FCC EVALUATION REPORT FOR CERTIFICATION

Applicant: LG Electronics Inc.

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

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Do-Hyung Kim, Chief research engineer

Date of Issue: July 25, 2011

Order Number: GETEC-C1-11-168

Test Report Number: GETEC-E3-11-075

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID. : BEJ42LV3500UG

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	**: 42LV3500-UG**
Trade Name	**: LG**

This equipment has been shown to be in compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003 / Canadian standard ICES-003

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

Tested by,

Hyun Kim, Engineer
GUMI College EMC center

Reviewed by,

Jae-Hoon Jeong, Senior Engineer
GUMI College EMC center

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Scope: *Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and / or unintentional radiators for compliance with technical rules and regulations of the Federal Communications Commission.*

1. General Information

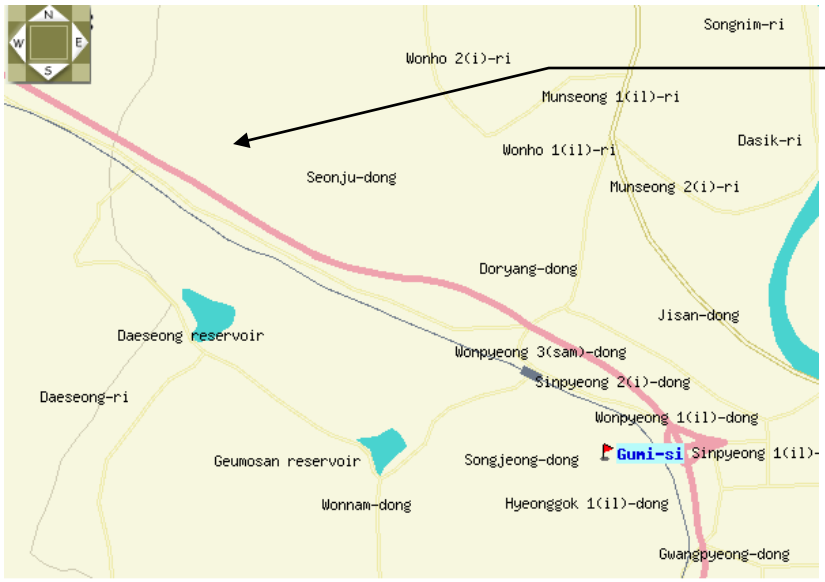
Applicant: LG Electronics Inc.
Applicant Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.
Manufacturer: LG Electronics Inc.
Manufacturer Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.
Contact Person: Mr. Do-Hyung Kim, Chief research engineer
Tel Number: +82-31-610-9623

- **FCC ID.** BEJ42LV3500UG
- **EUT Type** LED LCD TV/Monitor
- **Model Name** 42LV3500-UG
- **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** July 20 ~ 21, 2011
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957) 407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-11-075
- **Dates of Issue** July 25, 2011

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: 42LV3500-UG)**

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.
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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. LED LCD TV/Monitor (Model Name: 42LV3500-UG) FCC ID.: BEJ42LV3500UG**

MODELS		42LV3500 (42LV3500-UA) 42LV3500 (42LV3500-UG) 42LV3520 (42LV3520-UC) 42LV3520 (42LV3520-UJ)	47LV3500 (47LV3500-UA) 47LV3500 (47LV3500-UG)
Dimensions (W x H x D)	With stand	998.0 mm x 684.0 mm x 256.0 mm (39.2 inch x 26.9 inch x 10.0 inch)	1108.0 mm x 746.0 mm x 256.0 mm (43.6 inch x 29.3 inch x 10.0 inch)
	Without stand	998.0 mm x 615.0 mm x 30.4 mm (39.2 inch x 24.2 inch x 1.1 inch)	1108.0 mm x 677.0 mm x 30.4 mm (43.6 inch x 26.6 inch x 1.1 inch)
Weight	With stand	15.5 kg (34.1 lbs)	20.9 kg (46.0 lbs)
	Without stand	13.3 kg (29.3 lbs)	18.7 kg (41.2 lbs)
Current Value / Power consumption		1.1 A / 110 W	1.4 A / 140 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 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 - 40 °C	
	Operating Humidity	Less than 80 %	
	Storage Temperature	-20 - 60 °C	
	Storage Humidity	Less than 85 %	

-. Maximum Frequency Range : 667 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
PS2 keyboard	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID.: AQ6-23K15
USB mouse	Great Pleasure Electronics Co., Ltd.	GP-M3100UE	S/N: 14036766 FCC ID.: N/A
DVD player	LG Electronics Inc.	LC-954	S/N: 3850R-Z674K FCC ID.: DoC
USB memory stick	SAMSUNG	SUM-PSB4	S/N: TBBB202478F FCC ID.: N/A
TV signal generator	FLUKE	54200M01	S/N: 831011 FCC ID.: DoC
Headset	SBC HL140	N/A	S/N: N/A FCC ID.: N/A

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.	-	-	S/N: - FCC ID.: -

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
RS-232C (Control & service) cable	Connected to the EUT and PC	1.80 m shielded
Audio(RGB/DVI) in cable	Connected to the EUT and PC	1.50 m shielded
AV 1 cable	Connected to the EUT and DVD player	3.00 m shielded
AV 2 cable	Connected to the EUT and DVD player	0.90 m shielded
Component cable	Connected to the EUT and DVD player	3.00 m shielded
Headset cable	Connected to the EUT and headset	1.20 m shielded
Antenna cable	Connected to the EUT and TV signal generator	10.00 m shielded

3.3 Modification Item(s)

- None

4. Description of tests

4.1 Test Condition

The EUT was installed, arranged and operated in a manner that is most representative of equipment as typically used. The measurements were carried out while varying operating modes and cable positions within typically arrangement to determine maximum emission level.
The representative and worst test mode(s) were noted in the test report.

- Test Voltage / Frequency : AC 120 V / 60 Hz

- Test Mode(s)

-. Monitor mode

Radiated emission: 1 920 × 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
-. Continuous playback of 1 kHz audio file with winamp player
-. USB memory stick was connected to the USB port

"***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

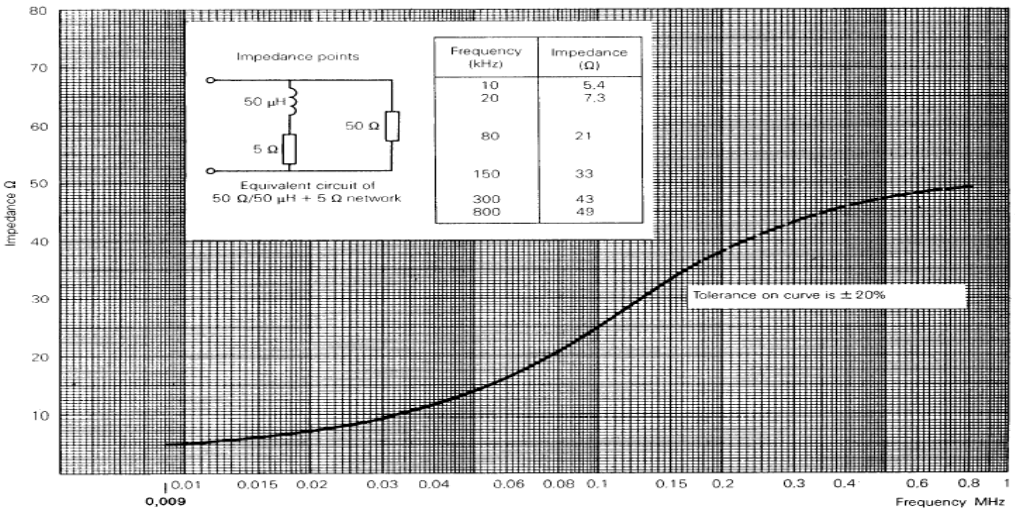


Fig 2. Impedance of LISN

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

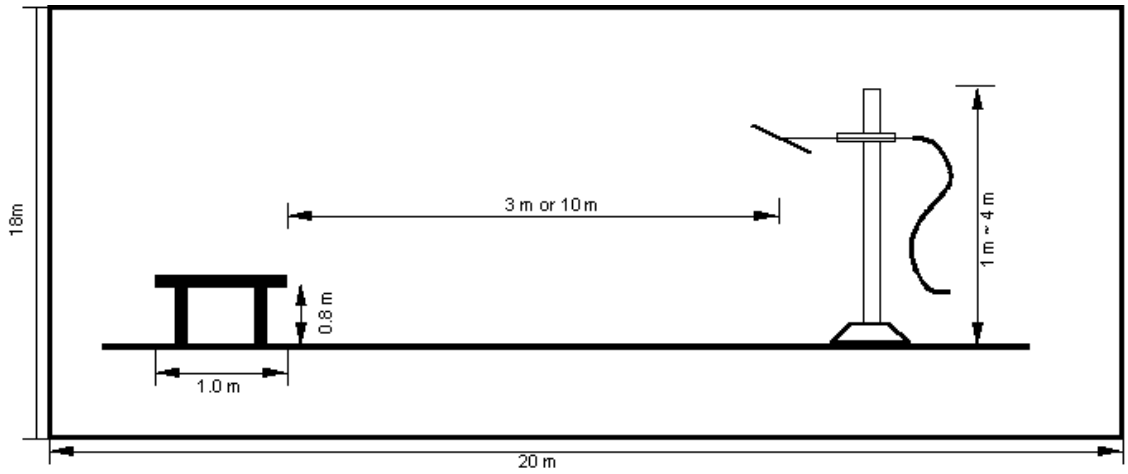


Fig 3. Dimensions of test site

5. Conducted Emission

5.1 Operating Environment

Temperature : 26 ℃
Relative Humidity : 52 % 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 &ISN.
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)	± 2.71 dB	Confidence levels of 95 % (k = 2)
Conducted emission (150 kHz ~ 30 MHz)	± 3.34 dB	Confidence levels of 95 % (k = 2)

5.4 Limit

RFI Conducted	FCC Limit(dB μV/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

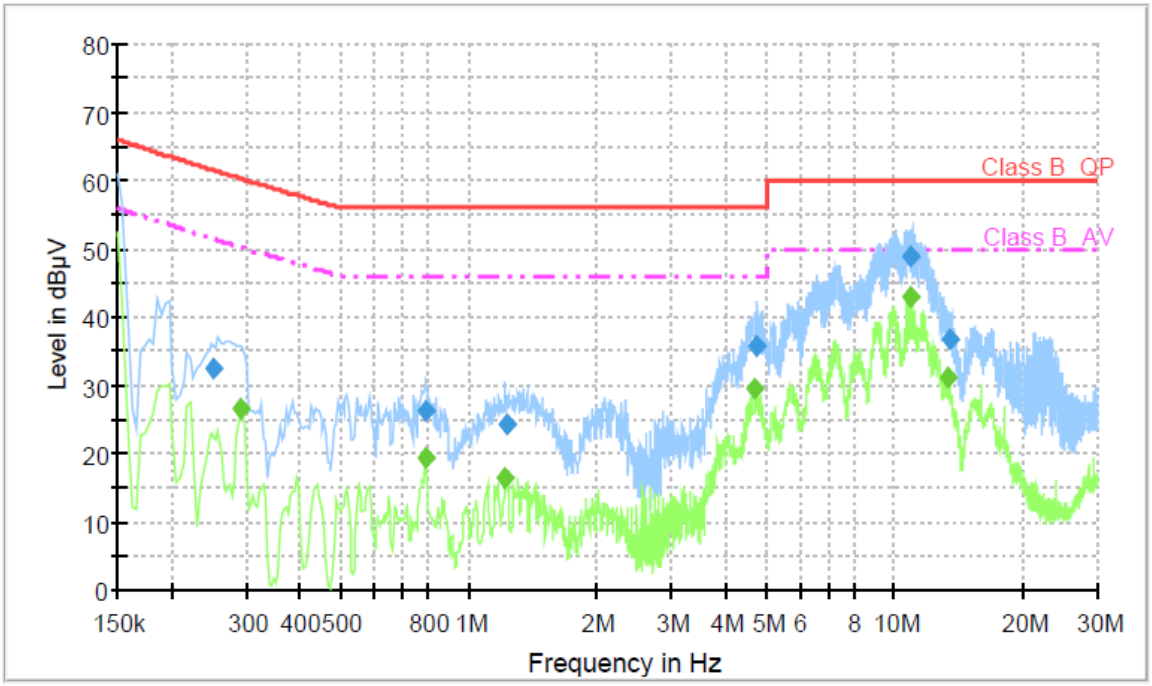
	Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ -	ESCS30	Rohde & Schwarz	EMI Test Receiver	839809/003	12. 10. 2011
■ -	ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 10. 2011
■ -	ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 10. 2011
☐ -	ISN T8	TESEQ. GmbH	ISN	24568	11. 09. 2011

5.6 Test data for Conducted Emission

-. Test Date : July 20, 2011
-. 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

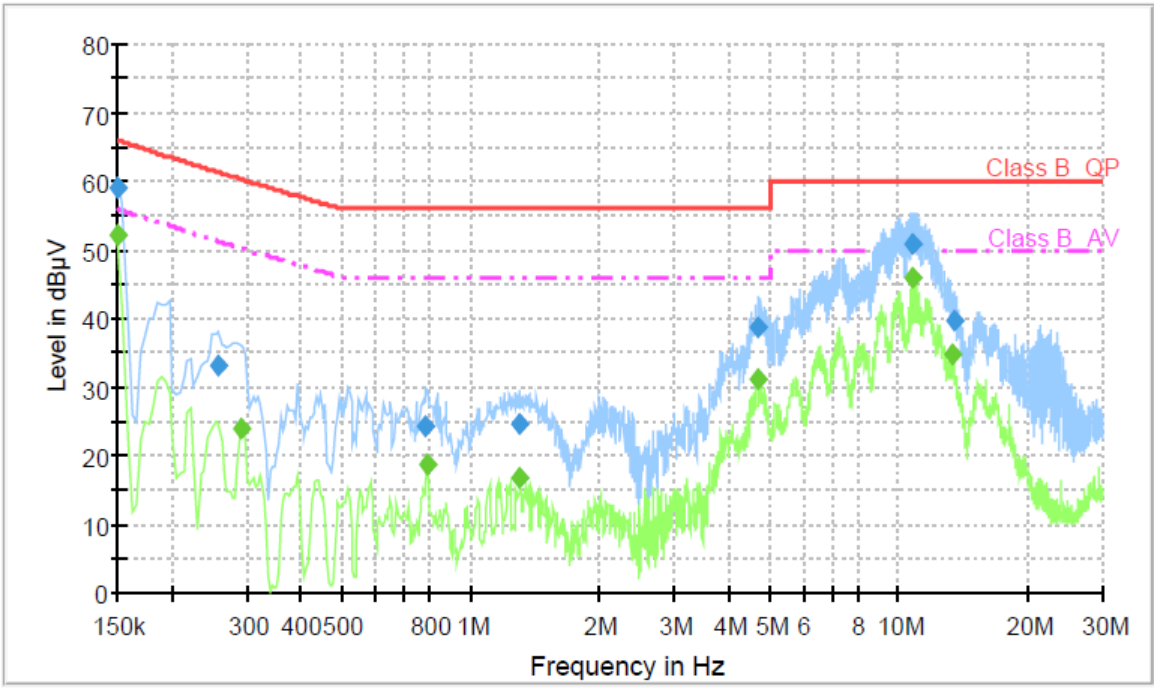
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.252000	32.5	1000.000	9.000	GND	L1	10.1	29.0	61.5	
0.792000	26.2	1000.000	9.000	GND	L1	10.1	29.8	56.0	
1.236000	24.3	1000.000	9.000	GND	L1	10.1	31.7	56.0	
4.768000	35.6	1000.000	9.000	GND	L1	10.3	20.4	56.0	
10.900000	48.8	1000.000	9.000	GND	L1	10.6	11.2	60.0	
13.444000	36.6	1000.000	9.000	GND	L1	10.8	23.4	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.292000	26.5	1000.000	9.000	GND	L1	10.1	23.7	50.2	
0.792000	19.3	1000.000	9.000	GND	L1	10.1	26.7	46.0	
1.220000	16.4	1000.000	9.000	GND	L1	10.1	29.6	46.0	
4.700000	29.5	1000.000	9.000	GND	L1	10.3	16.5	46.0	
10.864000	43.0	1000.000	9.000	GND	L1	10.6	7.0	50.0	
13.372000	31.1	1000.000	9.000	GND	L1	10.7	18.9	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
0.150000	58.9	1000.000	9.000	GND	N	10.1	7.1	66.0	
0.258000	33.2	1000.000	9.000	GND	N	10.1	28.1	61.3	
0.786000	24.2	1000.000	9.000	GND	N	10.1	31.8	56.0	
1.302000	24.5	1000.000	9.000	GND	N	10.1	31.5	56.0	
4.698000	38.7	1000.000	9.000	GND	N	10.3	17.3	56.0	
10.834000	50.9	1000.000	9.000	GND	N	10.5	9.1	60.0	
13.446000	39.5	1000.000	9.000	GND	N	10.7	20.5	60.0	

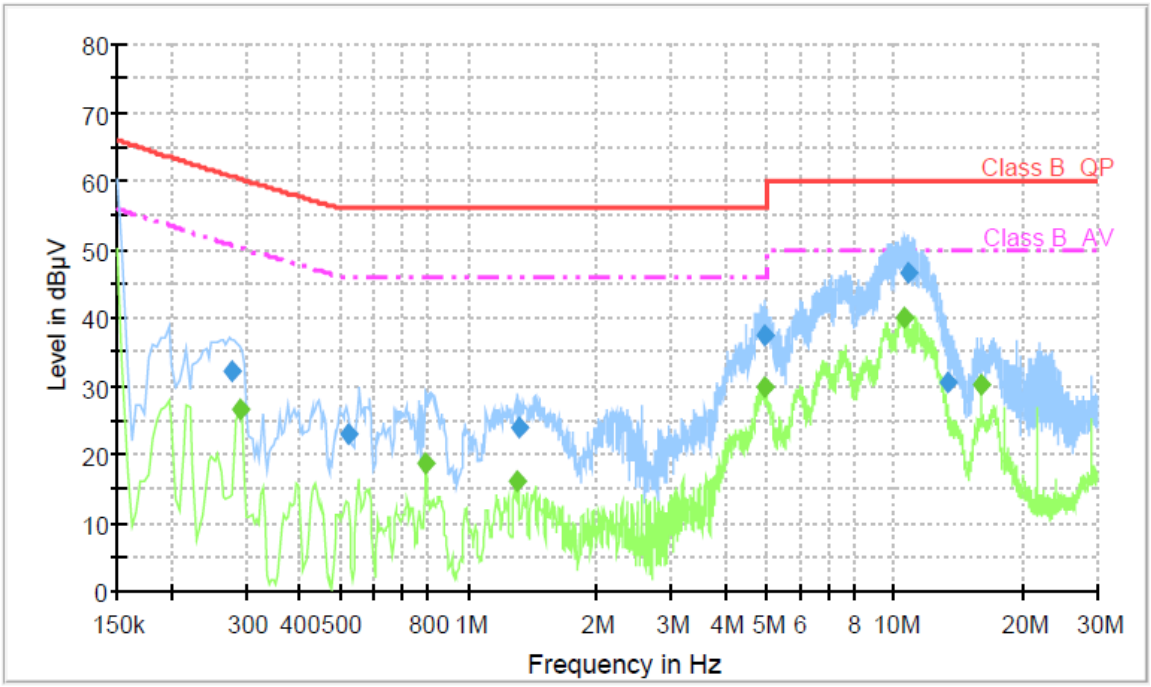
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	52.1	1000.000	9.000	GND	N	10.1	3.9	56.0	
0.290000	23.9	1000.000	9.000	GND	N	10.1	26.4	50.3	
0.790000	18.7	1000.000	9.000	GND	N	10.1	27.3	46.0	
1.302000	16.8	1000.000	9.000	GND	N	10.1	29.2	46.0	
4.698000	31.2	1000.000	9.000	GND	N	10.3	14.8	46.0	
10.834000	46.1	1000.000	9.000	GND	N	10.5	3.9	50.0	
13.378000	34.7	1000.000	9.000	GND	N	10.7	15.3	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

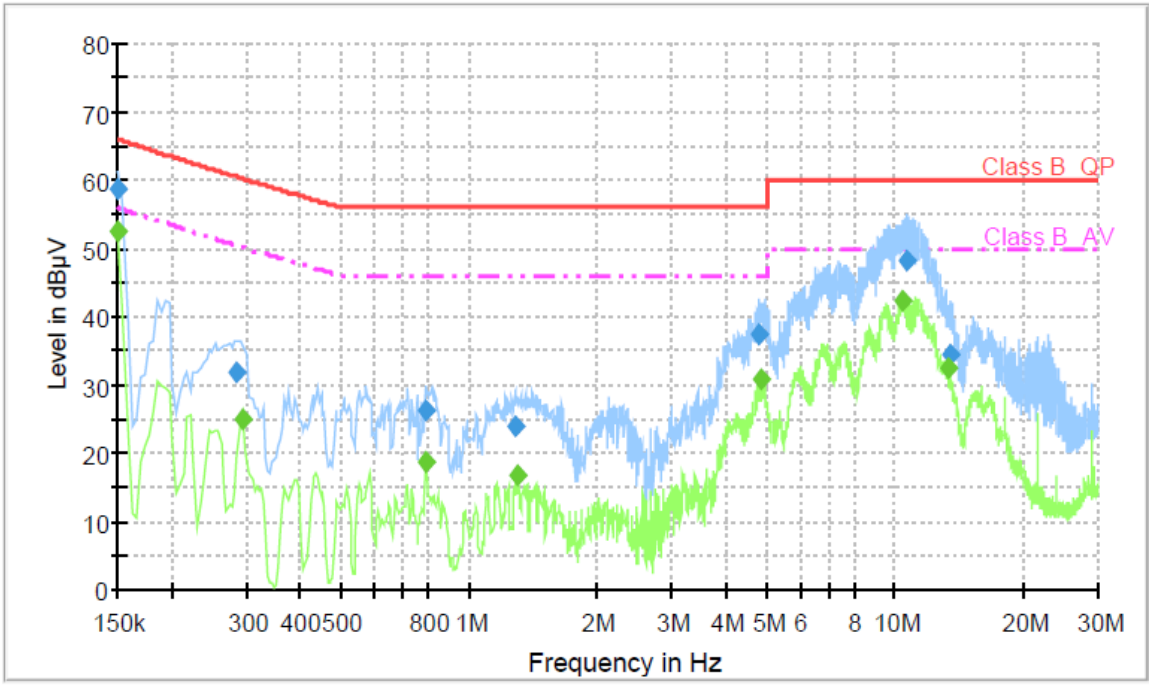
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.280000	32.2	1000.000	9.000	GND	L1	10.1	28.4	60.6	
0.520000	22.8	1000.000	9.000	GND	L1	10.1	33.2	56.0	
1.308000	24.0	1000.000	9.000	GND	L1	10.1	32.0	56.0	
4.968000	37.3	1000.000	9.000	GND	L1	10.3	18.7	56.0	
10.720000	46.7	1000.000	9.000	GND	L1	10.6	13.3	60.0	
13.404000	30.4	1000.000	9.000	GND	L1	10.8	29.6	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.292000	26.7	1000.000	9.000	GND	L1	10.1	23.5	50.2	
0.792000	18.8	1000.000	9.000	GND	L1	10.1	27.2	46.0	
1.304000	16.2	1000.000	9.000	GND	L1	10.1	29.8	46.0	
4.964000	29.7	1000.000	9.000	GND	L1	10.3	16.3	46.0	
10.508000	40.0	1000.000	9.000	GND	L1	10.6	10.0	50.0	
16.008000	30.1	1000.000	9.000	GND	L1	10.9	19.9	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
0.150000	58.8	1000.000	9.000	GND	N	10.1	7.2	66.0	
0.286000	31.9	1000.000	9.000	GND	N	10.1	28.5	60.4	
0.790000	26.2	1000.000	9.000	GND	N	10.1	29.8	56.0	
1.282000	24.0	1000.000	9.000	GND	N	10.1	32.0	56.0	
4.798000	37.5	1000.000	9.000	GND	N	10.3	18.5	56.0	
10.646000	48.2	1000.000	9.000	GND	N	10.5	11.8	60.0	
13.550000	34.4	1000.000	9.000	GND	N	10.7	25.6	60.0	

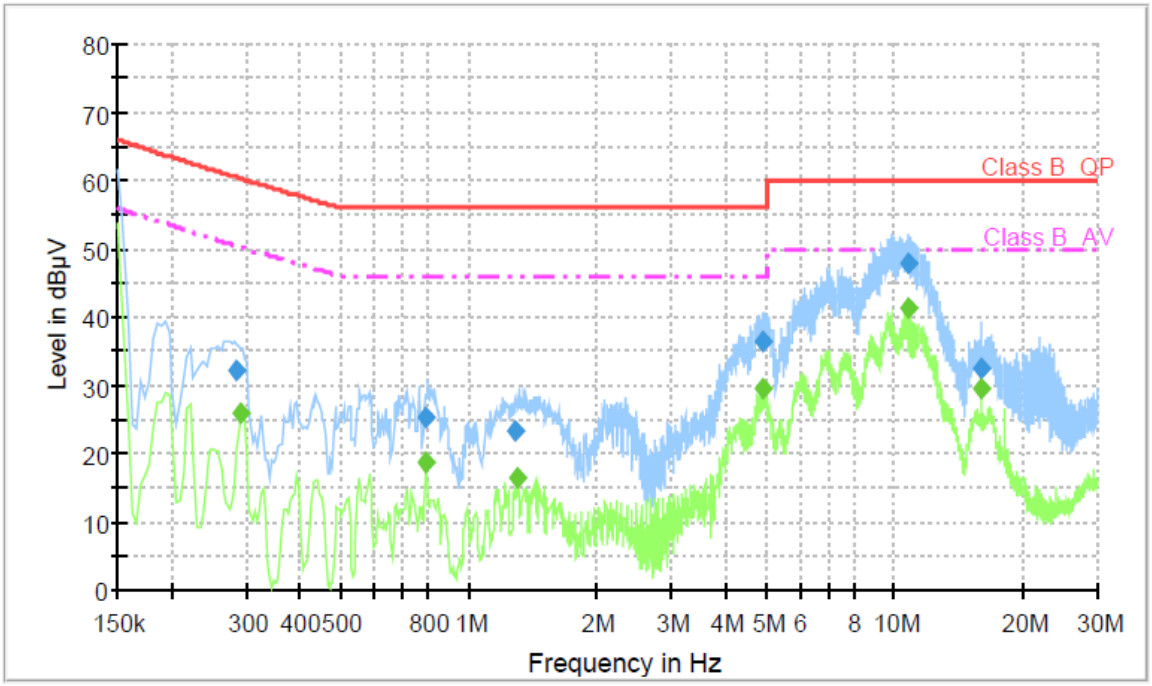
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	52.3	1000.000	9.000	GND	N	10.1	3.7	56.0	
0.294000	24.8	1000.000	9.000	GND	N	10.1	25.4	50.2	
0.794000	18.8	1000.000	9.000	GND	N	10.1	27.2	46.0	
1.302000	16.8	1000.000	9.000	GND	N	10.1	29.2	46.0	
4.830000	30.7	1000.000	9.000	GND	N	10.3	15.3	46.0	
10.382000	42.4	1000.000	9.000	GND	N	10.5	7.6	50.0	
13.382000	32.4	1000.000	9.000	GND	N	10.7	17.6	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

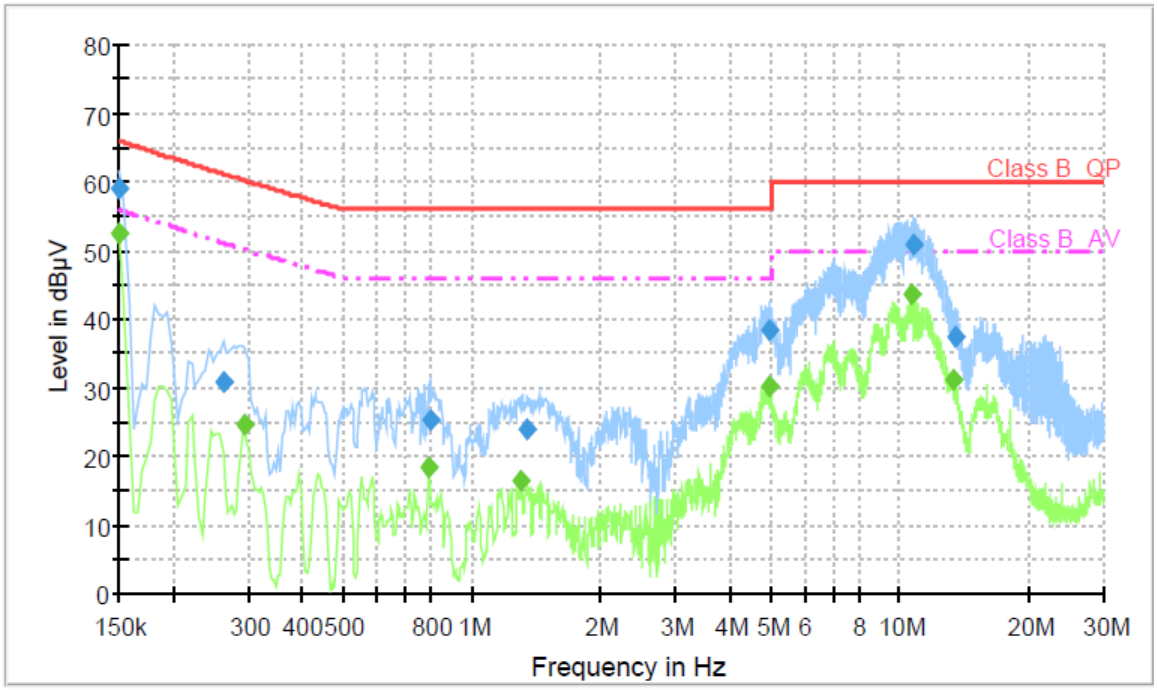
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.284000	32.0	1000.000	9.000	GND	L1	10.1	28.5	60.5	
0.796000	25.4	1000.000	9.000	GND	L1	10.1	30.6	56.0	
1.288000	23.4	1000.000	9.000	GND	L1	10.1	32.6	56.0	
4.896000	36.4	1000.000	9.000	GND	L1	10.3	19.6	56.0	
10.776000	48.0	1000.000	9.000	GND	L1	10.6	12.0	60.0	
16.004000	32.4	1000.000	9.000	GND	L1	10.9	27.6	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.292000	26.0	1000.000	9.000	GND	L1	10.1	24.2	50.2	
0.792000	18.7	1000.000	9.000	GND	L1	10.1	27.3	46.0	
1.304000	16.3	1000.000	9.000	GND	L1	10.1	29.7	46.0	
4.896000	29.6	1000.000	9.000	GND	L1	10.3	16.4	46.0	
10.780000	41.2	1000.000	9.000	GND	L1	10.6	8.8	50.0	
16.008000	29.6	1000.000	9.000	GND	L1	10.9	20.4	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	59.1	1000.000	9.000	GND	N	10.1	7.0	66.0	
0.262000	30.9	1000.000	9.000	GND	N	10.1	30.3	61.2	
0.798000	25.2	1000.000	9.000	GND	N	10.1	30.8	56.0	
1.346000	24.0	1000.000	9.000	GND	N	10.1	32.0	56.0	
4.962000	38.4	1000.000	9.000	GND	N	10.3	17.6	56.0	
10.838000	50.8	1000.000	9.000	GND	N	10.5	9.2	60.0	
13.518000	37.4	1000.000	9.000	GND	N	10.7	22.6	60.0	

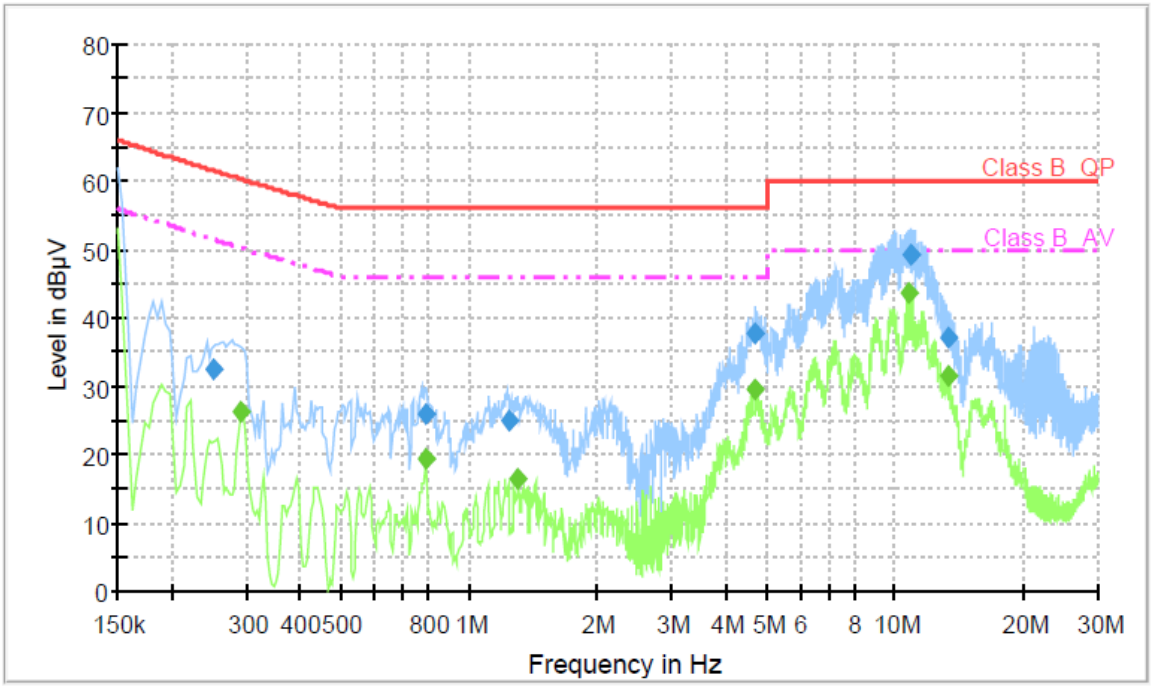
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	52.5	1000.000	9.000	GND	N	10.1	3.5	56.0	
0.294000	24.7	1000.000	9.000	GND	N	10.1	25.5	50.2	
0.794000	18.3	1000.000	9.000	GND	N	10.1	27.7	46.0	
1.302000	16.5	1000.000	9.000	GND	N	10.1	29.5	46.0	
4.962000	30.3	1000.000	9.000	GND	N	10.3	15.7	46.0	
10.714000	43.6	1000.000	9.000	GND	N	10.5	6.4	50.0	
13.386000	31.2	1000.000	9.000	GND	N	10.7	18.8	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

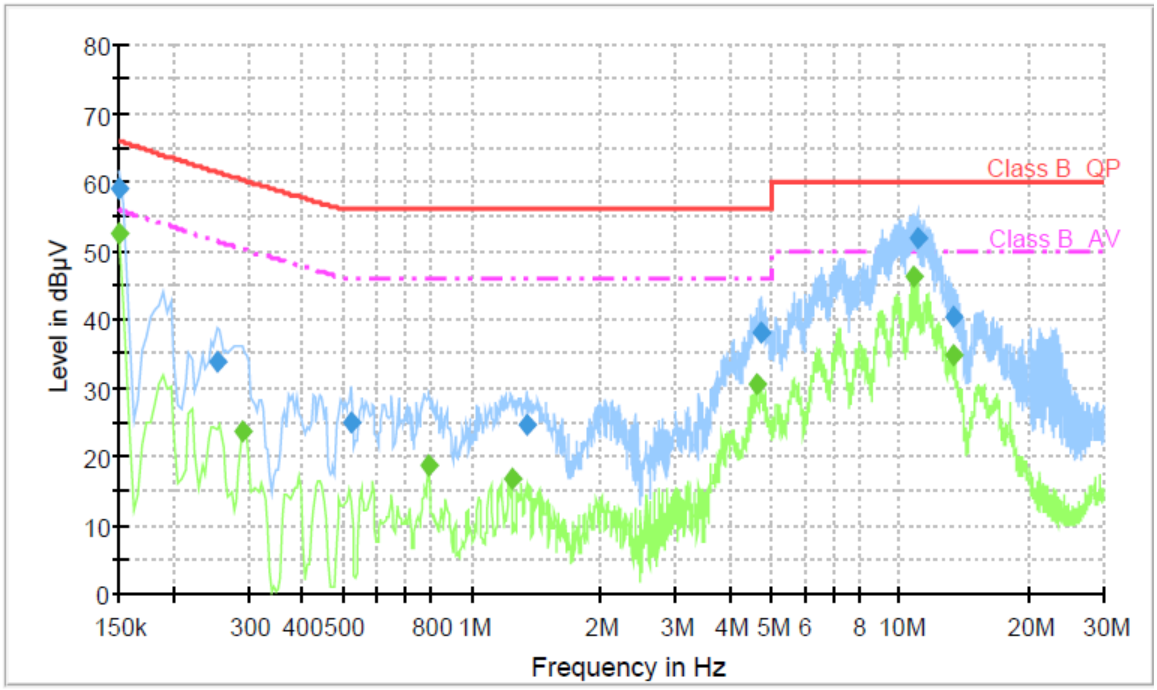
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.252000	32.5	1000.000	9.000	GND	L1	10.1	29.0	61.5	
0.792000	26.1	1000.000	9.000	GND	L1	10.1	29.9	56.0	
1.240000	24.9	1000.000	9.000	GND	L1	10.1	31.1	56.0	
4.700000	37.6	1000.000	9.000	GND	L1	10.3	18.4	56.0	
10.900000	49.3	1000.000	9.000	GND	L1	10.6	10.7	60.0	
13.380000	37.0	1000.000	9.000	GND	L1	10.7	23.0	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.292000	26.4	1000.000	9.000	GND	L1	10.1	23.8	50.2	
0.792000	19.3	1000.000	9.000	GND	L1	10.1	26.7	46.0	
1.304000	16.5	1000.000	9.000	GND	L1	10.1	29.5	46.0	
4.696000	29.6	1000.000	9.000	GND	L1	10.3	16.4	46.0	
10.832000	43.5	1000.000	9.000	GND	L1	10.6	6.5	50.0	
13.376000	31.5	1000.000	9.000	GND	L1	10.7	18.5	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	59.1	1000.000	9.000	GND	N	10.1	6.9	66.0	
0.254000	33.9	1000.000	9.000	GND	N	10.1	27.5	61.4	
0.522000	24.8	1000.000	9.000	GND	N	10.1	31.2	56.0	
1.338000	24.5	1000.000	9.000	GND	N	10.1	31.5	56.0	
4.766000	38.2	1000.000	9.000	GND	N	10.3	17.8	56.0	
10.962000	51.7	1000.000	9.000	GND	N	10.5	8.3	60.0	
13.378000	40.2	1000.000	9.000	GND	N	10.7	19.8	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	52.4	1000.000	9.000	GND	N	10.1	3.6	56.0	
0.290000	23.5	1000.000	9.000	GND	N	10.1	26.8	50.3	
0.794000	18.6	1000.000	9.000	GND	N	10.1	27.4	46.0	
1.238000	16.7	1000.000	9.000	GND	N	10.1	29.3	46.0	
4.634000	30.5	1000.000	9.000	GND	N	10.3	15.5	46.0	
10.830000	46.1	1000.000	9.000	GND	N	10.5	3.9	50.0	
13.374000	34.7	1000.000	9.000	GND	N	10.7	15.3	50.0	

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

6. Radiated Emission

6.1 Operating Environment

Temperature : 22 ℃
Relative Humidity : 46 % 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(Anechoic Chamber)	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 4.38 dB	Confidence levels of 95 % (k = 2)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.50 dB	Confidence levels of 95 % (k = 2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.75 dB	Confidence levels of 95 % (k = 2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.59 dB	Confidence levels of 95 % (k = 2)

6.4 Limit

Frequency (MHz)	FCC Limit @ 3 m. dB μV/m	CISPR Limit @ 10 m. dB μV/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

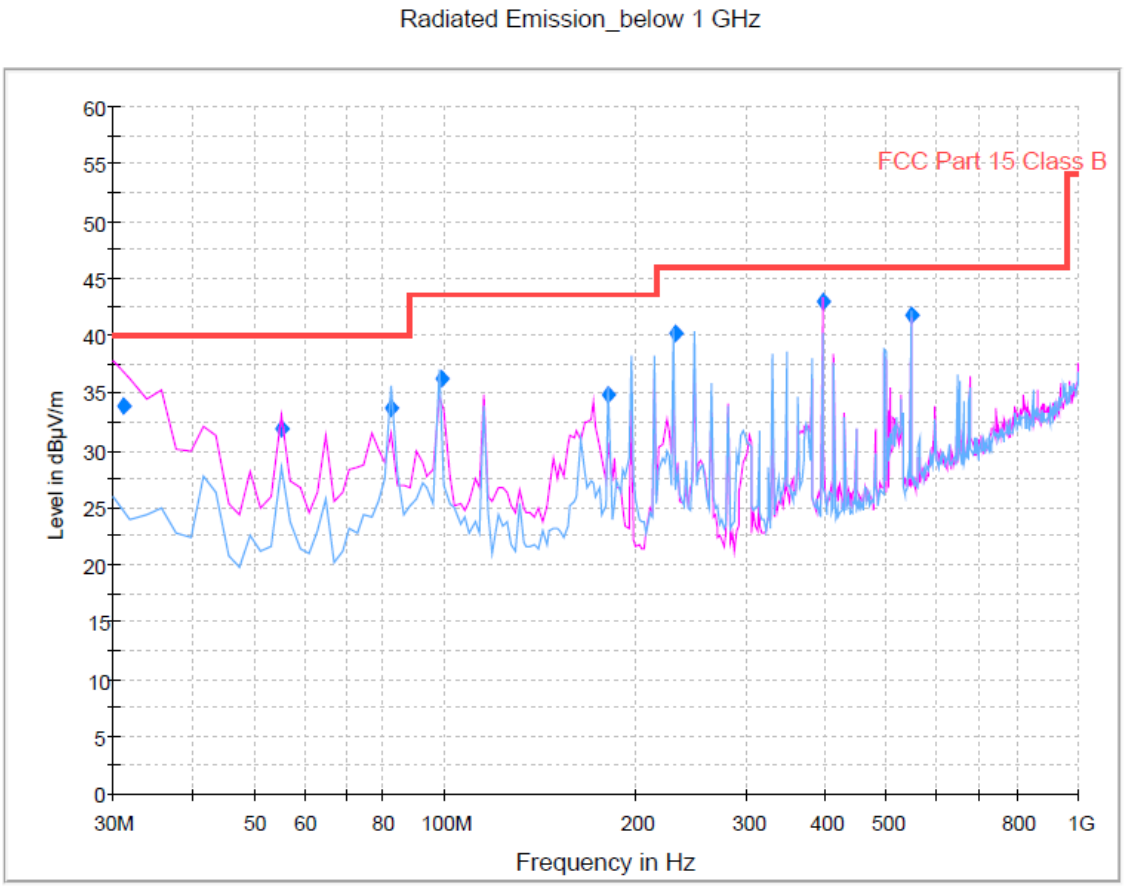
6.5 Test Equipment used

	Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ -	ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 11. 2011
■ -	VULB9160	Schwarzbeck	Broadband Test Antenna	3193	03. 15. 2012
■ -	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	1258942	11. 12. 2011

6.6 Test data for Radiated Emission

-. Test Date : July 21, 2011
-. 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 (667 MHz). The measurement was made up to 5 000 MHz

♦ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Red trace: Vertical polarization, Blue trace: Horizontal polarization

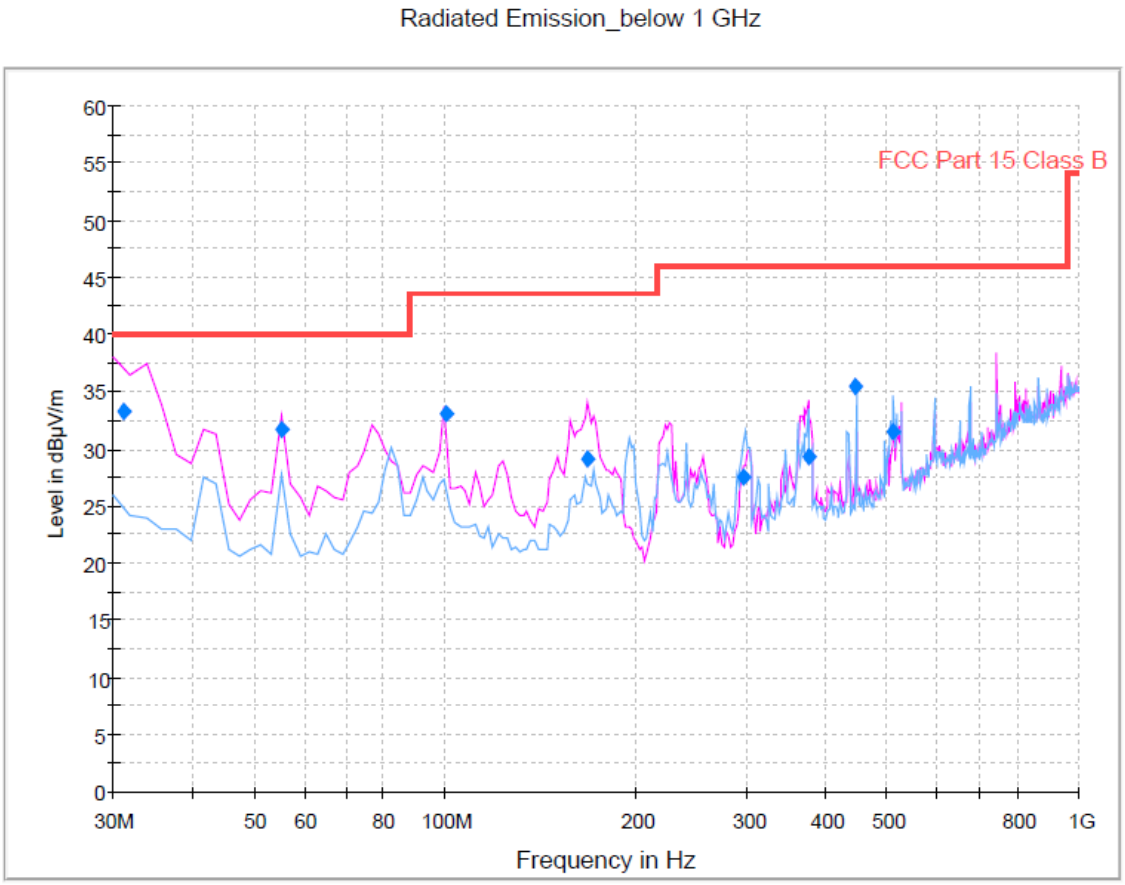


Final Measurement Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.080000	33.9	1000.0	120.000	115.0	V	16.0	11.4	6.1	40.0
55.290541	32.0	1000.0	120.000	100.0	V	234.0	13.0	8.1	40.0
82.544970	33.7	1000.0	120.000	219.0	H	276.0	9.1	6.3	40.0
99.016072	36.3	1000.0	120.000	177.0	H	235.0	11.0	7.2	43.5
181.563246	34.9	1000.0	120.000	146.0	H	260.0	12.9	8.6	43.5
231.040441	40.3	1000.0	120.000	116.0	H	285.0	13.1	5.7	46.0
396.110902	43.0	1000.0	120.000	126.0	V	186.0	19.6	3.0	46.0
544.630261	41.9	1000.0	120.000	100.0	H	225.0	22.6	4.1	46.0

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

♦ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Red trace: Vertical polarization, Blue trace: Horizontal polarization

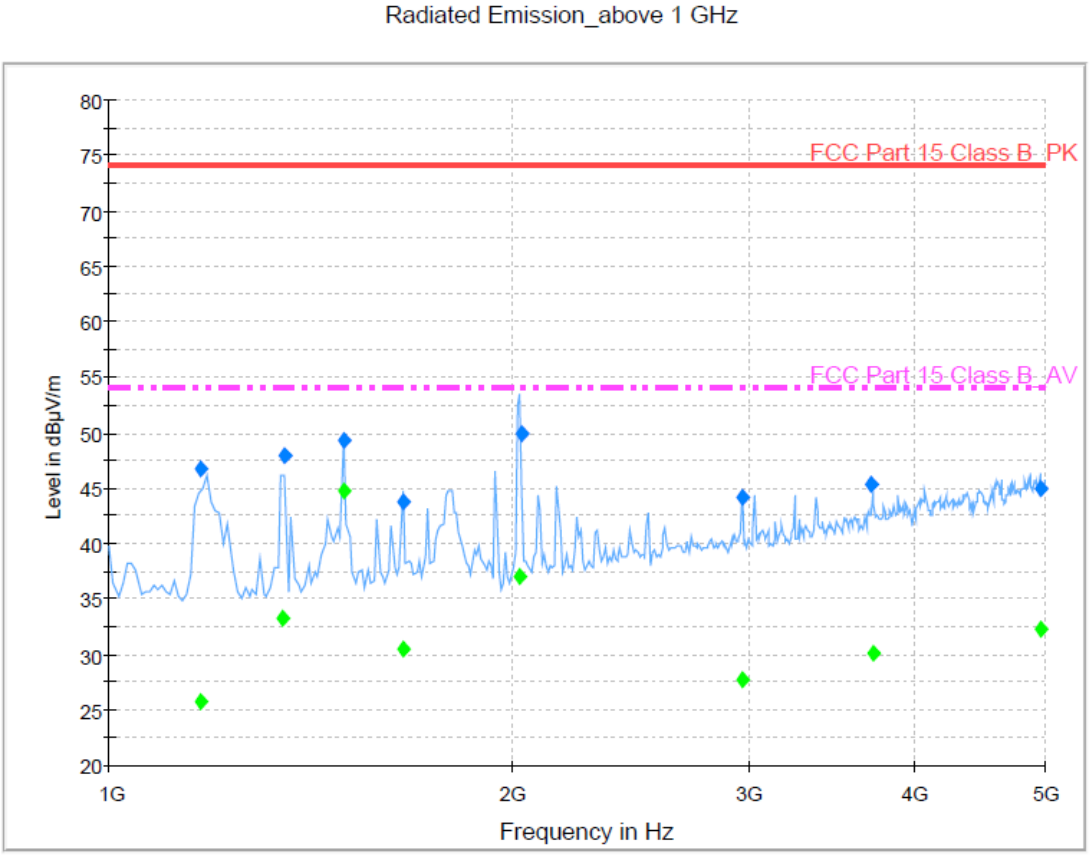


Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
31.140000	33.2	1000.0	120.000	100.0	V	54.0	11.4	6.8	40.0
55.290541	31.6	1000.0	120.000	100.0	V	6.0	13.0	8.4	40.0
100.239960	33.0	1000.0	120.000	100.0	V	246.0	11.2	10.5	43.5
167.456032	29.2	1000.0	120.000	100.0	V	99.0	14.5	14.4	43.5
297.016513	27.6	1000.0	120.000	100.0	H	109.0	16.5	18.4	46.0
375.308136	29.2	1000.0	120.000	115.0	V	337.0	19.0	16.8	46.0
445.491984	35.4	1000.0	120.000	188.0	H	351.0	20.6	10.6	46.0
510.060281	31.5	1000.0	120.000	187.0	H	230.0	21.7	14.5	46.0

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

♦ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Green market: Average detector, Blue market: Peak detector



Final Result 1

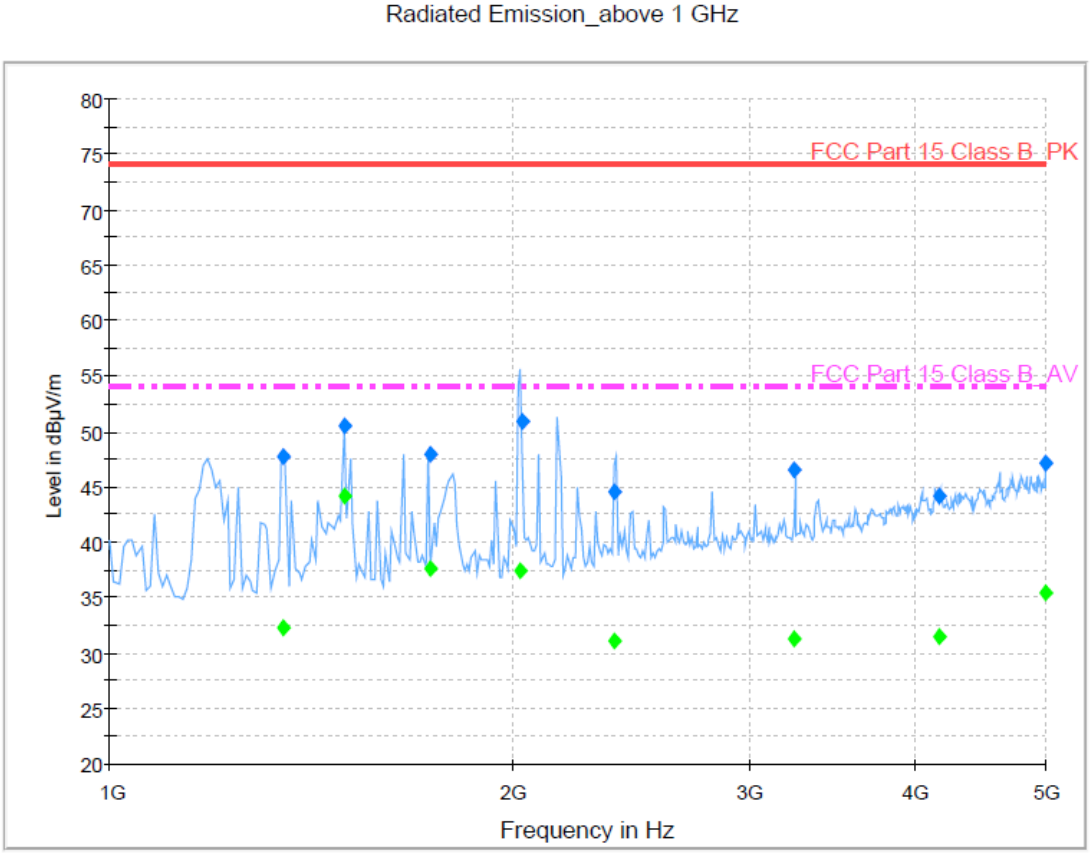
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1172.936673	46.7	1000.0	1000.000	121.0	V	16.0	-13.8	27.3	74.0
1350.905411	48.0	1000.0	1000.000	100.0	V	333.0	-13.3	26.0	74.0
1500.393988	49.3	1000.0	1000.000	100.0	V	3.0	-13.0	24.7	74.0
1661.514629	43.8	1000.0	1000.000	100.0	V	55.0	-12.6	30.2	74.0
2030.252104	49.9	1000.0	1000.000	100.0	V	220.0	-11.5	24.1	74.0
2971.743888	44.2	1000.0	1000.000	228.0	H	58.0	-7.5	29.8	74.0
3713.634870	45.3	1000.0	1000.000	150.0	V	199.0	-4.6	28.7	74.0
4958.519840	44.9	1000.0	1000.000	150.0	V	2.0	-1.2	29.1	74.0

Final Result 2

Frequency (MHz)	CAverage (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1173.336673	25.8	1000.0	1000.000	121.0	V	18.0	-13.8	28.2	54.0
1348.905411	33.2	1000.0	1000.000	100.0	V	337.0	-13.3	20.8	54.0
1500.393988	44.8	1000.0	1000.000	100.0	V	0.0	-13.0	9.2	54.0
1661.114629	30.5	1000.0	1000.000	100.0	V	52.0	-12.6	23.5	54.0
2029.452104	37.1	1000.0	1000.000	100.0	V	215.0	-11.5	16.9	54.0
2971.743888	27.7	1000.0	1000.000	245.0	H	71.0	-7.5	26.3	54.0
3720.034870	30.1	1000.0	1000.000	113.0	V	199.0	-4.5	23.9	54.0
4964.519840	32.3	1000.0	1000.000	100.0	V	356.0	-1.2	21.7	54.0

< Fig 14. Radiated emission result (1 000 MHz ~ 5 000 MHz) >

♦ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Green marker: Average detector, Blue marker: Peak detector



Final Result 1

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1349.689379	47.7	1000.0	1000.000	100.0	V	333.0	-13.3	26.3	74.0
1500.393988	50.5	1000.0	1000.000	100.0	V	7.0	-13.0	23.5	74.0
1733.258918	48.0	1000.0	1000.000	130.0	V	335.0	-12.4	26.0	74.0
2030.652104	51.0	1000.0	1000.000	100.0	V	220.0	-11.5	23.0	74.0
2383.773547	44.6	1000.0	1000.000	113.0	V	327.0	-9.9	29.4	74.0
3249.905010	46.6	1000.0	1000.000	221.0	V	340.0	-6.4	27.4	74.0
4171.748697	44.1	1000.0	1000.000	163.0	V	257.0	-3.0	29.9	74.0
4999.400000	47.2	1000.0	1000.000	100.0	H	237.0	-1.1	26.8	74.0

Final Result 2

Frequency (MHz)	CAverage (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1349.289379	32.3	1000.0	1000.000	100.0	V	339.0	-13.3	21.7	54.0
1500.393988	44.1	1000.0	1000.000	100.0	V	3.0	-13.0	9.9	54.0
1733.258918	37.7	1000.0	1000.000	129.0	V	340.0	-12.4	16.3	54.0
2029.452104	37.4	1000.0	1000.000	100.0	V	216.0	-11.5	16.6	54.0
2383.373547	31.2	1000.0	1000.000	112.0	V	324.0	-9.9	22.8	54.0
3249.105010	31.2	1000.0	1000.000	150.0	V	344.0	-6.4	22.8	54.0
4170.148697	31.4	1000.0	1000.000	250.0	V	269.0	-3.0	22.6	54.0
5000.000000	35.4	1000.0	1000.000	100.0	H	237.0	-1.1	18.6	54.0

< Fig 15. Radiated emission result (1 000 MHz ~ 5 000 MHz) >

7. Sample Calculations

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

7.1 Example 1 :

■ **20.3 MHz**

Class B Limit = 250 μV = 48 dBμV

Reading = 39.2 dBμV

$10^{(39.2dB\mu V/20)}$ = 91.2 μV

Margin = 48 dBμV - 39.2 dBμV

= 8.8 dB

7.2 Example 2 :

■ **66.7 MHz**

Class B Limit = 100 μV/m = 40.0 dBμV/m

Reading = 31.0 dBμV

Antenna Factor + Cable Loss = 5.8 dB

Total = 36.8 dBμV/m

Margin = 40.0 dBμV/m – 36.8 dBμV/m

= 3.2 dB

8. Recommendation & Conclusion

The data collected shows that the **LG Electronics Inc. LED LCD TV/Monitor (Model Name: 42LV3500-UG)** was complies with §15.107 and 15.109 of the FCC Rules.