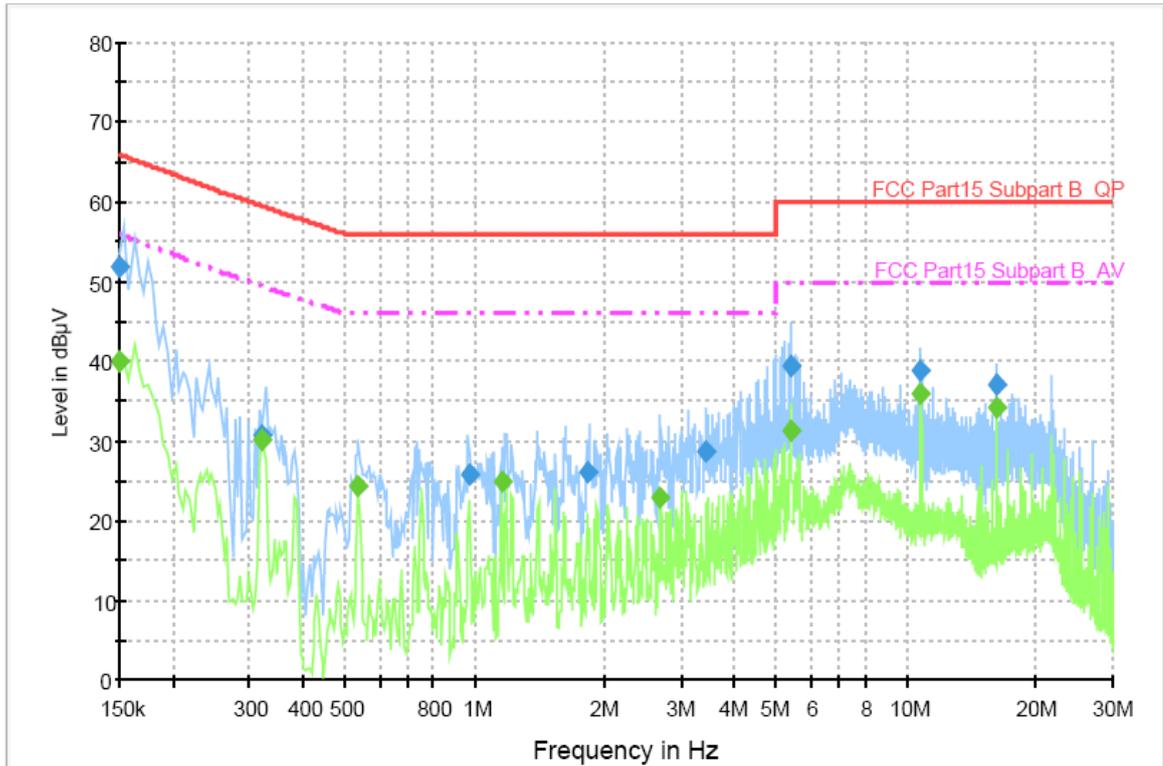
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.7	1000.000	9.000	GND	L1	9.9	16.3	56.0	
0.321500	31.1	1000.000	9.000	GND	L1	10.0	18.3	49.4	
0.753500	21.9	1000.000	9.000	GND	L1	10.0	24.1	46.0	
1.154000	24.8	1000.000	9.000	GND	L1	10.0	21.2	46.0	
3.069500	23.4	1000.000	9.000	GND	L1	10.1	22.6	46.0	
4.924000	26.6	1000.000	9.000	GND	L1	10.2	19.4	46.0	
10.802000	35.9	1000.000	9.000	GND	L1	10.3	14.1	50.0	
16.201500	33.9	1000.000	9.000	GND	L1	10.7	16.1	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
0.150000	51.9	1000.000	9.000	GND	N	9.9	14.1	66.0	
0.321000	30.8	1000.000	9.000	GND	N	10.0	28.7	59.5	
0.966000	25.9	1000.000	9.000	GND	N	10.0	30.1	56.0	
1.833000	26.2	1000.000	9.000	GND	N	10.1	29.8	56.0	
3.428500	28.8	1000.000	9.000	GND	N	10.1	27.2	56.0	
5.397500	39.4	1000.000	9.000	GND	N	10.2	20.6	60.0	
10.802000	38.8	1000.000	9.000	GND	N	10.3	21.2	60.0	
16.202000	37.0	1000.000	9.000	GND	N	10.6	23.0	60.0	

Final Measurement Detector 2

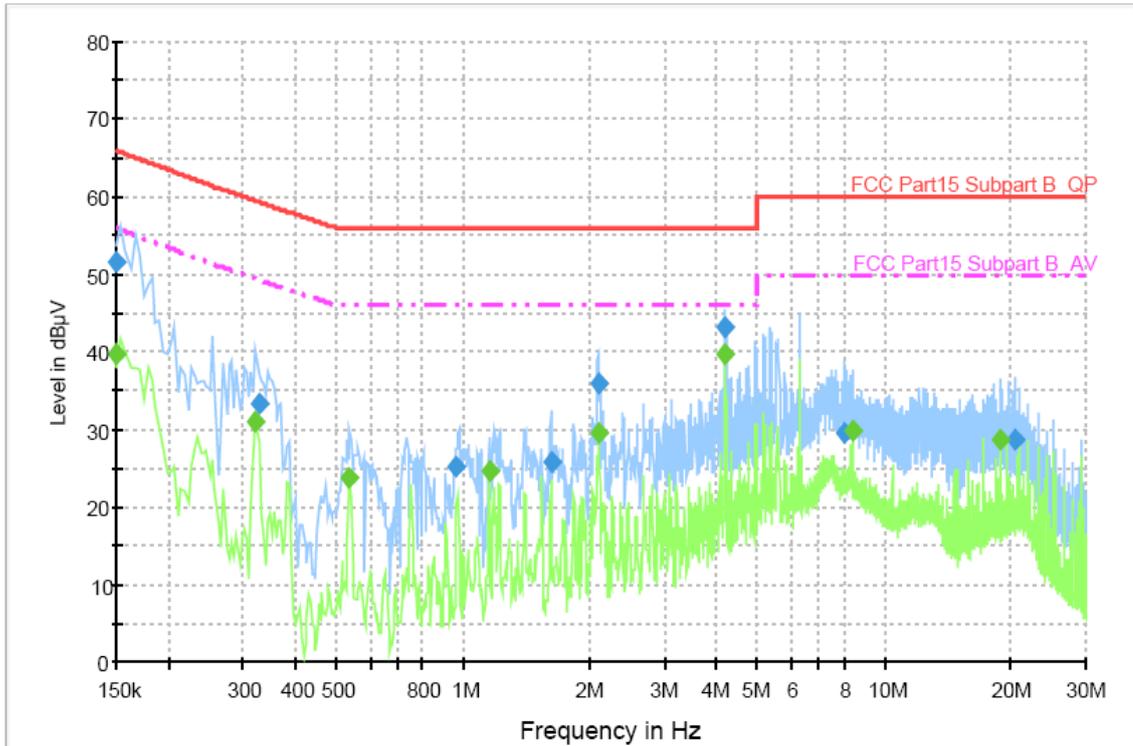
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	40.0	1000.000	9.000	GND	N	9.9	16.0	56.0	
0.321500	30.2	1000.000	9.000	GND	N	10.0	19.2	49.4	
0.537500	24.4	1000.000	9.000	GND	N	10.0	21.6	46.0	
1.153500	24.9	1000.000	9.000	GND	N	10.0	21.1	46.0	
2.689500	23.0	1000.000	9.000	GND	N	10.1	23.0	46.0	
5.396500	31.4	1000.000	9.000	GND	N	10.2	18.6	50.0	
10.802000	36.1	1000.000	9.000	GND	N	10.3	13.9	50.0	
16.202000	34.2	1000.000	9.000	GND	N	10.6	15.8	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
0.150000	51.7	1000.000	9.000	GND	L1	9.9	14.3	66.0	
0.326000	33.4	1000.000	9.000	GND	L1	10.0	26.0	59.4	
0.964000	25.2	1000.000	9.000	GND	L1	10.0	30.8	56.0	
1.622500	25.9	1000.000	9.000	GND	L1	10.1	30.1	56.0	
2.085500	35.8	1000.000	9.000	GND	L1	10.1	20.2	56.0	
4.169500	43.2	1000.000	9.000	GND	L1	10.2	12.8	56.0	
8.015000	29.5	1000.000	9.000	GND	L1	10.3	30.5	60.0	
20.413000	28.7	1000.000	9.000	GND	L1	10.9	31.3	60.0	

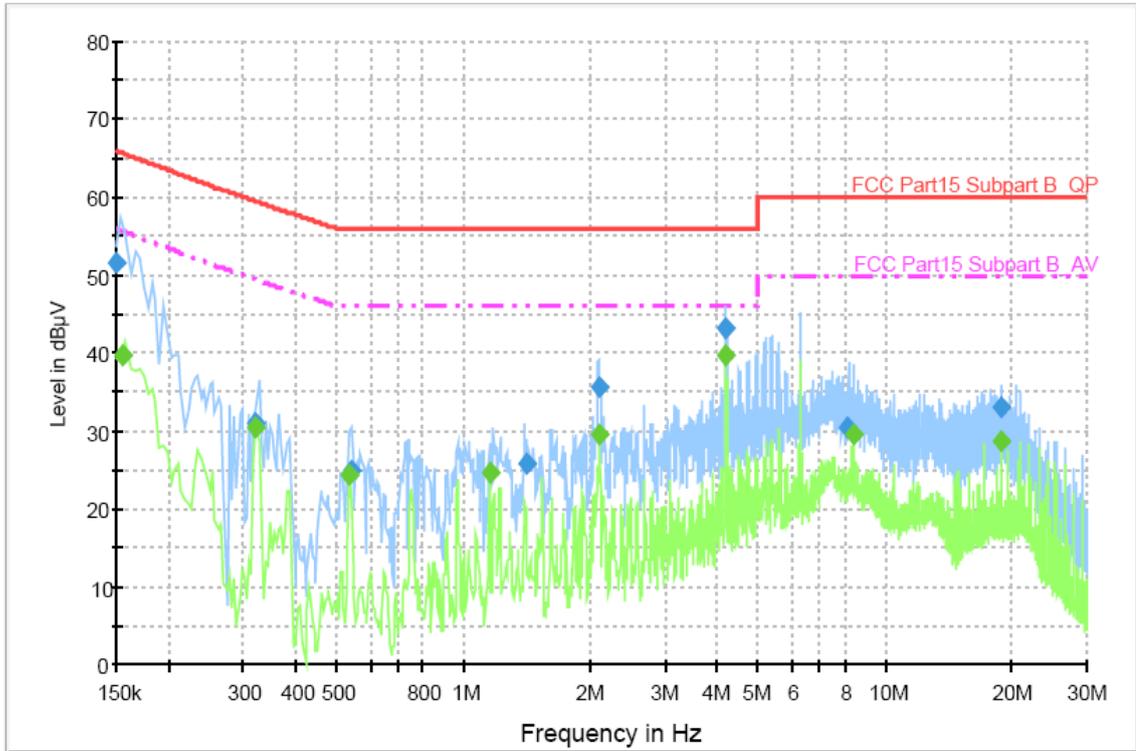
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	39.9	1000.000	9.000	GND	L1	9.9	16.1	56.0	
0.321500	31.1	1000.000	9.000	GND	L1	10.0	18.3	49.4	
0.537500	23.8	1000.000	9.000	GND	L1	10.0	22.2	46.0	
1.154000	24.6	1000.000	9.000	GND	L1	10.0	21.4	46.0	
2.097000	29.6	1000.000	9.000	GND	L1	10.1	16.4	46.0	
4.170000	39.6	1000.000	9.000	GND	L1	10.2	6.4	46.0	
8.365500	29.8	1000.000	9.000	GND	L1	10.3	20.2	50.0	
18.805500	28.8	1000.000	9.000	GND	L1	10.8	21.2	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	51.5	1000.000	9.000	GND	N	9.9	14.5	66.0	
0.321000	30.9	1000.000	9.000	GND	N	10.0	28.6	59.5	
0.541500	25.0	1000.000	9.000	GND	N	10.0	31.0	56.0	
1.407500	25.9	1000.000	9.000	GND	N	10.1	30.1	56.0	
2.085500	35.8	1000.000	9.000	GND	N	10.1	20.2	56.0	
4.169500	43.2	1000.000	9.000	GND	N	10.2	12.8	56.0	
8.165500	30.5	1000.000	9.000	GND	N	10.3	29.5	60.0	
18.805500	32.9	1000.000	9.000	GND	N	10.7	27.1	60.0	

Final Measurement Detector 2

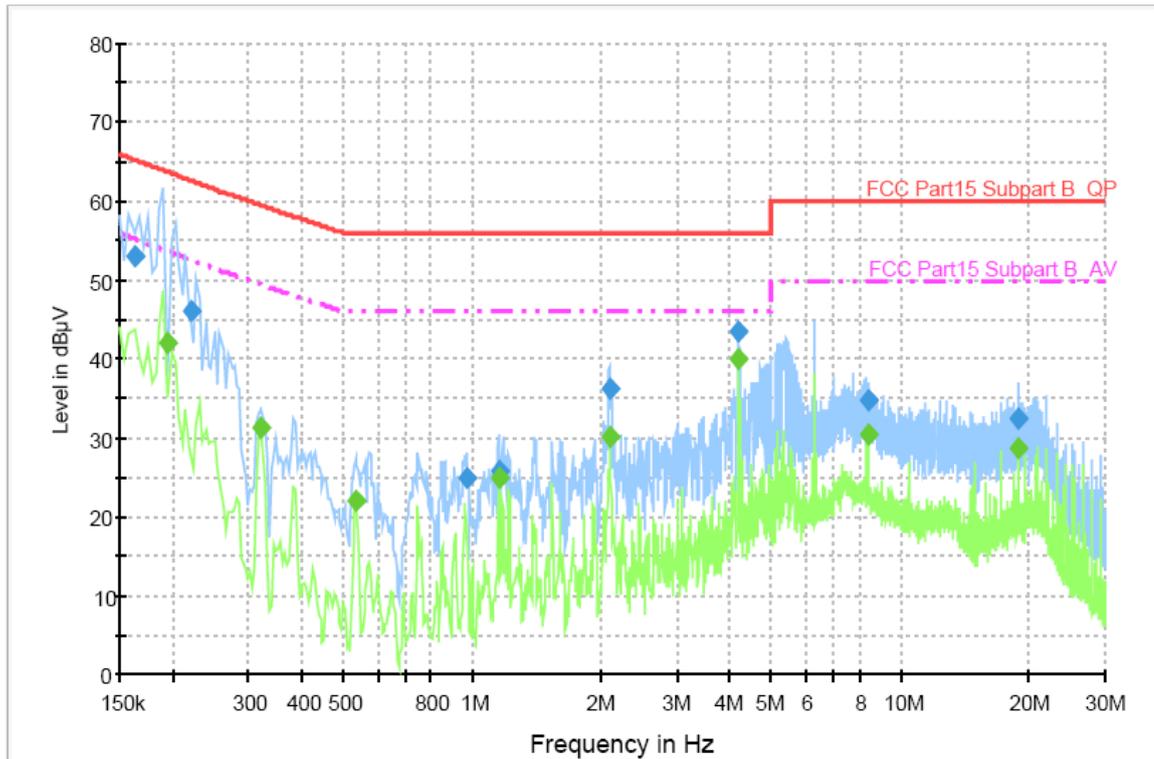
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154500	39.6	1000.000	9.000	GND	N	9.9	16.1	55.7	
0.321500	30.4	1000.000	9.000	GND	N	10.0	19.0	49.4	
0.537500	24.3	1000.000	9.000	GND	N	10.0	21.7	46.0	
1.154000	24.6	1000.000	9.000	GND	N	10.0	21.4	46.0	
2.097500	29.7	1000.000	9.000	GND	N	10.1	16.3	46.0	
4.169500	39.7	1000.000	9.000	GND	N	10.2	6.3	46.0	
8.365500	29.6	1000.000	9.000	GND	N	10.3	20.4	50.0	
18.805500	28.8	1000.000	9.000	GND	N	10.7	21.2	50.0	

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



◆ Test resolution: 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
0.163500	53.0	1000.000	9.000	GND	L1	9.9	12.2	65.2	
0.220000	46.1	1000.000	9.000	GND	L1	9.9	16.6	62.6	
0.974000	24.9	1000.000	9.000	GND	L1	10.0	31.1	56.0	
1.154000	25.8	1000.000	9.000	GND	L1	10.0	30.2	56.0	
2.085500	36.3	1000.000	9.000	GND	L1	10.1	19.7	56.0	
4.169500	43.6	1000.000	9.000	GND	L1	10.2	12.4	56.0	
8.369000	34.7	1000.000	9.000	GND	L1	10.3	25.4	60.0	
18.801500	32.6	1000.000	9.000	GND	L1	10.8	27.4	60.0	

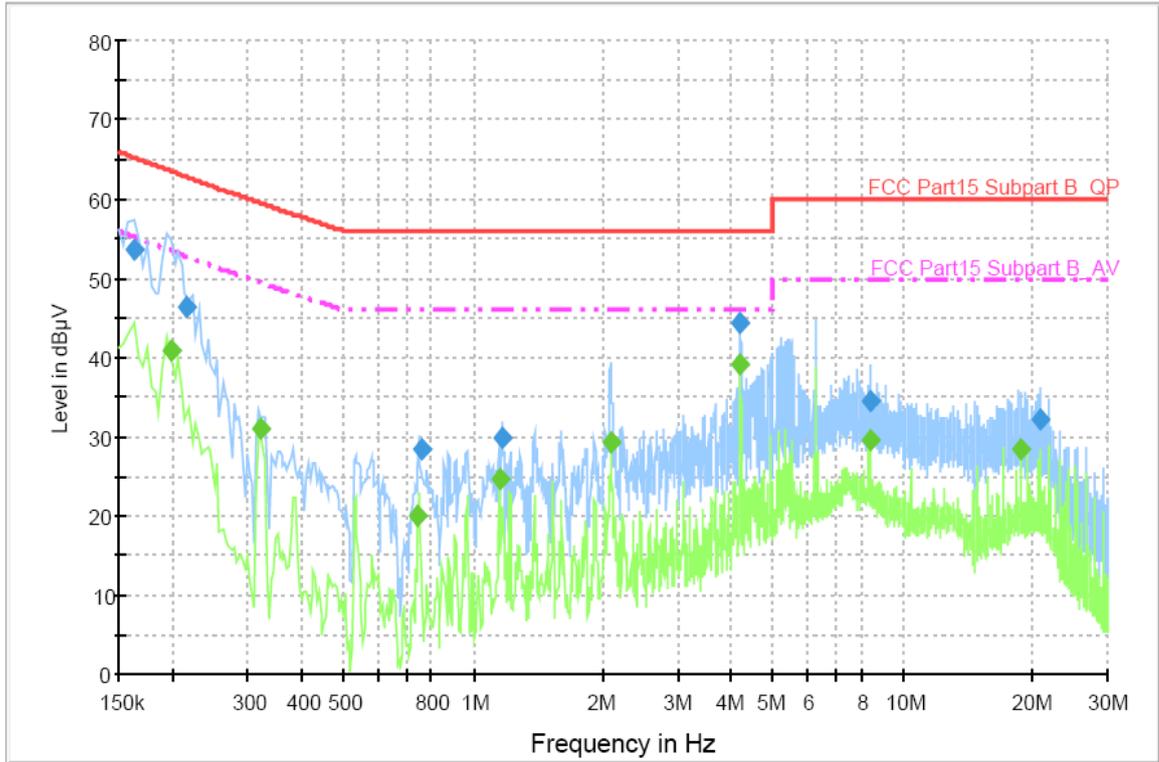
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.195000	41.9	1000.000	9.000	GND	L1	9.9	11.8	53.7	
0.321500	31.2	1000.000	9.000	GND	L1	10.0	18.2	49.4	
0.533500	22.1	1000.000	9.000	GND	L1	10.0	23.9	46.0	
1.154000	24.9	1000.000	9.000	GND	L1	10.0	21.1	46.0	
2.097500	30.2	1000.000	9.000	GND	L1	10.1	15.8	46.0	
4.169500	40.0	1000.000	9.000	GND	L1	10.2	6.0	46.0	
8.369500	30.3	1000.000	9.000	GND	L1	10.3	19.7	50.0	
18.806000	28.7	1000.000	9.000	GND	L1	10.8	21.3	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
0.163500	53.5	1000.000	9.000	GND	N	9.9	5.2	65.2	
0.216000	46.3	1000.000	9.000	GND	N	9.9	10.4	62.8	
0.763000	28.5	1000.000	9.000	GND	N	10.0	19.3	56.0	
1.174500	29.8	1000.000	9.000	GND	N	10.0	17.2	56.0	
4.169500	44.3	1000.000	9.000	GND	N	10.2	5.6	56.0	
8.365000	34.5	1000.000	9.000	GND	N	10.3	11.5	60.0	
20.901500	32.2	1000.000	9.000	GND	N	10.8	15.6	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.199500	40.9	1000.000	9.000	GND	N	9.9	12.6	53.5	
0.321500	31.0	1000.000	9.000	GND	N	10.0	18.4	49.4	
0.745000	20.0	1000.000	9.000	GND	N	10.0	26.0	46.0	
1.154000	24.6	1000.000	9.000	GND	N	10.0	21.4	46.0	
2.097500	29.2	1000.000	9.000	GND	N	10.1	16.8	46.0	
4.170000	39.0	1000.000	9.000	GND	N	10.2	7.0	46.0	
8.369500	29.6	1000.000	9.000	GND	N	10.3	20.4	50.0	
18.805500	28.3	1000.000	9.000	GND	N	10.7	21.7	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 21 °C
Relative Humidity : 51 % 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
■ - ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 13. 2009
■ - HK116	Rohde & Schwarz	Biconical ANT	832639/007	12. 28. 2009
■ - HL223	Rohde & Schwarz	Log-periodic antenna	835998/004	12. 28. 2009
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 26. 2009
■ - HD100	HD GmbH	Position Controller	100/692/01	N/A
■ - DS415S	HD GmbH	Turntable	415/657/01	N/A
■ - MA240	HD GmbH	Antenna Mast	240/565/01	N/A
■ - AFS 44 00101800- 25-10P-44	MITEQ	Preamplifier	1258943	11. 11. 2009

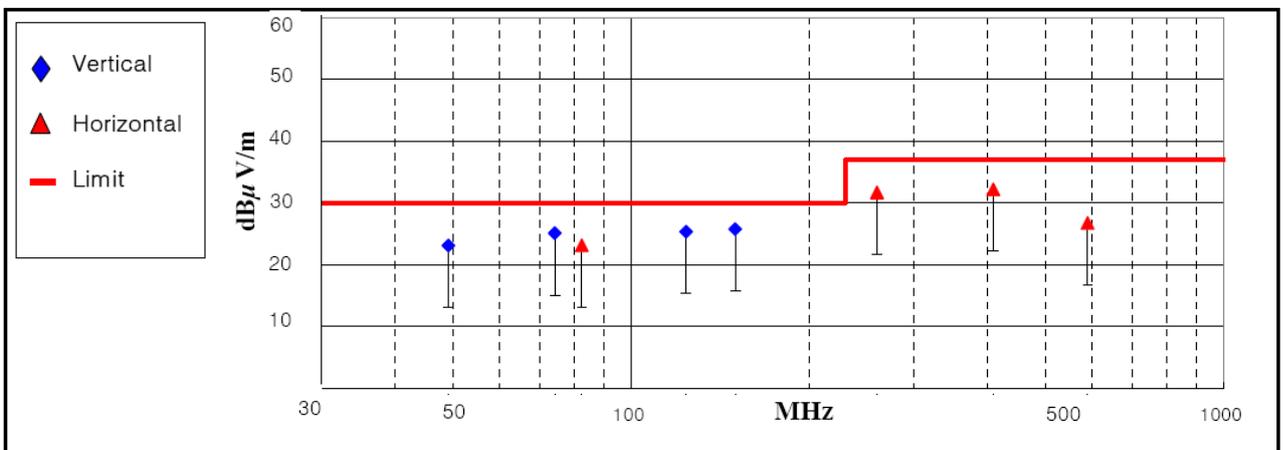
6.6 Test data for Radiated Emission

- Test Date : June 9, 2009
- Resolution Bandwidth : 120 kHz/ 1 MHz
- Frequency Range : 30 MHz ~ 2 000 MHz
- Measurement Distance : 10 m/ 3 m



◆ Operating Condition: 1 920 * 1 080 / 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. (H/V)	Height (cm)	Angle (°)
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)					
49.15	11.84	9.15	2.13	23.12	30.00	6.88	V	121	176
74.25	14.86	7.70	2.57	25.13	30.00	4.87	V	110	291
82.49	12.32	8.13	2.68	23.13	30.00	6.87	H	110	312
123.75	11.24	10.82	3.26	25.32	30.00	4.68	V	100	33
149.70	10.53	11.61	3.62	25.76	30.00	4.24	V	105	6
259.90	11.31	15.40	5.00	31.71	37.00	5.29	H	132	270
408.36	8.96	15.75	7.50	32.21	37.00	4.79	H	202	180
589.71	1.16	17.99	7.62	26.77	37.00	10.23	H	109	133

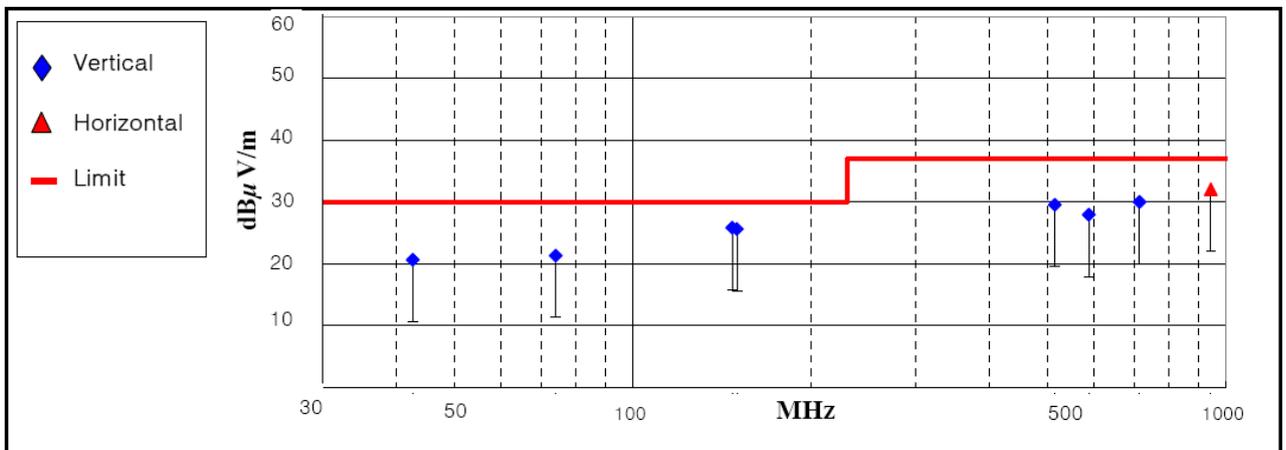


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



◆ Operating Condition: 1 920 * 1 080 / 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. (H/V)	Height (cm)	Angle (°)
	Value(dB μ V)	Factor(dB/m)	Loss(dB)	(dB μ V/m)					
42.55	8.76	9.95	1.95	20.66	30.00	9.34	V	105	295
74.08	11.06	7.69	2.57	21.32	30.00	8.68	V	101	300
147.05	10.78	11.50	3.57	25.85	30.00	4.15	V	100	4
149.77	10.37	11.62	3.62	25.61	30.00	4.39	V	111	13
514.95	5.18	17.08	7.29	29.55	37.00	7.45	V	100	155
587.89	2.37	17.97	7.61	27.95	37.00	9.05	V	116	189
715.55	1.20	20.43	8.35	29.98	37.00	7.02	V	216	161
943.71	0.64	21.63	9.78	32.05	37.00	4.95	H	141	186

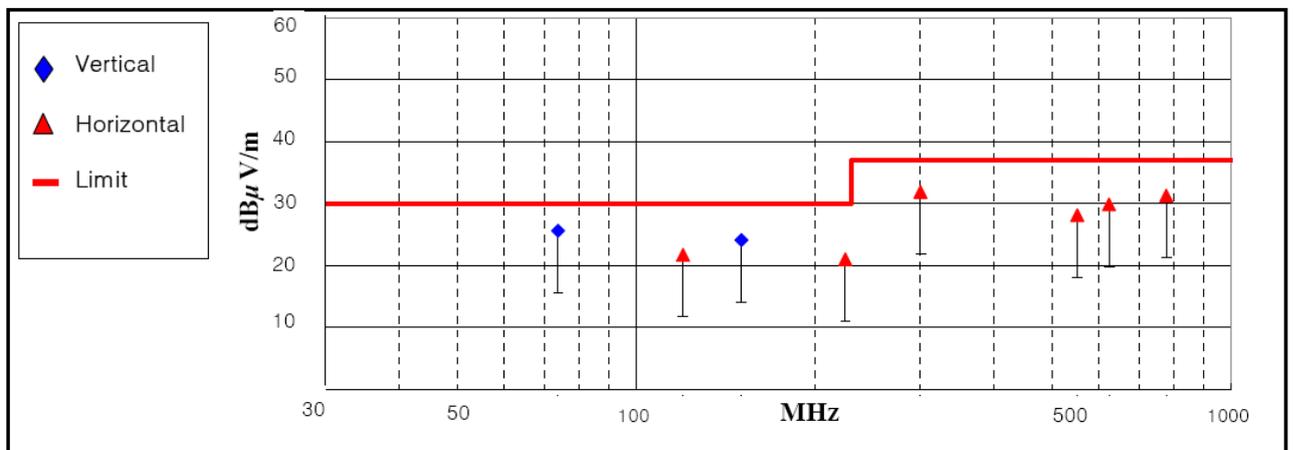


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



◆ 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. (H/V)	Height (cm)	Angle (°)
	Value(dB μ V)	Factor(dB/m)	Loss(dB)	(dB μ V/m)					
73.88	15.39	7.68	2.56	25.63	30.00	4.37	V	116	46
119.80	7.84	10.72	3.17	21.73	30.00	8.27	H	156	183
150.29	8.86	11.64	3.62	24.12	30.00	5.88	V	100	12
224.65	1.95	14.45	4.59	20.99	30.00	9.01	H	102	321
300.69	13.39	12.76	5.70	31.85	37.00	5.15	H	113	285
551.78	3.08	17.68	7.37	28.13	37.00	8.87	H	101	201
624.05	3.37	18.71	7.78	29.86	37.00	7.14	H	100	213
778.20	1.94	20.54	8.82	31.30	37.00	5.70	H	220	255

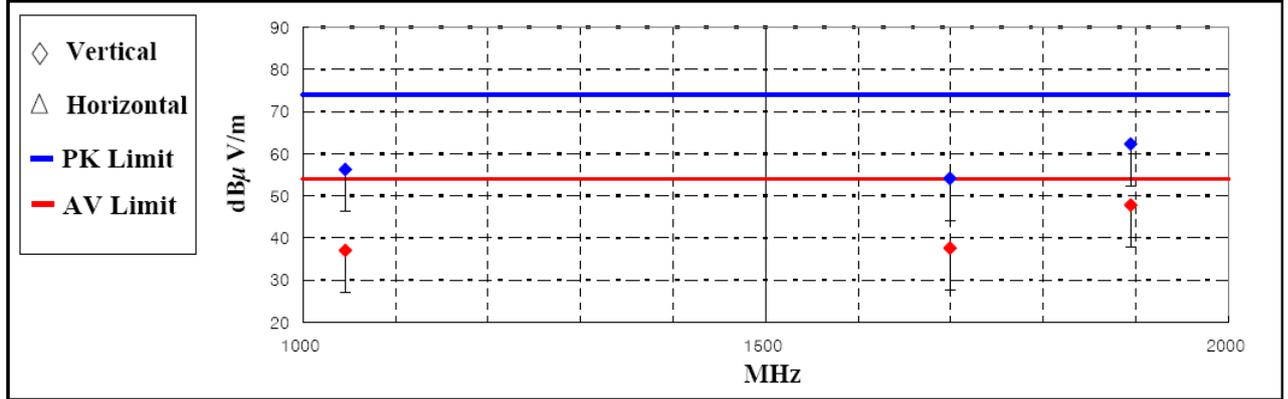


< Fig 16. Radiated emission result (30 MHz ~ 1 000 MHz)>



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

Frequency (MHz)	Measurement Level						Limit (dB μ V/m)		Margin (dB)		Positioning System		
	Reading Value (dB μ V/m)		AF	AMP / CL	Test Result (dB μ V/m)		Peak	Average	Peak	Average	Pol. (H/V)	Height (cm)	Angle (°)
	Peak	Average	(dB/m)	(dB)	Peak	Average							
1045.60	72.20	53.00	24.95	-40.95	56.20	37.00	74.00	54.00	17.80	17.00	V	110	189
1699.20	67.81	51.31	25.94	-39.65	54.10	37.60	74.00	54.00	19.90	16.40	V	105	201
1894.40	75.61	61.11	26.13	-39.44	62.30	47.80	74.00	54.00	11.70	6.20	V	100	22



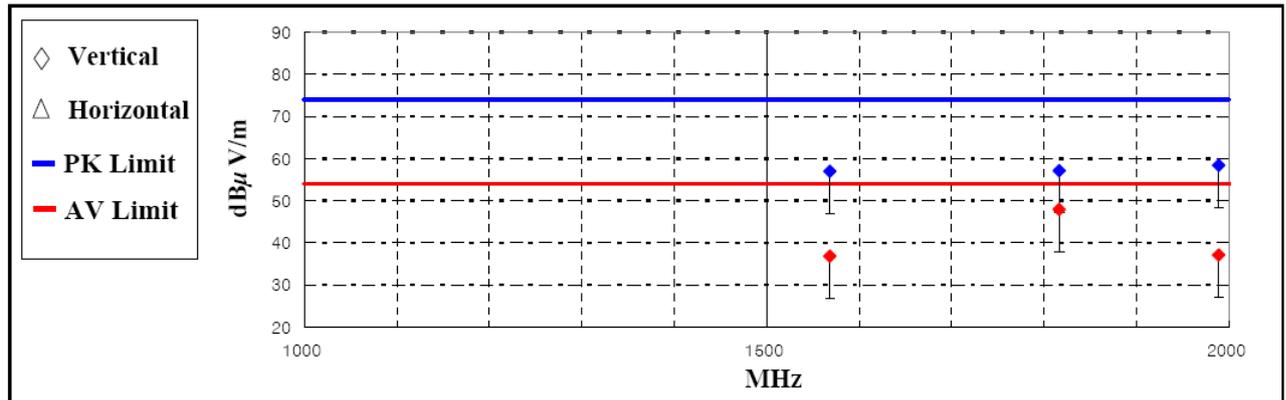
*Comment : AMP/CL_Cable loss value + AMP gain value
 AF : Antenna factor value
 Pol. : H(Horizontal), V(Vertical)

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



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

Frequency (MHz)	Measurement Level						Limit (dB μ V/m)		Margin (dB)		Positioning System		
	Reading Value (dB μ V/m)		AF	AMP / CL	Test Result (dB μ V/m)		Peak	Average	Peak	Average	Pol. (H/V)	Height (cm)	Angle (°)
	Peak	Average	(dB/m)	(dB)	Peak	Average							
1568.00	71.14	50.94	25.82	-39.96	57.00	36.80	74.00	54.00	17.00	17.20	V	100	206
1816.40	70.59	61.39	26.05	-39.54	57.10	47.90	74.00	54.00	16.90	6.10	V	119	180
1988.80	71.36	50.06	26.21	-39.17	58.40	37.10	74.00	54.00	15.60	16.90	V	106	191



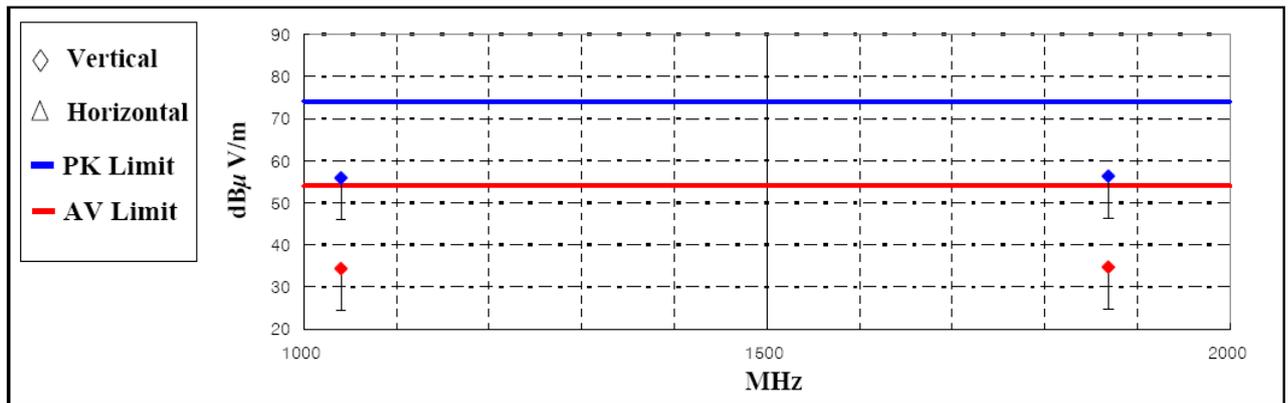
*Comment : AMP/CL_Cable loss value + AMP gain value
 AF : Antenna factor value
 Pol. : H(Horizontal), V(Vertical)

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



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

Frequency (MHz)	Measurement Level						Limit (dB μ V/m)		Margin (dB)		Positioning System		
	Reading Value (dB μ V/m)		AF	AMP / CL	Test Result (dB μ V/m)		Peak	Average	Peak	Average	Pol. (H/V)	Height (cm)	Angle (°)
	Peak	Average	(dB/m)	(dB)	Peak	Average							
1040.00	71.92	50.42	24.94	-40.96	55.90	34.40	74.00	54.00	18.10	19.60	V	177	213
1868.40	69.68	48.08	26.10	-39.48	56.30	34.70	74.00	54.00	17.70	19.30	V	160	105



*Comment : AMP/CL_Cable loss value + AMP gain value
 AF : Antenna factor value
 Pol. : H(Horizontal), V(Vertical)

< 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 dBμV
Reading	= 39.2 dBμV
$10^{(39.2\text{dB}\mu\text{V}/20)}$	= 91.2 μV
Margin	= 48 dBμV - 39.2 dBμV
	= 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 dBμV
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: 55SL80-UB)** was complies with §15.107 and 15.109 of the FCC Rules.