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: April 12, 2012
Order Number: GETEC-C1-12-102
Test Report Number: GETEC-E3-12-043
Test Site: GUMI COLLEGE EMC CENTER
FCC Registration Number: (100749, 443957)

FCC ID. : BEJ42PA4500UM

Applicant : LG Electronics Inc.

Rule Part(s)	**: FCC Part 15 Subpart B**
Equipment Class	**: Class B computing device peripheral (JBP)**
EUT Type	**: PLASMA TV/MONITOR**
Type of Authority	**: Certification**
Model Name	**: 42PA4500-UM**
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 C63.4-2009 / 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

This test report only contains the result of a specific sample supplied for the examination.
It is not allowed to copy this report even partly without the approval of 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

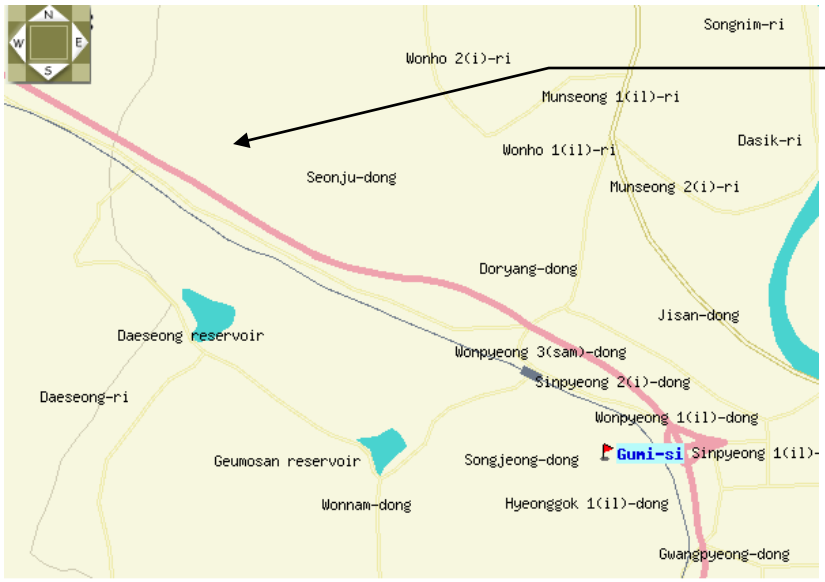
Applicant: LG Electronics Inc.
Applicant Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.
Manufacturer: LG Electronics Inc.
Manufacturer Address: 19-1, Cheongho-ri, Jinwi-myeon, Pyeongteak-si, Gyeonggi-do, Korea.
Contact Person: Mr. Do-Hyung Kim, Chief research engineer
Tel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

- **FCC ID.** BEJ42PA4500UM
- **EUT Type** PLASMA TV/MONITOR
- **Model Name** 42PA4500-UM
- **Trade Name** LG
- **Serial Number** Prototype
- **Rule Part(s)** FCC Part 15 Subpart B
- **Type of Authority** Certification
- **Test Procedure(s)** ANSI C63.4 (2009) / Canadian standard ICES-003
- **Dates of Test** April 9, 2012
- **Place of Test** **GUMI COLLEGE EMC CENTER** (FCC Registration Number: 100749, 443957) 407, Bugok-Dong, Gumi-City, Gyungbok, 730-711, Republic of Korea
- **Test Report Number** GETEC-E3-12-043
- **Dates of Issue** April 12, 2012

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. PLASMA TV/MONITOR (Model Name: 42PA4500-UM)**

These measurement tests were conducted at **GUMI COLLEGE EMC CENTER**
The site address is 407, Bugok-Dong, Gumi-City, Gyungbok, 730-711, Republic of 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 (2009)



GUMI COLLEGE EMC CENTER
407, Bugok-Dong, Gumi-City,
Gyungbok, 730-711, Republic of Korea
Tel: +82-54-440-1195
Fax: +82-54-440-1199

Fig 1. The map above shows the Gumi College in vicinity area.

3. Product Information

3.1 Description of EUT

The Equipment under Test (EUT) is the **LG Electronics Inc.**
PLASMA TV/MONITOR (Model Name: 42PA4500-UM) FCC ID.: BEJ42PA4500UM

MODELS		42PA4500 (42PA4500-UM)	50PA4500 (50PA4500-UM)
Dimensions (W x H x D)	With stand	983.6 mm x 655.0 mm x 246.7 mm (38.7 inch x 25.7 inch x 9.7 inch)	1168.0 mm x 758.0 mm x 297.0 mm (45.9 inch x 29.8 inch x 11.6 inch)
	Without stand	983.6 mm x 601.3 mm x 58.0 mm (38.7 inch x 23.6 inch x 2.2 inch)	1168.0 mm x 704.0 mm x 53.0 mm (45.9 inch x 27.7 inch x 2.0 inch)
Weight	With stand	20.6 kg (45.4 lbs)	28.2 kg (62.1 lbs)
	Without stand	19.0 kg (41.8 lbs)	25.8 kg (56.8 lbs)
Current Value / Power consumption		2.1 A / 210 W	2.8 A / 280 W

Power requirement		AC100 - 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(Main board)	ASROCK	770iCafe	S/N: 0AM0X3097310 FCC ID.: DoC
Video card	Rextechnology Co., Ltd.	HD4850	S/N: L5H041947 FCC ID.: DoC
PS2 keyboard	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID.: AQ6-23K15
USB mouse	Microsoft Corporation	1484	S/N: 0352700289761 FCC ID: DoC
DVD player	ILIKE ELECTRONICS CO., LTD.	CVX-3800 Full-HD	S/N: CVX380020110110493 FCC ID.: Verification
USB memory stick	SAMSUNG	SUM-PSB4	S/N; TBBB202478F FCC ID.: DoC
Digital TV pattern generator	Teleview	TPG430B	S/N: 93.01.20.05.09.00.00.02 FCC ID.: Verification
8-VSB modulator	Ktech	VSB-ENC-150E	S/N: 2005-726 FCC ID.: Verification

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.
IR remote controller	LG Electronics Inc.	AKB73655802	S/N: None. FCC ID.: N/A

3.2.3 Used Cable(s)

Cable Name	**Condition**	**Description**
Power cable	Connected to the EUT	1.80 m unshielded with two ferrite cores
RGB(Analog) in cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
HDMI/DVI (Digital) in cable	Connected to the EUT and PC	2.00 m shielded
Audio(RGB/DVI) in cable	Connected to the EUT and PC	1.50 m shielded with a ferrite core
RS-232C in cable	Connected to the EUT and PC	1.80 m shielded
Remote control in cable	Connected to the EUT and PC	1.50 m shielded
AV in cable	Connected to the EUT and DVD player	3.00 m shielded
Component in cable	Connected to the EUT and DVD player	3.00 m shielded
Antenna cable	Connected to the EUT and digital TV pattern 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: 1 024 × 768 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

Conducted emission: 1 024 × 768 / 60 Hz (RGB: Analog, HDMI/DVI: Digital),
800 × 600 / 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

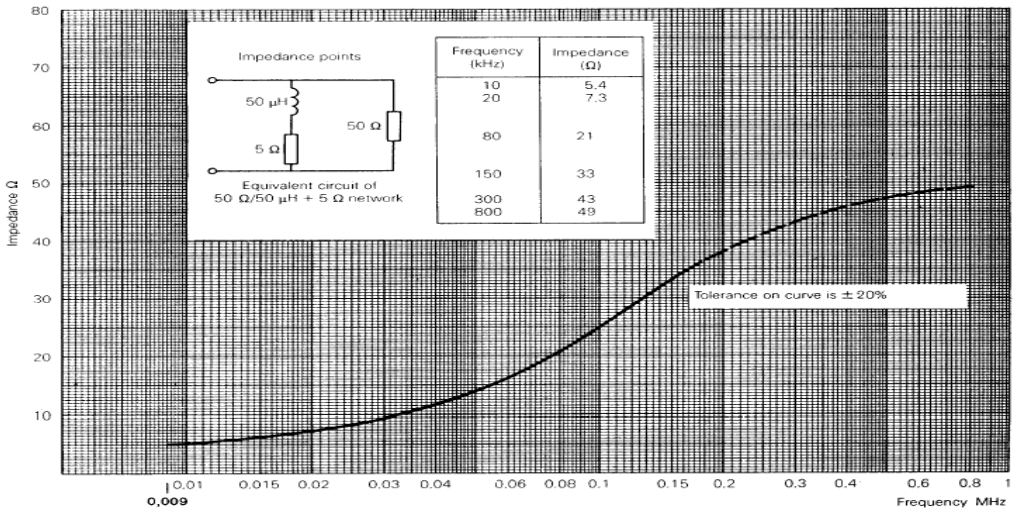


Fig 2. Impedance of LISN

4.3 Radiated Emission

Measurements (below 1 GHz) were made at Open area test site that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10 m. The EUT was rotated 360° about its azimuth with the receive antenna located at 1, 2, 3 and 4 meter heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1.0 m to 4.0 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

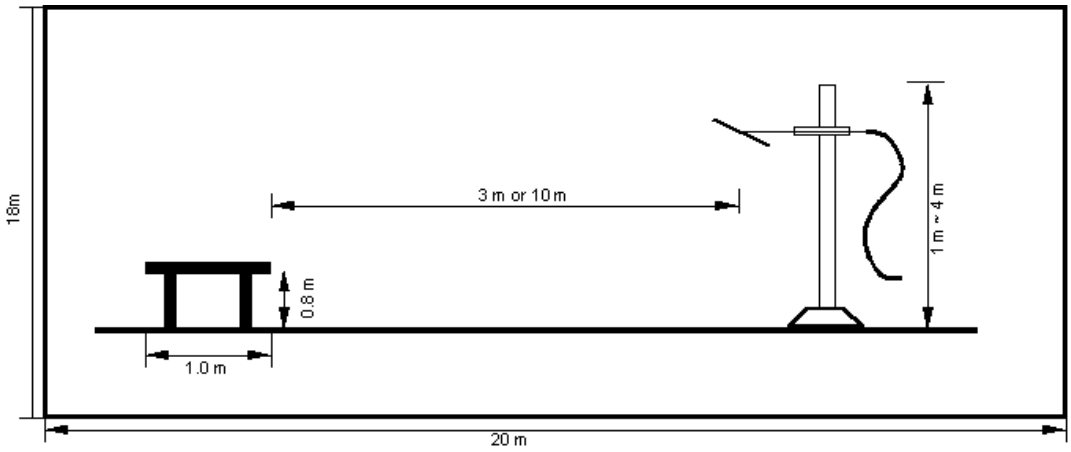


Fig 3. Dimensions of test site

The measurements (above 1 GHz) were made 3 m distance test site that complies to CISPR 16-1-4 (2007). In order to meet SVSWR Limit (Within 6 dB), the bottom side of test site was installed with absorbers. 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.
The measurements were conducted with Average and Peak value.

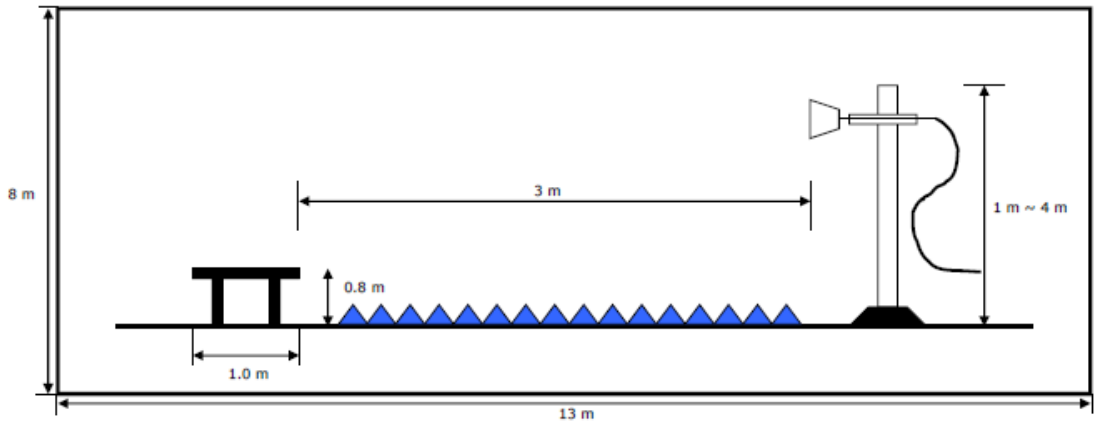


Fig 4. Dimensions of test site

5. Conducted Emission

5.1 Operating Environment

Temperature : 22.0 ℃
Relative Humidity : 35.0 % 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 level of approximately 95 % (k = 2)
Conducted emission (150 kHz ~ 30 MHz)	± 3.34 dB	Confidence level of approximately 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.		

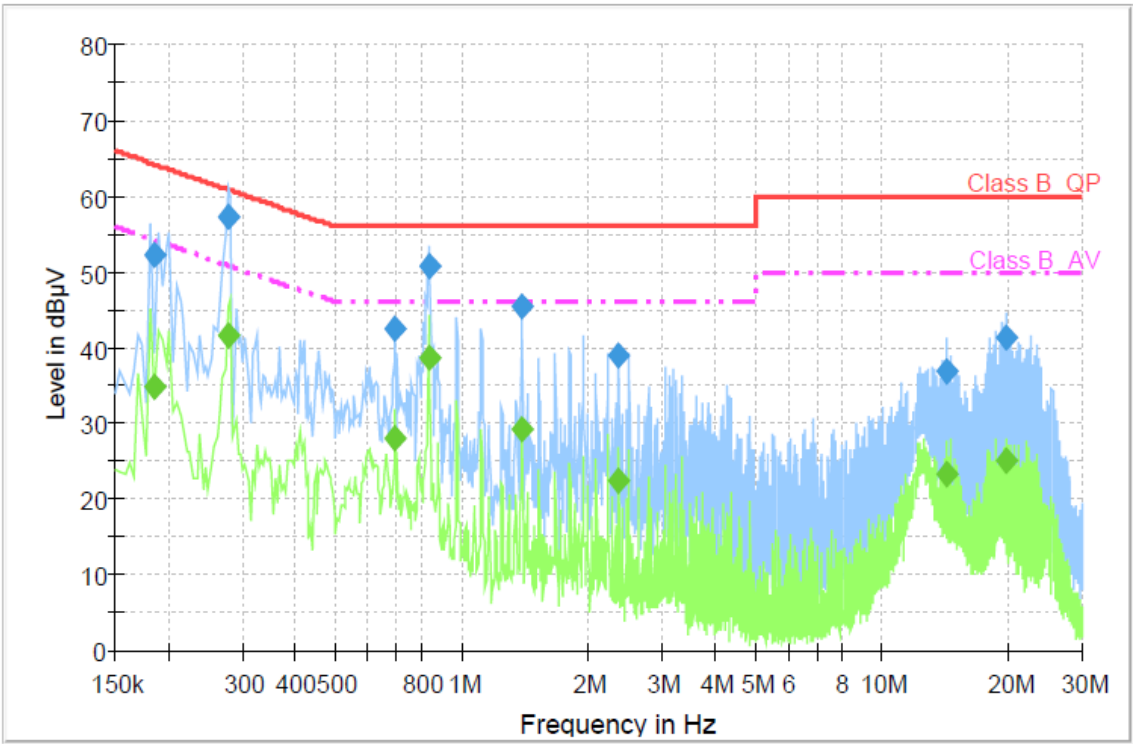
5.5 Test Equipment used

	Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ -	ESCS30	Rohde & Schwarz	EMI Test Receiver	839809/003	12. 05. 2012
■ -	ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 07. 2012
■ -	ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 07. 2012
□ -	ENY81-CA6	Rohde & Schwarz	ISN	101573	10. 19. 2012

5.6 Test data for Conducted Emission

-. Test Date : April 9, 2012
-. Resolution Bandwidth : 9 kHz
-. Frequency Range : 0.15 MHz ~ 30 MHz
-. Line : L1: Live, N: Neutral

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



Final Result 1

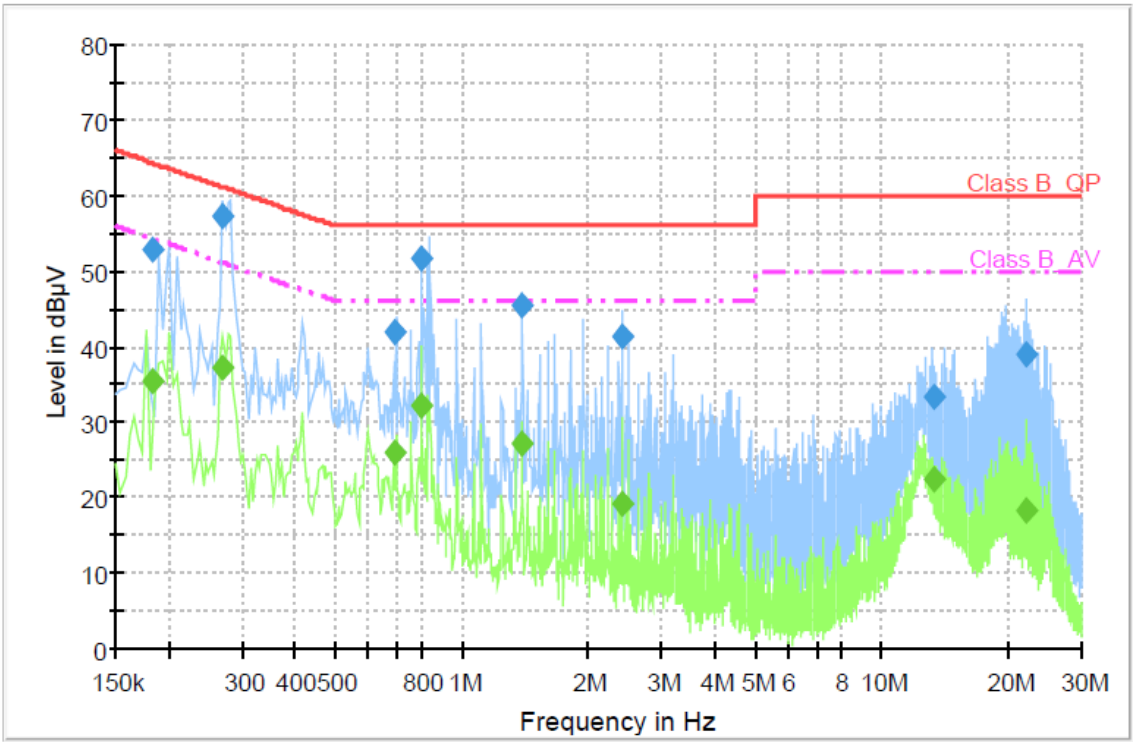
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.186000	52.3	1000.0	9.000	GND	N	10.1	11.9	64.2	
0.280000	57.3	1000.0	9.000	GND	L1	10.1	3.5	60.8	
0.696000	42.6	1000.0	9.000	GND	L1	10.1	13.4	56.0	
0.836000	50.7	1000.0	9.000	GND	L1	10.1	5.3	56.0	
1.392000	45.6	1000.0	9.000	GND	N	10.2	10.4	56.0	
2.368000	38.9	1000.0	9.000	GND	L1	10.2	17.1	56.0	
14.344000	36.9	1000.0	9.000	GND	N	10.3	23.1	60.0	
19.684000	41.2	1000.0	9.000	GND	L1	10.3	18.8	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.186000	34.7	1000.0	9.000	GND	N	10.1	19.5	54.2	
0.280000	41.7	1000.0	9.000	GND	L1	10.1	9.1	50.8	
0.696000	28.0	1000.0	9.000	GND	L1	10.1	18.0	46.0	
0.836000	38.5	1000.0	9.000	GND	L1	10.1	7.5	46.0	
1.392000	29.3	1000.0	9.000	GND	N	10.2	16.7	46.0	
2.368000	22.5	1000.0	9.000	GND	L1	10.2	23.5	46.0	
14.344000	23.2	1000.0	9.000	GND	N	10.3	26.8	50.0	
19.684000	25.0	1000.0	9.000	GND	L1	10.3	25.0	50.0	

< Fig 5. Conducted emission result >

♦ Operating condition: 800 × 600 / 60 Hz (RGB: Analog)



Final Result 1

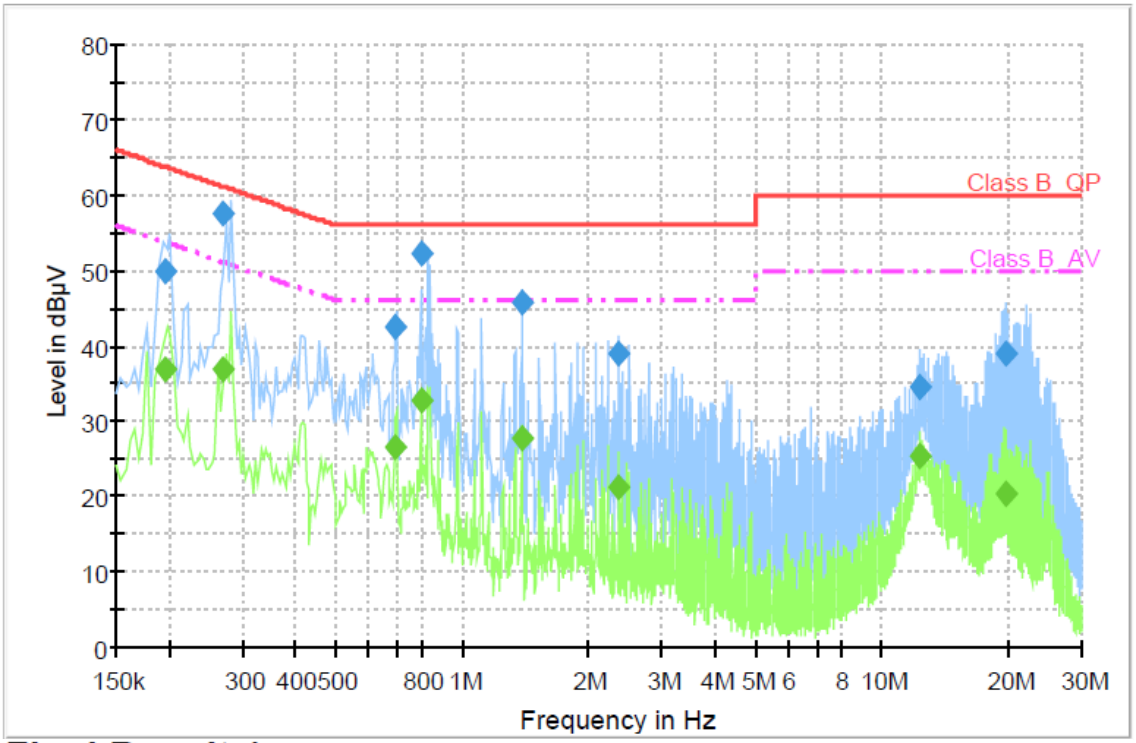
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.184000	52.8	1000.0	9.000	GND	N	10.1	11.5	64.3	
0.268000	57.2	1000.0	9.000	GND	L1	10.1	4.0	61.2	
0.696000	41.9	1000.0	9.000	GND	L1	10.1	14.1	56.0	
0.804000	51.8	1000.0	9.000	GND	L1	10.1	4.2	56.0	
1.392000	45.3	1000.0	9.000	GND	N	10.2	10.7	56.0	
2.412000	41.2	1000.0	9.000	GND	N	10.2	14.8	56.0	
13.272000	33.4	1000.0	9.000	GND	N	10.3	26.6	60.0	
22.252000	38.9	1000.0	9.000	GND	L1	10.4	21.1	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.184000	35.5	1000.0	9.000	GND	N	10.1	18.8	54.3	
0.268000	37.3	1000.0	9.000	GND	L1	10.1	13.9	51.2	
0.696000	25.9	1000.0	9.000	GND	L1	10.1	20.1	46.0	
0.804000	32.2	1000.0	9.000	GND	L1	10.1	13.8	46.0	
1.392000	27.2	1000.0	9.000	GND	N	10.2	18.8	46.0	
2.412000	19.1	1000.0	9.000	GND	N	10.2	26.9	46.0	
13.272000	22.4	1000.0	9.000	GND	N	10.3	27.6	50.0	
22.252000	18.2	1000.0	9.000	GND	L1	10.4	31.8	50.0	

< Fig 6. Conducted emission result >

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



Final Result 1

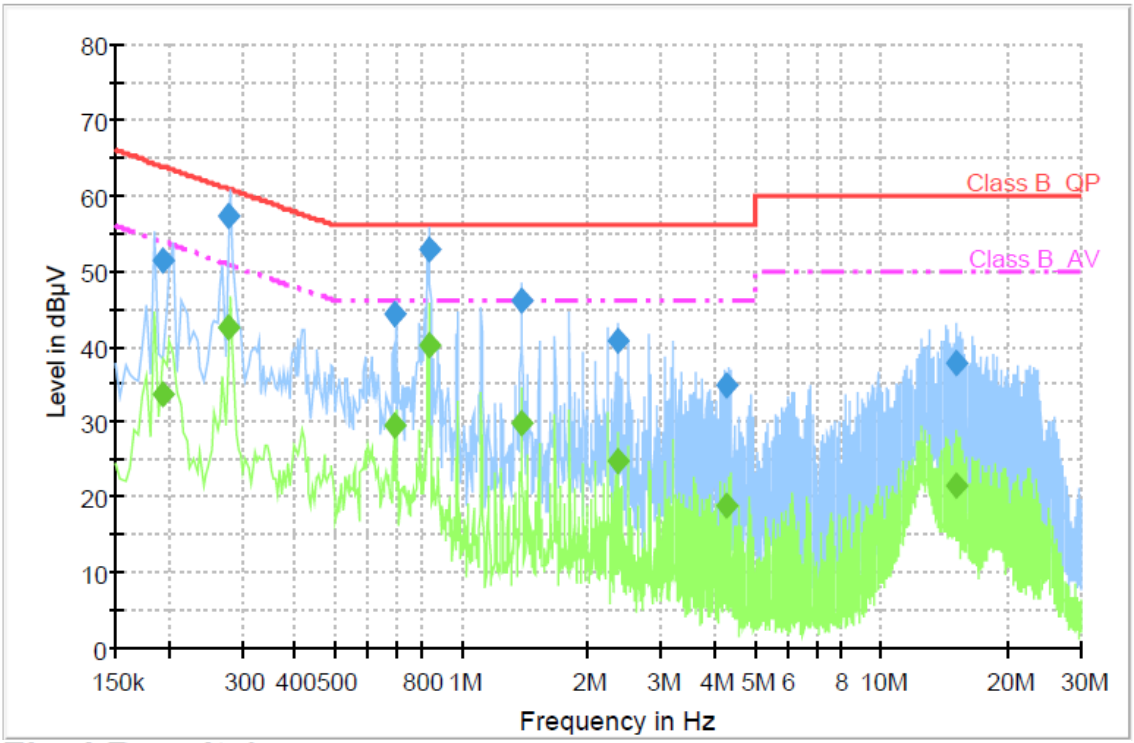
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.196000	49.8	1000.0	9.000	GND	N	10.1	13.9	63.8	
0.268000	57.6	1000.0	9.000	GND	L1	10.1	3.6	61.2	
0.696000	42.4	1000.0	9.000	GND	L1	10.1	13.6	56.0	
0.804000	52.4	1000.0	9.000	GND	L1	10.1	3.6	56.0	
1.392000	45.9	1000.0	9.000	GND	N	10.2	10.1	56.0	
2.368000	39.0	1000.0	9.000	GND	L1	10.2	17.0	56.0	
12.396000	34.4	1000.0	9.000	GND	N	10.3	25.6	60.0	
19.820000	39.0	1000.0	9.000	GND	L1	10.3	21.0	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.196000	36.8	1000.0	9.000	GND	N	10.1	16.9	53.8	
0.268000	37.0	1000.0	9.000	GND	L1	10.1	14.1	51.2	
0.696000	26.4	1000.0	9.000	GND	L1	10.1	19.6	46.0	
0.804000	32.7	1000.0	9.000	GND	L1	10.1	13.3	46.0	
1.392000	27.7	1000.0	9.000	GND	N	10.2	18.3	46.0	
2.368000	21.2	1000.0	9.000	GND	L1	10.2	24.8	46.0	
12.396000	25.4	1000.0	9.000	GND	N	10.3	24.6	50.0	
19.820000	20.5	1000.0	9.000	GND	L1	10.3	29.5	50.0	

< Fig 7. Conducted emission result >

♦ Operating condition: 1 024 × 768 / 60 Hz (HDMI/DVI: Digital)



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.194000	51.4	1000.0	9.000	GND	L1	10.1	12.5	63.9	
0.280000	57.1	1000.0	9.000	GND	L1	10.1	3.7	60.8	
0.696000	44.3	1000.0	9.000	GND	L1	10.1	11.7	56.0	
0.836000	52.7	1000.0	9.000	GND	L1	10.1	3.3	56.0	
1.392000	46.0	1000.0	9.000	GND	N	10.2	10.0	56.0	
2.368000	40.8	1000.0	9.000	GND	L1	10.2	15.2	56.0	
4.272000	35.0	1000.0	9.000	GND	N	10.3	21.0	56.0	
15.040000	37.7	1000.0	9.000	GND	L1	10.3	22.3	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.194000	33.7	1000.0	9.000	GND	L1	10.1	20.1	53.9	
0.280000	42.7	1000.0	9.000	GND	L1	10.1	8.2	50.8	
0.696000	29.5	1000.0	9.000	GND	L1	10.1	16.5	46.0	
0.836000	40.1	1000.0	9.000	GND	L1	10.1	5.9	46.0	
1.392000	29.7	1000.0	9.000	GND	N	10.2	16.3	46.0	
2.368000	24.7	1000.0	9.000	GND	L1	10.2	21.3	46.0	
4.272000	18.9	1000.0	9.000	GND	N	10.3	27.1	46.0	
15.040000	21.5	1000.0	9.000	GND	L1	10.3	28.5	50.0	

< Fig 8. Conducted emission result >

6. Radiated Emission

6.1 Operating Environment

Temperature : 25.0 ℃
Relative Humidity : 37.0 % 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 level of approximately 95 % (k = 2)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.50 dB	Confidence level of approximately 95 % (k = 2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.75 dB	Confidence level of approximately 95 % (k = 2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.59 dB	Confidence level of approximately 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

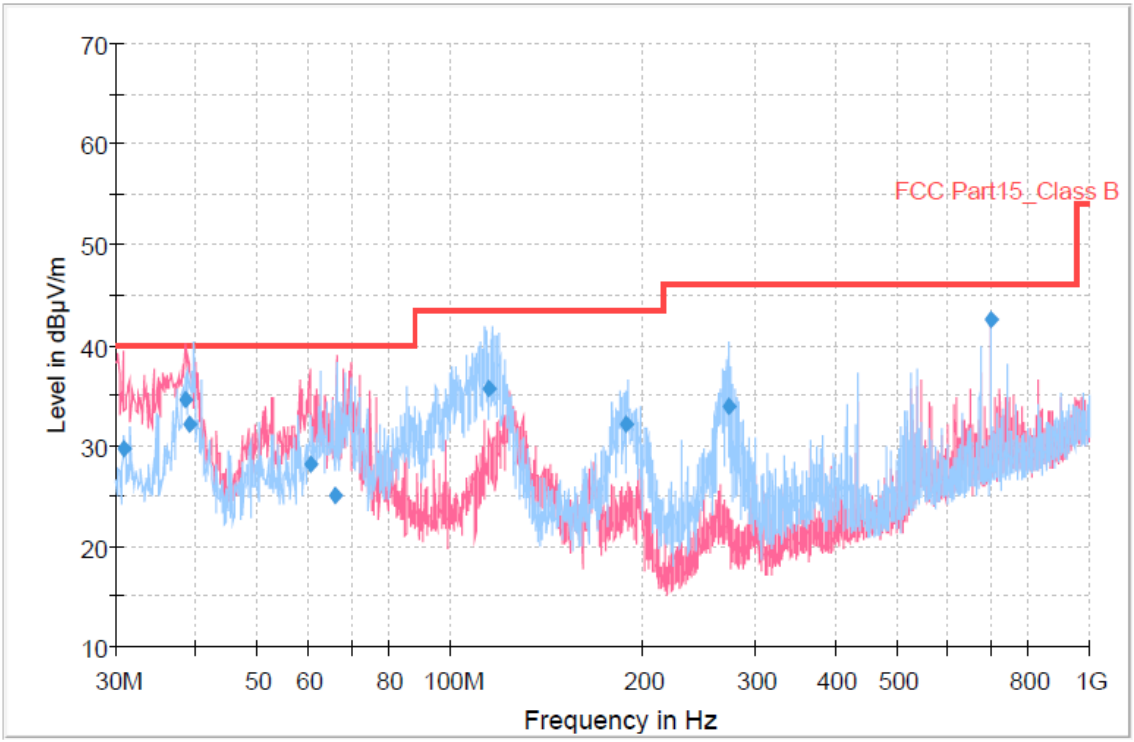
	Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ -	ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 05. 2012
■ -	VULB9160	Schwarzbeck	Broadband Test Antenna	3193	03. 14. 2013
■ -	BBHA9120D	Schwarzbeck	Horn ANT	597	01. 23. 2013
■ -	MCU066	maturo GmbH	Position Controller	1390306	N/A
■ -	TT2.5SI	maturo GmbH	Turntable	1390307	N/A
■ -	AM 4.0	maturo GmbH	Antenna Mast	1390308	N/A
■ -	AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 12. 2012

6.6 Test data for Radiated Emission

-. Test Date : April 9, 2012
-. 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
-. Measurement

Frequency range	30 MHz ~ 1 GHz	Above 1 GHz
Detector mode	Quasi peak	Peak / Average
Resolution bandwidth	120 kHz	1 MHz

♦ Operating Condition: 1 024 × 768 / 60 Hz (RGB: Analog)
Red trace: Vertical polarization, Blue trace: Horizontal polarization

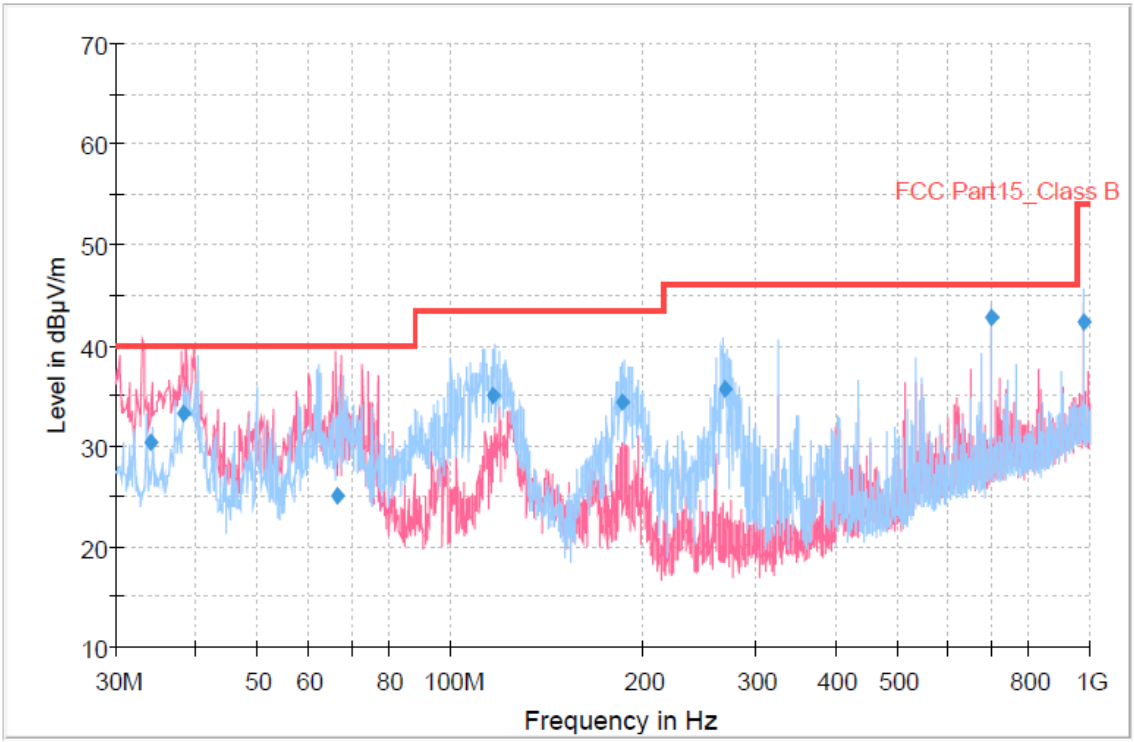


Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.848750	29.8	1000.0	120.000	200.0	V	193.0	12.5	10.2	40.0
38.487500	34.6	1000.0	120.000	100.0	V	299.0	12.5	5.4	40.0
39.121250	32.2	1000.0	120.000	205.0	H	222.0	12.5	7.8	40.0
60.412500	28.3	1000.0	120.000	100.0	V	129.0	12.8	11.7	40.0
65.995000	25.1	1000.0	120.000	100.0	V	30.0	11.7	14.9	40.0
114.602500	35.8	1000.0	120.000	165.0	H	358.0	11.9	7.7	43.5
189.223750	32.0	1000.0	120.000	130.0	H	121.0	11.9	11.5	43.5
272.443750	34.0	1000.0	120.000	100.0	H	80.0	14.1	12.0	46.0
700.007500	42.6	1000.0	120.000	100.0	V	322.0	24.6	3.4	46.0

< Fig 9. Radiated emission result (30 MHz ~ 1 000 MHz) >

♦ Operating Condition: 1 024 × 768 / 60 Hz (HDMI/DVI: Digital)
Red trace: Vertical polarization, Blue trace: Horizontal polarization

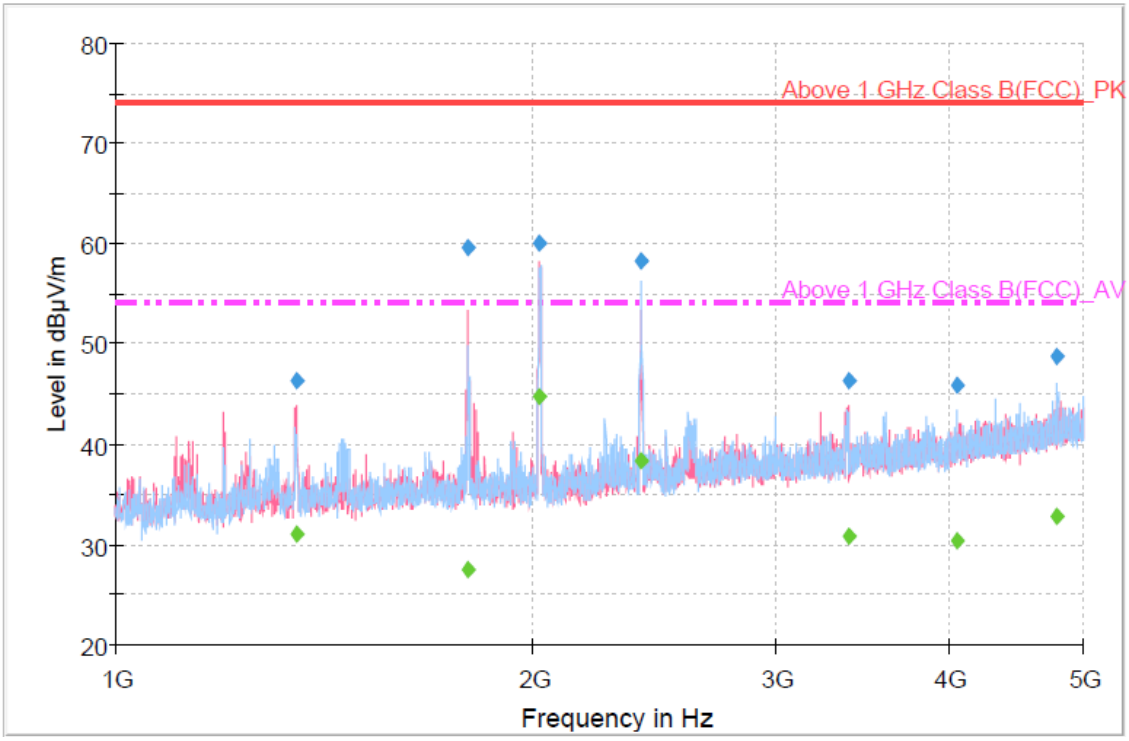


Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.091250	30.4	1000.0	120.000	100.0	V	194.0	12.4	9.6	40.0
38.268750	33.2	1000.0	120.000	100.0	V	289.0	12.5	6.8	40.0
66.633750	25.1	1000.0	120.000	100.0	V	347.0	11.6	14.9	40.0
117.005000	34.9	1000.0	120.000	186.0	H	-15.0	12.2	8.6	43.5
186.160000	34.4	1000.0	120.000	165.0	H	75.0	12.3	9.1	43.5
268.386250	35.7	1000.0	120.000	100.0	H	96.0	14.0	10.3	46.0
700.008750	42.9	1000.0	120.000	100.0	H	250.0	24.6	3.1	46.0
975.003750	42.3	1000.0	120.000	100.0	H	136.0	29.3	11.7	54.0

< Fig 10. Radiated emission result (30 MHz ~ 1 000 MHz) >

♦ Operating Condition: 1 024 × 768 / 60 Hz (RGB: Analog)
Green marker: Average detector, Blue marker: Peak detector



Final Result 1

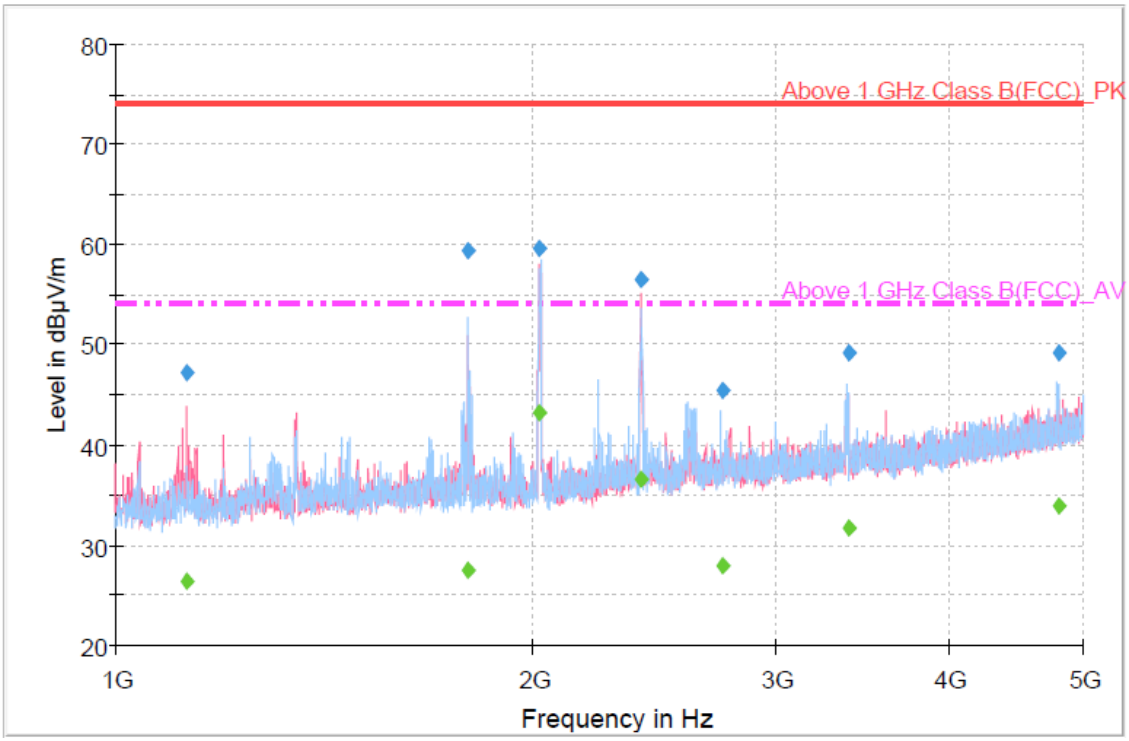
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1352.580000	46.3	1000.0	1000.000	100.0	V	177.0	-9.4	27.7	74.0
1798.260000	59.5	1000.0	1000.000	198.0	V	18.0	-7.8	14.5	74.0
2023.360000	60.0	1000.0	1000.000	120.0	V	319.0	-7.5	14.0	74.0
2400.240000	58.2	1000.0	1000.000	100.0	H	45.0	-5.5	15.8	74.0
3382.840000	46.3	1000.0	1000.000	110.0	V	-3.0	-3.3	27.7	74.0
4058.020000	46.0	1000.0	1000.000	100.0	H	288.0	-1.5	28.0	74.0
4787.060000	48.7	1000.0	1000.000	148.0	H	277.0	0.4	25.3	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)
1352.580000	31.0	1000.0	1000.000	100.0	V	177.0	-9.4	23.0	54.0
1798.260000	27.4	1000.0	1000.000	198.0	V	18.0	-7.8	26.6	54.0
2023.360000	44.8	1000.0	1000.000	120.0	V	319.0	-7.5	9.2	54.0
2400.240000	38.5	1000.0	1000.000	100.0	H	45.0	-5.5	15.5	54.0
3382.840000	31.0	1000.0	1000.000	110.0	V	-3.0	-3.3	23.0	54.0
4058.020000	30.3	1000.0	1000.000	100.0	H	288.0	-1.5	23.7	54.0
4787.060000	32.9	1000.0	1000.000	148.0	H	277.0	0.4	21.1	54.0

< Fig 11. Radiated emission result (1 000 MHz ~ 5 000 MHz) >

♦ Operating Condition: 1 024 × 768 / 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)
1126.120000	47.3	1000.0	1000.000	100.0	V	0.0	-10.6	26.7	74.0
1799.600000	59.4	1000.0	1000.000	110.0	H	277.0	-7.8	14.6	74.0
2024.420000	59.6	1000.0	1000.000	120.0	H	51.0	-7.5	14.4	74.0
2393.240000	56.5	1000.0	1000.000	100.0	V	317.0	-5.5	17.5	74.0
2740.500000	45.5	1000.0	1000.000	150.0	H	196.0	-4.7	28.6	74.0
3384.340000	49.3	1000.0	1000.000	100.0	H	229.0	-3.3	24.7	74.0
4797.340000	49.3	1000.0	1000.000	100.0	H	-3.0	0.4	24.7	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)
1126.120000	26.5	1000.0	1000.000	100.0	V	0.0	-10.6	27.5	54.0
1799.600000	27.6	1000.0	1000.000	110.0	H	277.0	-7.8	26.4	54.0
2024.420000	43.2	1000.0	1000.000	120.0	H	51.0	-7.5	10.8	54.0
2393.240000	36.7	1000.0	1000.000	100.0	V	317.0	-5.5	17.3	54.0
2740.500000	28.0	1000.0	1000.000	150.0	H	196.0	-4.7	26.0	54.0
3384.340000	31.6	1000.0	1000.000	100.0	H	229.0	-3.3	22.4	54.0
4797.340000	33.9	1000.0	1000.000	100.0	H	-3.0	0.4	20.1	54.0

< Fig 12. 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. PLASMA TV/MONITOR (Model Name: 42PA4500-UM)** was complies with §15.107 and 15.109 of the FCC Rules.

- The end -