

FCC EVALUATION REPORT FOR CERTIFICATION

FCC Class B (Class II Permissive Change)

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: January 27, 2012

Order Number: GETEC-C1-12-009

Test Report Number: GETEC-E3-12-005

Test Site: GUMI COLLEGE EMC CENTER

FCC Registration Number: (100749, 443957)

FCC ID. : BEJGX2MP

Applicant : LG Electronics Inc.

Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: LCD Monitor
Type of Authority	: Certification
Model Name	: GX2MP
Trade Name	: NDS Surgical Imaging, NDSsi, Dome
Class II Change(s)	: With alternate main board

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

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

Tested by,

Reviewed by,


Soon-Hoon Jeong, Associate Engineer
GUMI COLLEGE EMC CENTER


Jae-Hoon Jeong, Senior Engineer
GUMI COLLEGE EMC CENTER



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APPENDIX A – INFORMATION

APPENDIX B – TEST SET-UP PHOTOGRAPHS



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.** BEJGX2MP
- **EUT Type** LCD Monitor
- **Model Name** GX2MP
- **Trade Name** NDS Surgical Imaging, NDSsi, Dome
- **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** January 13 ~ 18, 2012
- **Place of Test** GUMI COLLEGE EMC CENTER (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongsangbuk-do, Korea.
- **Test Report Number** GETEC-E3-12-005
- **Dates of Issue** January 27, 2012
- **Class II Change(s)** With alternate main board



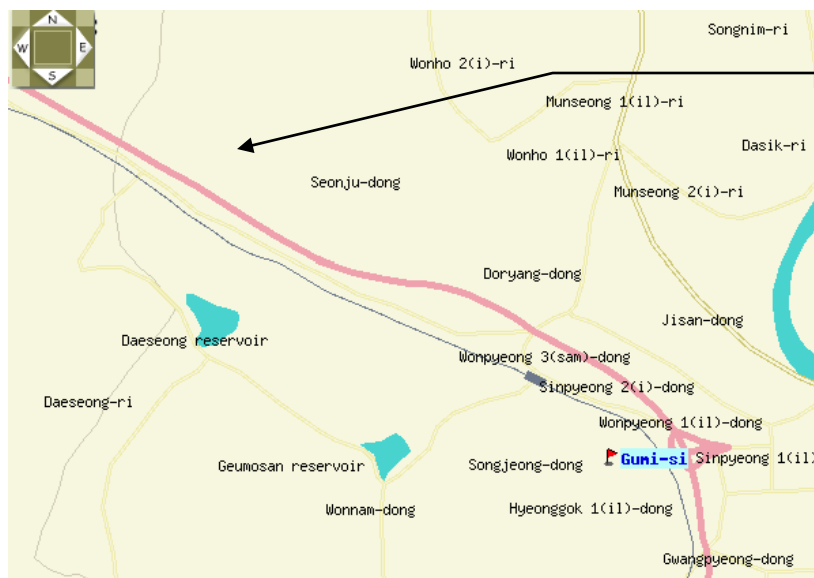
2. Introduction

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 Monitor (Model Name: GX2MP)**

These measurement tests were conducted at **GUMI COLLEGE EMC CENTER**.

The site address is 407, Bugok-dong, Gumi-si, Gyeongsangbuk-do, 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
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Gyeongsangbuk-do, 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.**
LCD Monitor (Model Name: GX2MP) FCC ID.: BEJGX2MP

Category	Characteristic Item		Specification
Screen	Screen size diagonal		510.5 mm (20.1 in.)
	Resolution		1600 x 1200 pixels (landscape) 1200 x 1600 pixels (portrait)
	Pixel pitch		0.255 mm x 0.255 mm
	Number of colors supported		16.7 million, programmable gamma
	Refresh rate		60 Hz (56-85 Hz input range)
	Contrast ratio		800:1 typical, 400:1 minimum
	Brightness		250 cd/m ² typical
	Pixel rise/fall time		14 ms typical, 25 ms maximum
	Viewing angle		178° horizontal; 178° vertical
	Feature		Anti-glare coating
Sync Input	Horizontal frequency		Analog 28 - 83 kHz (automatic) Digital 28 - 83 kHz (automatic)
	Vertical frequency		56 - 86 Hz (automatic)
Interface	Digital Video In		DVI-D 24-pin connector
	Analog Video In		VGA D-sub 15-pin connector
	Display brightness/contrast		Front button controls, with multi-language onscreen display
	Display identification		EDID read using DDC2B+
Input format	Display status		LED on display front
	Landscape orientation		1600 x 1200 24-bit color per pixel
	Portrait orientation		1200 x 1600 24-bit color per pixel
Power	VGA/XGA		640 x 480 ~ 1024 x 768
	Supply		AC 100 ~ 240V 50/60Hz 1.2A
	Consumption	ON mode	58 W (typical)
		Sleep Mode	≤1 W
Size	OFF Mode		≤1 W
	Without stand		445 mm x 345 mm x 72 mm (17.5 x 13.6 x. 2.8 in)
Weight	With stand		Less than 10 kg (23 lb)

-. Clock & Tune Frequency : 162 MHz



3.2 Support Equipment / Cables used

3.2.1 Used Support Equipment

Description	Manufacturer	Model Name	S/N & FCC ID.
PC	Hewlett Packard	HP Z400	S/N: None. FCC ID.: DoC
Video card	ATI	ATI Radeon HD 5770	S/N: None. FCC ID.: DoC
PS2 keyboard	COMPAQ	166516-AD6	S/N: B1OBBOR391006D FCC ID.: AQ6-23K15
USB mouse	Great Pleasure Electronics Co., Ltd.	GP-M3100UE	S/N: 14036766 FCC ID.: DoC
USB memory stick	LG Electronics Inc.	UJ3 4GB	S/N: 103RLKRR28293 FCC ID.: DoC

See “Appendix B – 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) in cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
DVI(Digital) in cable	Connected to the EUT and PC	2.00 m shielded with two ferrite cores
USB cable	Connected to the EUT and PC	1.80 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: 1 600 × 1 200 / 60 Hz(RGB: Analog, DVI: Digital)

Conducted emission: 1 600 × 1 200 / 60 Hz (RGB: Analog, 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
- . USB memory stick read and writes operating via upstream port



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

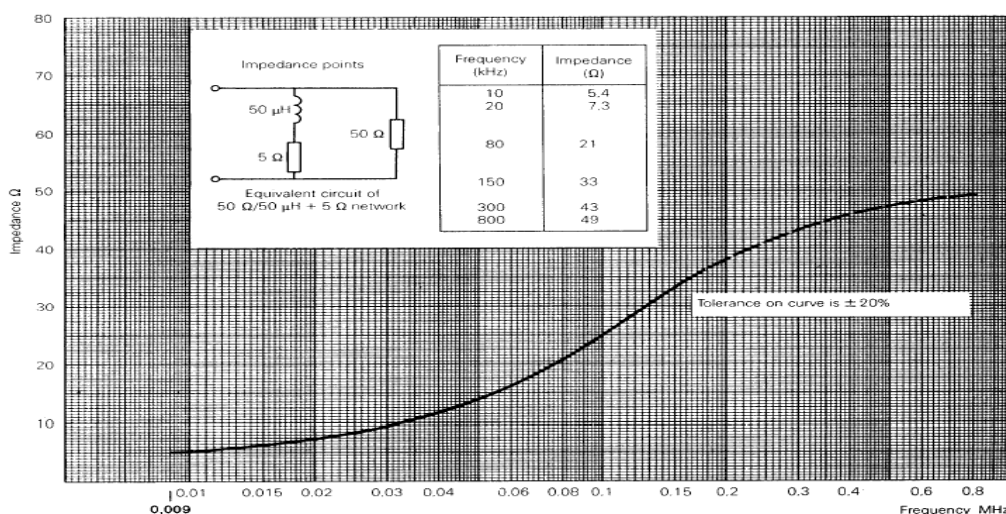


Fig 2. Impedance of LISN



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

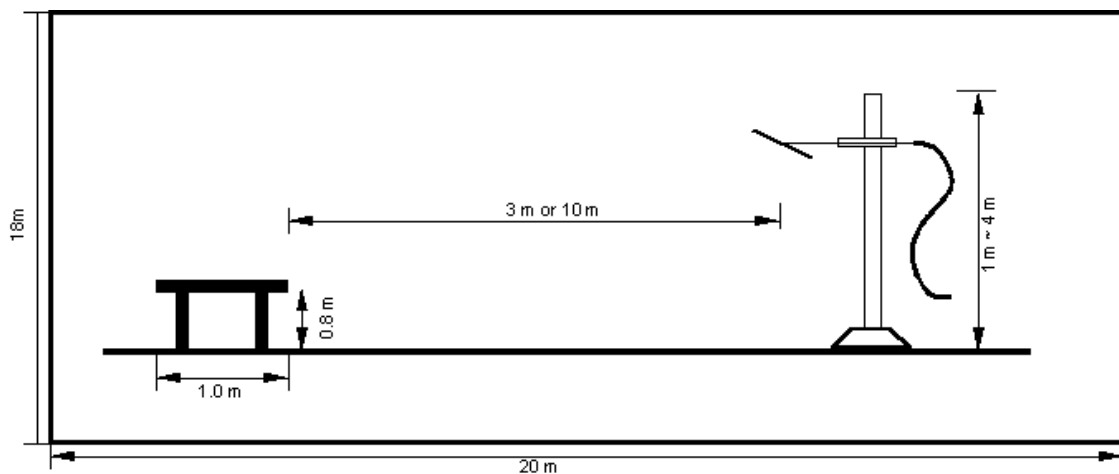


Fig 3. Dimensions of test site



5. Conducted Emission

5.1 Operating Environment

Temperature : 23.0 °C
Relative Humidity : 42.0 % 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 μ V/m) Class B	
Freq. Range	Quasi-Peak	Average
150 kHz ~ 0.5 MHz	66 ~ 56*	56 ~ 46*
0.5 MHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50
*Limits decreases linearly with the logarithm of frequency.		

5.5 Test Equipment used

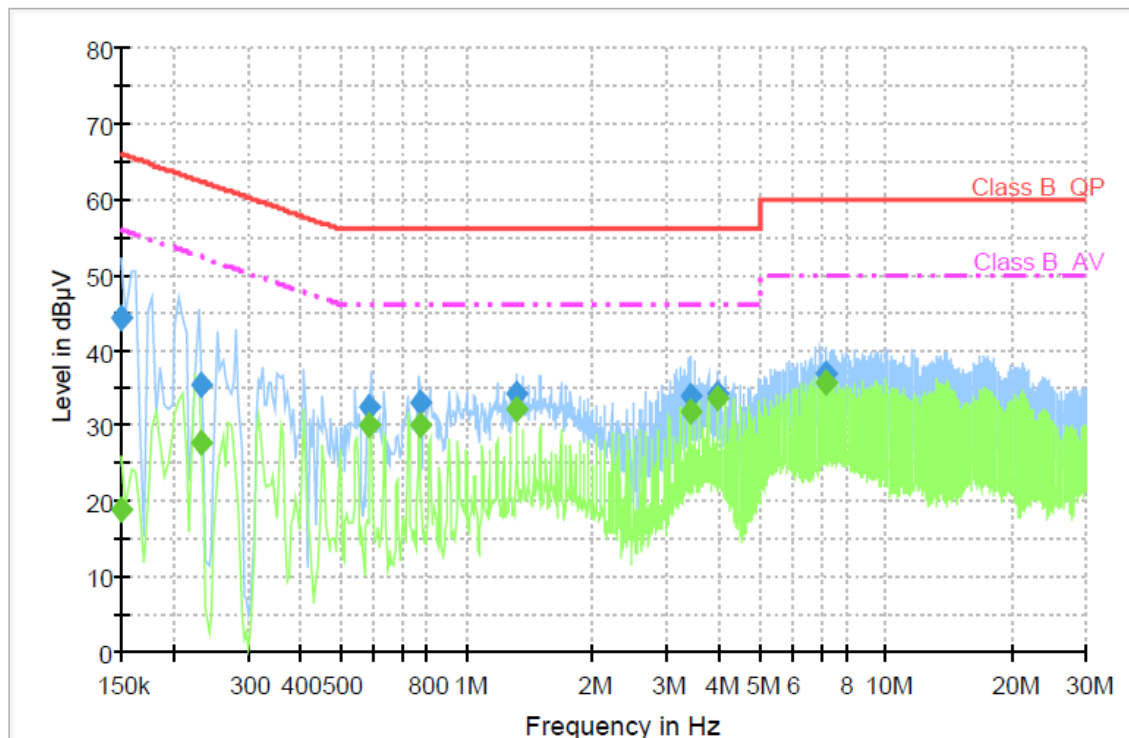
Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESCS30	Rohde & Schwarz	EMI Test Receiver	839809/003	12. 05. 2012
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 07. 2012
□ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 07. 2012
■ - ENV216	Rohde & Schwarz	LISN	100173	12. 07. 2012
□ - ISN T8	TESEQ. GmbH	Impedance Network	24568	10. 19. 2012

5.6 Test data for Conducted Emission

- Test Date : January 17, 2012
- Resolution Bandwidth : 9 kHz
- Frequency Range : 0.15 MHz ~ 30 MHz
- Line : L1: Live line, N: Neutral line



◆ Operating condition: 1 600 × 1 200 / 60 Hz (RGB: Analog)



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	44.2	1000.0	9.000	On	L1	9.6	21.8	66.0	
0.232000	35.3	1000.0	9.000	On	N	9.7	27.0	62.4	
0.588000	32.5	1000.0	9.000	On	L1	9.7	23.5	56.0	
0.772000	33.0	1000.0	9.000	On	L1	9.7	23.0	56.0	
1.316000	34.2	1000.0	9.000	On	L1	9.7	21.8	56.0	
3.404000	34.0	1000.0	9.000	On	N	9.7	22.0	56.0	
3.948000	34.2	1000.0	9.000	On	N	9.7	21.8	56.0	
7.168000	36.9	1000.0	9.000	On	N	9.8	23.1	60.0	

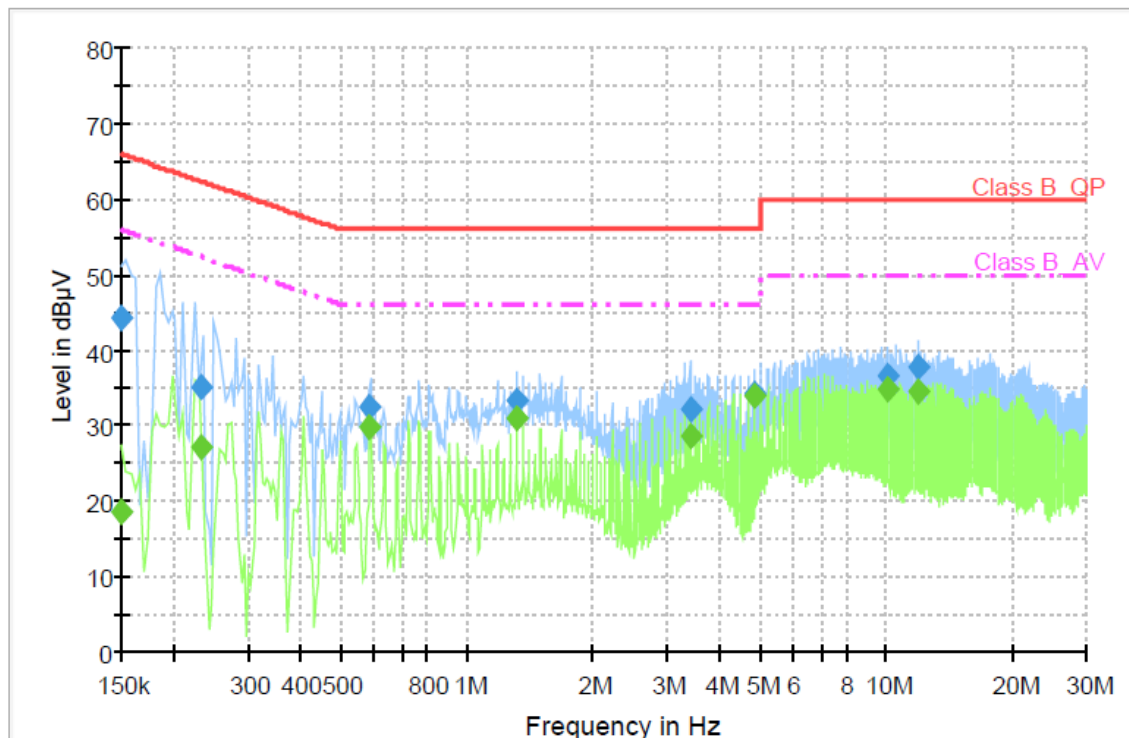
Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	18.9	1000.0	9.000	On	L1	9.6	37.1	56.0	
0.232000	27.8	1000.0	9.000	On	N	9.7	24.6	52.4	
0.588000	30.1	1000.0	9.000	On	L1	9.7	15.9	46.0	
0.772000	30.1	1000.0	9.000	On	L1	9.7	15.9	46.0	
1.316000	32.3	1000.0	9.000	On	L1	9.7	13.7	46.0	
3.404000	32.0	1000.0	9.000	On	N	9.7	14.0	46.0	
3.948000	33.7	1000.0	9.000	On	N	9.7	12.3	46.0	
7.168000	35.6	1000.0	9.000	On	N	9.8	14.4	50.0	

< Fig 4. Conducted emission result >



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



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	44.2	1000.0	9.000	On	L1	9.6	21.8	66.0	
0.232000	35.3	1000.0	9.000	On	N	9.7	27.1	62.4	
0.588000	32.4	1000.0	9.000	On	L1	9.7	23.6	56.0	
1.316000	33.4	1000.0	9.000	On	L1	9.7	22.6	56.0	
3.404000	32.2	1000.0	9.000	On	N	9.7	23.8	56.0	
4.852000	34.3	1000.0	9.000	On	N	9.7	21.7	56.0	
10.024000	36.8	1000.0	9.000	On	N	9.9	23.2	60.0	
11.928000	37.7	1000.0	9.000	On	N	10.0	22.3	60.0	

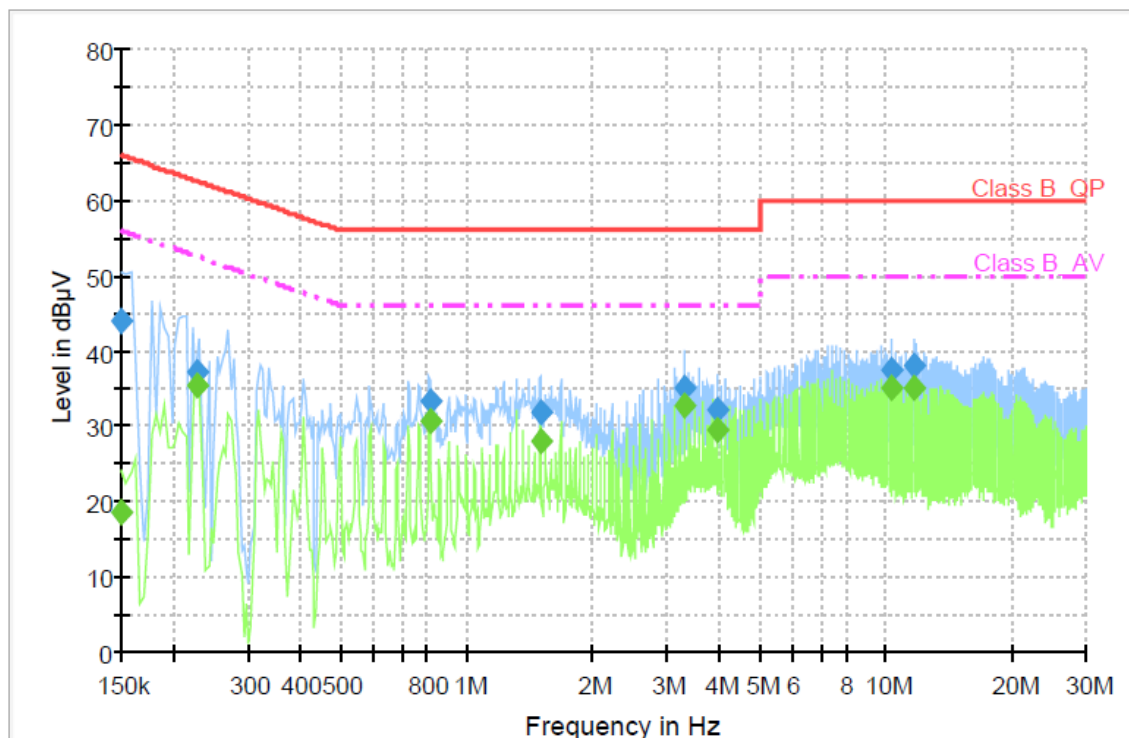
Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	18.7	1000.0	9.000	On	L1	9.6	37.3	56.0	
0.232000	27.3	1000.0	9.000	On	N	9.7	25.1	52.4	
0.588000	29.7	1000.0	9.000	On	L1	9.7	16.3	46.0	
1.316000	31.0	1000.0	9.000	On	L1	9.7	15.0	46.0	
3.404000	28.7	1000.0	9.000	On	N	9.7	17.3	46.0	
4.852000	33.9	1000.0	9.000	On	N	9.7	12.1	46.0	
10.024000	34.9	1000.0	9.000	On	N	9.9	15.1	50.0	
11.928000	34.6	1000.0	9.000	On	N	10.0	15.4	50.0	

< Fig 5. Conducted emission result >



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



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.9	1000.0	9.000	On	L1	9.6	22.1	66.0	
0.228000	37.3	1000.0	9.000	On	L1	9.6	25.2	62.5	
0.816000	33.2	1000.0	9.000	On	L1	9.7	22.8	56.0	
1.500000	31.9	1000.0	9.000	On	L1	9.7	24.1	56.0	
3.312000	35.1	1000.0	9.000	On	N	9.7	20.9	56.0	
3.944000	32.1	1000.0	9.000	On	L1	9.7	23.9	56.0	
10.296000	37.5	1000.0	9.000	On	N	9.9	22.5	60.0	
11.656000	38.2	1000.0	9.000	On	N	10.0	21.8	60.0	

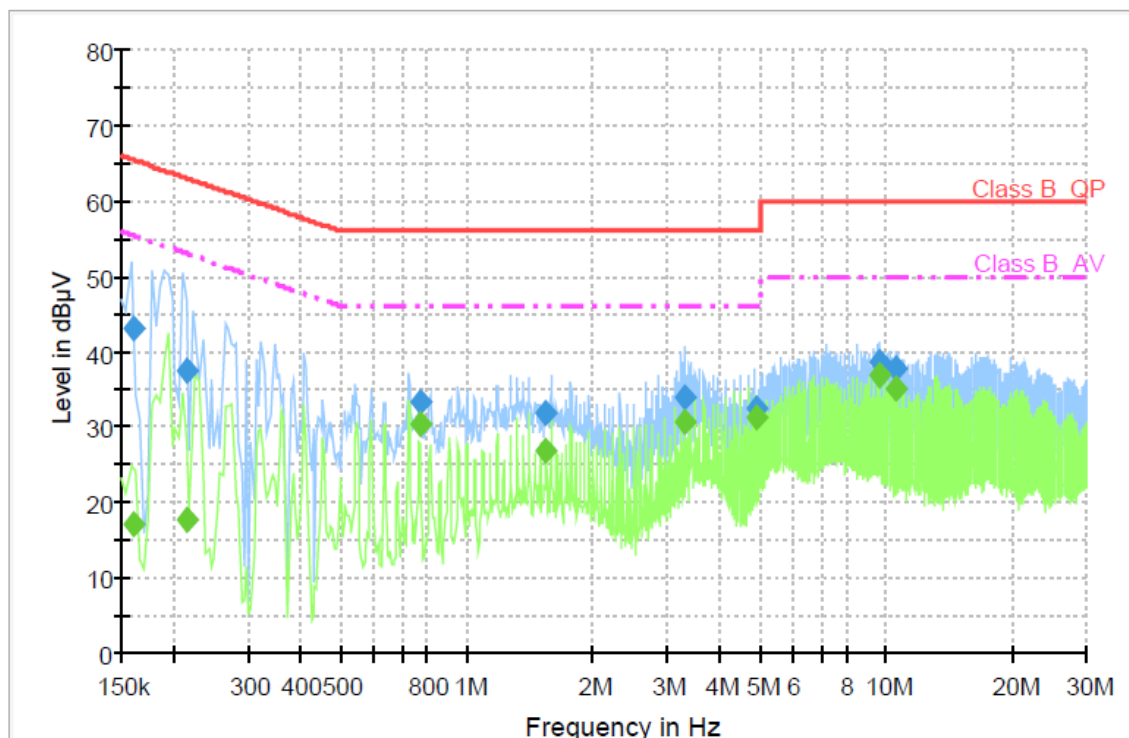
Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	18.6	1000.0	9.000	On	L1	9.6	37.4	56.0	
0.228000	35.5	1000.0	9.000	On	L1	9.6	17.0	52.5	
0.816000	30.8	1000.0	9.000	On	L1	9.7	15.2	46.0	
1.500000	28.1	1000.0	9.000	On	L1	9.7	17.9	46.0	
3.312000	32.8	1000.0	9.000	On	N	9.7	13.2	46.0	
3.944000	29.5	1000.0	9.000	On	L1	9.7	16.5	46.0	
10.296000	35.2	1000.0	9.000	On	N	9.9	14.8	50.0	
11.656000	35.1	1000.0	9.000	On	N	10.0	14.9	50.0	

< Fig 6. Conducted emission result >



◆ Operating condition: 1 600 × 1 200 / 60 Hz (DVI: Digital)



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.160000	43.2	1000.0	9.000	On	L1	9.6	22.3	65.5	
0.216000	37.6	1000.0	9.000	On	N	9.7	25.4	63.0	
0.772000	33.4	1000.0	9.000	On	L1	9.7	22.6	56.0	
1.544000	31.9	1000.0	9.000	On	L1	9.7	24.1	56.0	
3.312000	34.1	1000.0	9.000	On	N	9.7	21.9	56.0	
4.904000	32.5	1000.0	9.000	On	N	9.7	23.5	56.0	
9.668000	38.6	1000.0	9.000	On	N	9.9	21.4	60.0	
10.484000	37.9	1000.0	9.000	On	N	9.9	22.1	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.160000	17.2	1000.0	9.000	On	L1	9.6	38.3	55.5	
0.216000	17.7	1000.0	9.000	On	N	9.7	35.2	53.0	
0.772000	30.5	1000.0	9.000	On	L1	9.7	15.5	46.0	
1.544000	27.0	1000.0	9.000	On	L1	9.7	19.0	46.0	
3.312000	30.7	1000.0	9.000	On	N	9.7	15.3	46.0	
4.904000	31.2	1000.0	9.000	On	N	9.7	14.8	46.0	
9.668000	36.9	1000.0	9.000	On	N	9.9	13.1	50.0	
10.484000	35.2	1000.0	9.000	On	N	9.9	14.8	50.0	

< Fig 7. Conducted emission result >



6. Radiated Emission

6.1 Operating Environment

Temperature : 0.0 °C
Relative Humidity : 30.0 % R.H.

6.2 Test Set-up

A preliminary scan with peak mode was performed in the semi anechoic chamber and found frequency for test site. The formal radiated emission was measured at 10 m distance open area test site and 3 m distance 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(Open Area Test Site)	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 10 m, Vertical)	± 4.03 dB	Confidence level of approximately 95 % ($k = 2$)
Radiated emission (30 MHz ~ 300 MHz, 10 m, Horizontal)	± 3.96 dB	Confidence level of approximately 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Vertical)	± 4.01 dB	Confidence level of approximately 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Horizontal)	± 3.88 dB	Confidence level of approximately 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
■ - ESCS30	Rohde & Schwarz	EMI Test Receiver	839809/003	12. 05. 2012
■ - HK116	Rohde & Schwarz	Biconical Antenna	832639/007	03. 15. 2012
■ - HL223	Rohde & Schwarz	Log Periodic Antenna	835998/004	03. 15. 2012
■ - 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
■ - ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 05. 2012
■ - BBHA9120D	Schwarzbeck	Horn Antenna	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

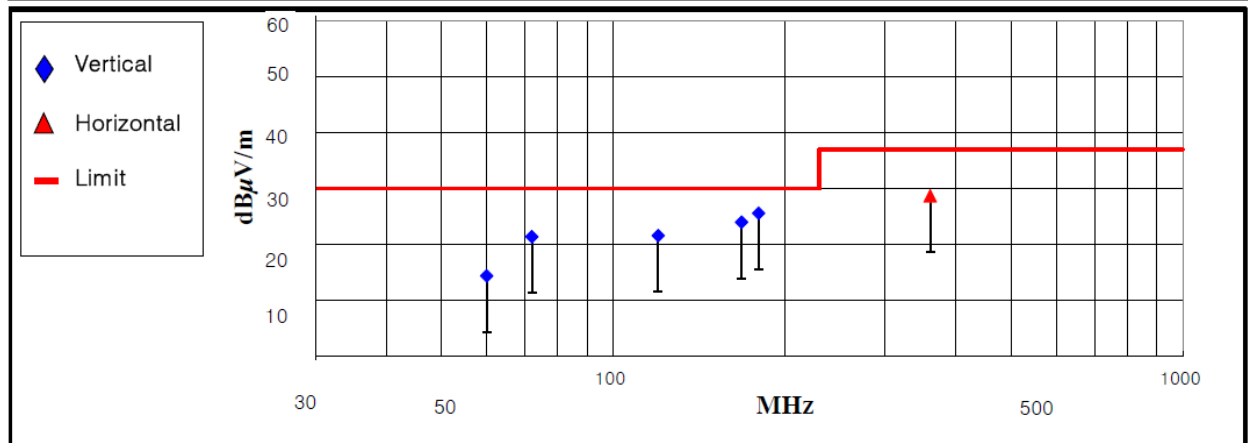
- Test Date : December 13 ~ 18, 2011
- Measurement Distance : 10 m / 3 m
- Note : The highest frequency of the internal source of the EUT is between 108 MHz and 500 MHz (162 MHz). The measurement was made up to 2 000 MHz
- Measurement

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



◆ Operating Condition: 1 600 × 1 200 / 60 Hz (RGB; Analog)

Frequency (MHz)	Measurement Level				Limit (dBμV/m)	Margin (dB)	Positioning System		
	Reading Value(dBμV)	Antenna Factor(dB/m)	Cable Loss(dB)	Test Result (dBμV/m)			Pol. (H/V)	Height (cm)	Angle (°)
60.01	4.55	8.04	1.81	14.40	30.00	15.60	V	100	71
72.02	10.69	8.66	2.05	21.40	30.00	8.60	V	105	355
120.03	7.53	11.23	2.84	21.60	30.00	8.40	V	104	290
168.05	7.95	12.68	3.37	24.00	30.00	6.00	V	100	311
180.06	8.53	13.57	3.50	25.60	30.00	4.40	V	142	293
360.20	8.53	14.90	5.27	28.70	37.00	8.30	H	107	177

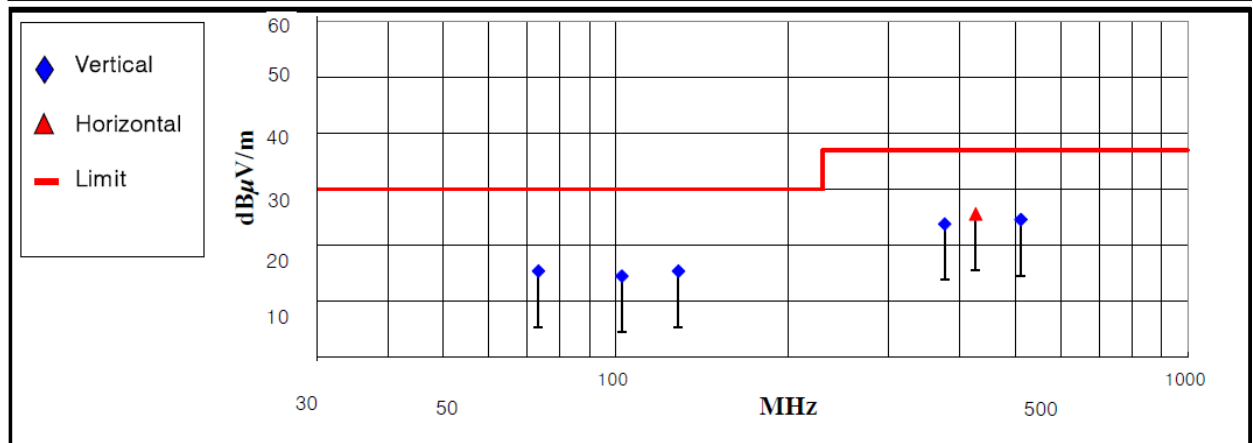


< Fig 8. Radiated emission result (30 MHz ~ 1 000 MHz) >



◆ Operating Condition: 1 600 × 1 200 / 60 Hz (DVI: Digital)

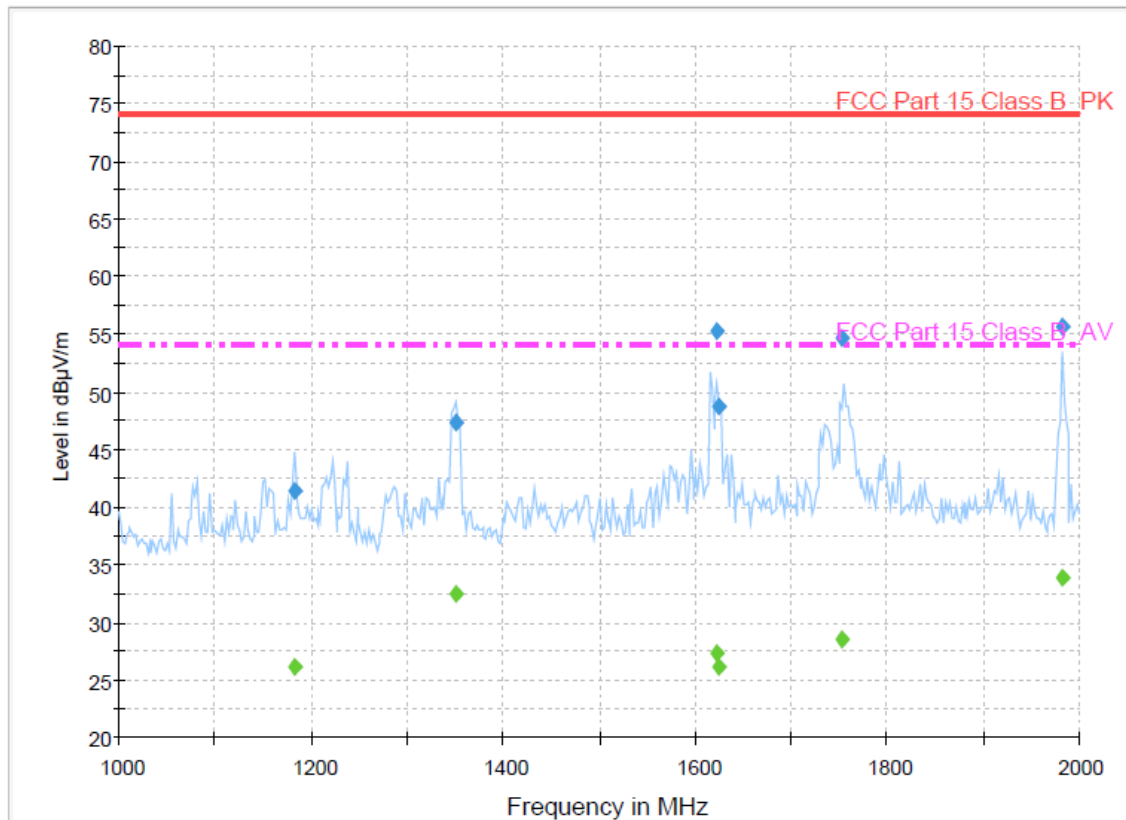
Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading Value(dBμ V)	Antenna Factor(dB/m)	Cable Loss(dB)	Test Result (dBμ V/m)			Pol. (H/V)	Height (cm)	Angle (°)
73.32	4.70	8.62	2.08	15.40	30.00	14.60	V	106	334
102.57	2.24	9.70	2.56	14.50	30.00	15.50	V	100	12
128.79	0.93	11.50	2.97	15.40	30.00	14.60	V	134	75
375.93	2.96	15.42	5.42	23.80	37.00	13.20	V	100	112
426.03	3.23	16.55	5.82	25.60	37.00	11.40	H	100	85
510.82	0.52	17.69	6.39	24.60	37.00	12.40	V	100	23



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



- ◆ Operating Condition: 1 920 × 1080 / 60 Hz (RGB: Analog)
Green trace: Average detector, Blue trace: 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)
1184.164730	41.3	1000.0	1000.000	127.0	V	231.0	-13.5	32.7	74.0
1350.901403	47.3	1000.0	1000.000	150.0	V	305.0	-12.9	26.7	74.0
1622.630461	55.3	1000.0	1000.000	199.0	H	12.0	-12.2	18.7	74.0
1625.050501	48.8	1000.0	1000.000	210.0	H	171.0	-12.2	25.2	74.0
1752.911022	54.6	1000.0	1000.000	100.0	V	331.0	-11.8	19.4	74.0
1981.363928	55.5	1000.0	1000.000	100.0	H	42.0	-11.3	18.5	74.0

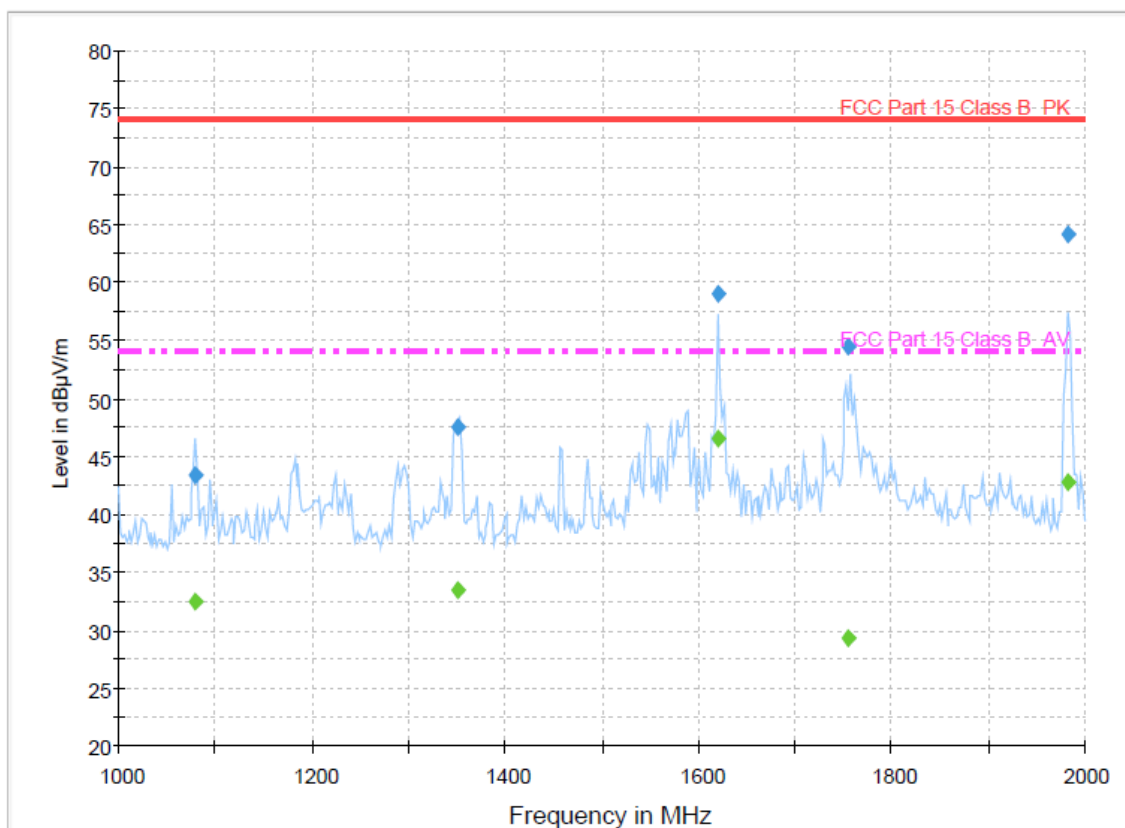
Final Result 2

Frequency (MHz)	CAverage (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1184.164730	26.2	1000.0	1000.000	127.0	V	231.0	-13.5	27.8	54.0
1350.901403	32.4	1000.0	1000.000	150.0	V	305.0	-12.9	21.6	54.0
1622.630461	27.4	1000.0	1000.000	199.0	H	12.0	-12.2	26.6	54.0
1625.050501	26.2	1000.0	1000.000	210.0	H	171.0	-12.2	27.8	54.0
1752.911022	28.5	1000.0	1000.000	100.0	V	331.0	-11.8	25.5	54.0
1981.363928	33.8	1000.0	1000.000	100.0	H	42.0	-11.3	20.2	54.0

< Fig 10. Radiated emission result (1 000 MHz ~ 2 000 MHz) >



- ◆ Operating Condition: 1 920 × 1080 / 60 Hz (DVI: Digital)
Green trace: Average detector, Blue trace: 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)
1079.160321	43.3	1000.0	1000.000	100.0	H	22.0	-13.9	20.7	74.0
1350.105411	47.6	1000.0	1000.000	100.0	H	134.0	-12.9	26.4	74.0
1620.242485	59.0	1000.0	1000.000	150.0	H	212.0	-12.2	15.0	74.0
1755.715030	54.4	1000.0	1000.000	100.0	V	330.0	-11.8	19.6	74.0
1981.363928	64.2	1000.0	1000.000	100.0	V	-15.0	-11.3	9.8	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)
1079.160321	32.5	1000.0	1000.000	100.0	H	22.0	-13.9	21.5	54.0
1350.105411	33.5	1000.0	1000.000	100.0	H	134.0	-12.9	20.5	54.0
1620.242485	46.5	1000.0	1000.000	150.0	H	212.0	-12.2	7.5	54.0
1755.715030	29.3	1000.0	1000.000	100.0	V	330.0	-11.8	24.7	54.0
1981.363928	42.9	1000.0	1000.000	100.0	V	-15.0	-11.3	11.1	54.0

< Fig 11. Radiated emission result (1 000 MHz ~ 2 000 MHz) >



7. Sample Calculations

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

7.1 Example 1 :

■ 20.3 MHz

Class B Limit	= 250 μV = 48 dB μV
Reading	= 39.2 dB μV
$10^{(39.2\text{dB}\mu\text{V}/20)}$	= 91.2 μV
Margin	= 48 dB μV - 39.2 dB μV = 8.8 dB

7.2 Example 2 :

■ 66.7 MHz

Class B Limit	= 100 $\mu\text{V}/\text{m}$ = 40.0 dB $\mu\text{V}/\text{m}$
Reading	= 31.0 dB μV
Antenna Factor + Cable Loss = 5.8 dB	
Total	= 36.8 dB $\mu\text{V}/\text{m}$
Margin	= 40.0 dB $\mu\text{V}/\text{m}$ – 36.8 dB $\mu\text{V}/\text{m}$ = 3.2 dB



8. Recommendation & Conclusion

The data collected shows that the **LG Electronics Inc. LCD Monitor (Model Name: GX2MP)** was complies with §15.107 and 15.109 of the FCC Rules.

- The end -