

FCC EVALUATION REPORT FOR CERTIFICATION

Applicant : LG Electronics Inc.

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

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Myoung-Kyu Lee, Chief research engineer

Date of Issue : June 24, 2010

Order Number: GETEC-C1-10-146

Test Report Number: GETEC-E3-10-079

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJM2080DFM

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	: M2080DFM, M2080DM
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,

Reviewed by,


Soon-Hoon Jeong, Engineer
GUMI College EMC center


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. Myoung-Kyu Lee, Chief research engineer

Tel Number: +82-31-610-9623

- **FCC ID.** BEJM2080DFM
- **EUT Type** LED LCD TV/Monitor
- **Model Name** M2080DFM(basic model), M2080DM(deleted with EUT stand woofer speaker)
"These model names are given in accordance with customer's requirement that are not effect on EMC performance. All the electrical and mechanical characteristics are the same as basic model except model name designation."
- **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 21 ~ 22, 2010
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-10-079
- **Dates of Issue** June 24, 2010



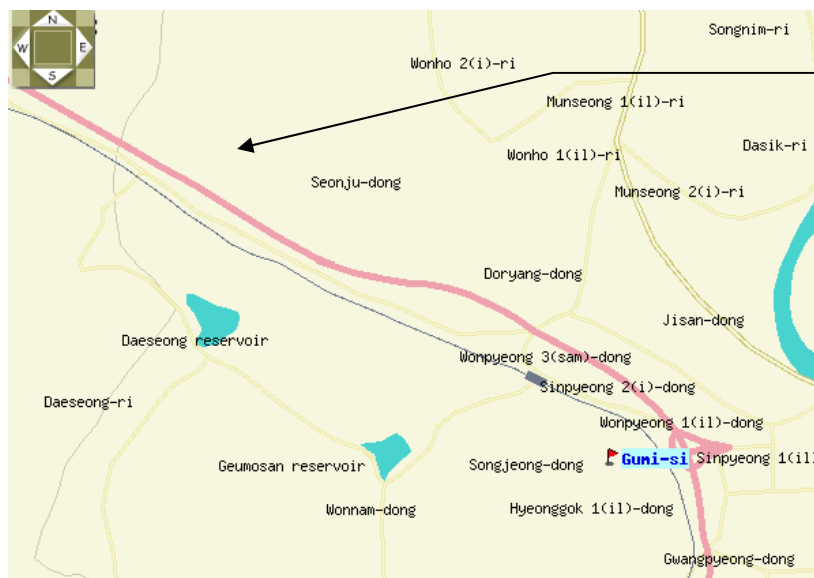
2. Introduction

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: M2080DFM, M2080DM)**

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)



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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: M2080DFM, M2080DM) FCC ID.: BEJM2080DFM**

LCD Panel	Screen Type	508.5 mm Wide (20.0 inch) TFT (Thin Film Transistor) LCD (Liquid Crystal Display) Panel Visible diagonal size: 508.5 mm	
	Pixel Pitch	0.2766 mm (H) x 0.2766 mm (V)	
Video Signal	Max. Resolution	1600 x 900 @ 60 Hz	
	Recommended Resolution	1600 x 900 @ 60 Hz	
	Horizontal Frequency	30 kHz to 83 kHz	
	Vertical Frequency	56 Hz to 75 Hz	
	Synchronization Type	Separate Sync, Digital	
Input Connector		TV, D-Sub Analog, PC Audio In, component, HDMI*2, CVBS	
Power	Rated Voltage	19 V $\overline{\text{---}}$ 2.0 A	
	Power Consumption	On Mode : 27 W Off Mode $\leq$ 1 W	
AC/DC Adapter		Manufacturer: LITE-ON, Model PA-1650-68	
Tilt	Tilt Range	-5° to 10°	
Dimensions (Width x Height x Depth) Weight		476.4 mm x 387.8 mm x 193.9 mm (18.75 inch x 15.26 inch x 7.63 inch) 3.7 kg (8.16 lb)	
Environmental conditions	Operating Temperature	10 °C to 35 °C	
	Operating Humidity	20 % to 80 %	
	Storage Temperature	-10 °C to 60 °C	
	Storage Humidity	5 % to 90 %	

-. Maximum Frequency Range : 400 MHz

-. Used AC/DC Adapter : Model name: PA-1650-68
Manufacturer: Dongguang Lite Power 2nd Plant
Input rating: AC (100 – 240) V~, (50 – 60) Hz, 2.0 A
Output rating: DC 19 V, 3.42 A
Serial number: OA4AD612314010613(1.0)

EUT Type: LED LCD TV/Monitor

FCC ID.: BEJM2080DFM



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
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
Headset	GOWOONSORI	GW-500M	S/N: N/A FCC ID.: -
USB memory stick	LG Electronics Inc.	UM5 2GB	S/N: 003RLRZN37768 FCC ID.: -
TV signal generator	FLUKE	54200	S/N: 831011 FCC ID.: DoC

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

3.2.2 System configuration

Description	Manufacturer	Model Name	S/N & FCC ID.
None	-	-	-



3.2.3 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the adapter	1.80 m unshielded
Adapter cable	Connected to the EUT	1.80 m shielded with a ferrite core
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	1.80 m shielded
RS-232C (Control & Service) in cable	Connected to the EUT and PC	1.80 m shielded
Component in cable	Connected to the EUT and DVD player	2.00 m shielded
Component sound in cable	Connected to the EUT and DVD player	3.00 m shielded
AV in cable	Connected to the EUT and DVD player	3.00 m shielded
Headset cable	Connected to the EUT and headset	2.75 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: 1 600 × 900 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

Conducted emission: 1 600 × 900 / 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 play mode

◆ Operating test pattern

- Continuous playback mode with video files

"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

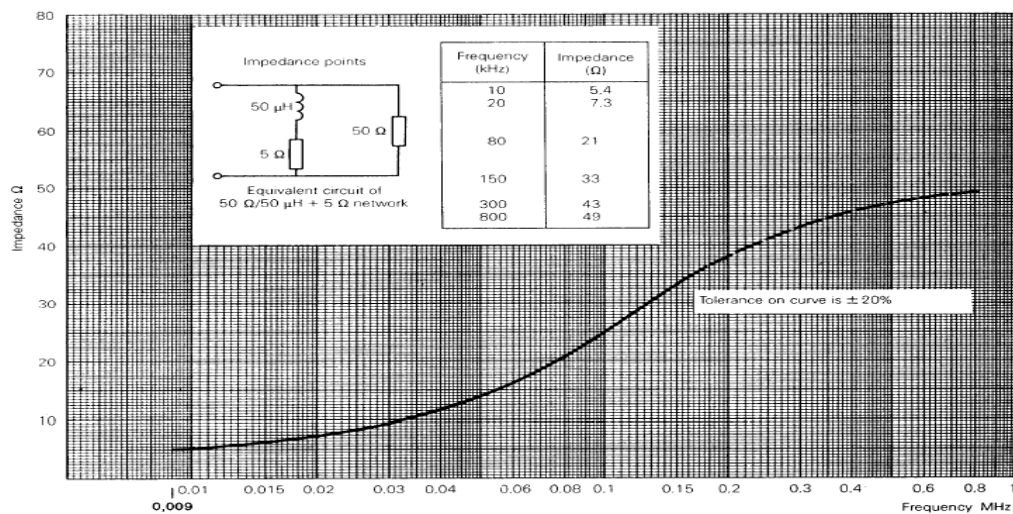


Fig 2. Impedance of LISN



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

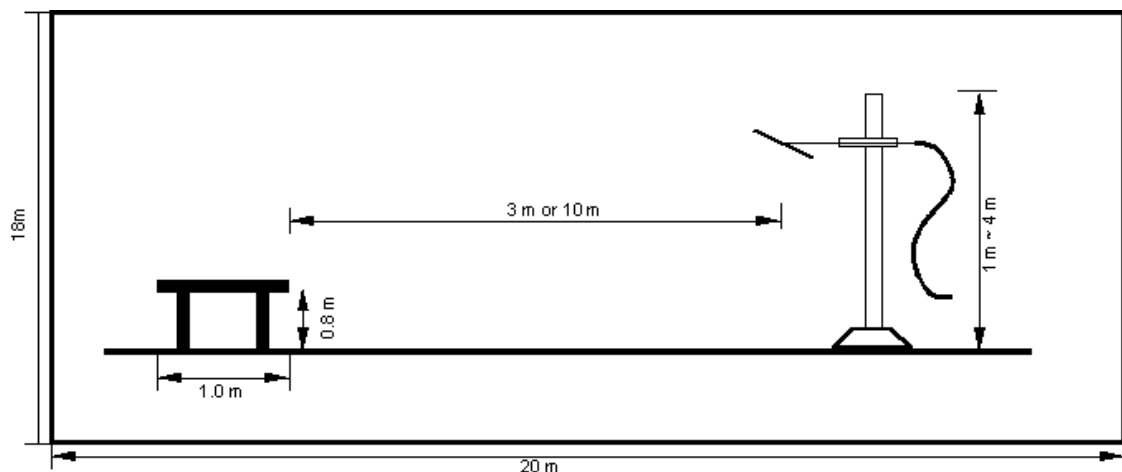


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 26 °C
Relative Humidity : 44 % 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)	± 2.69 dB	Confidence levels of 95 % ($k = 2$)
Conducted emission (150 kHz ~ 30 MHz)	± 4.16 dB	Confidence levels of 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. 10. 2010
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 10. 2010
■ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 10. 2010
□ - ISN T8	TESEQ. GmbH	Impedance Network	24568	10. 16. 2010

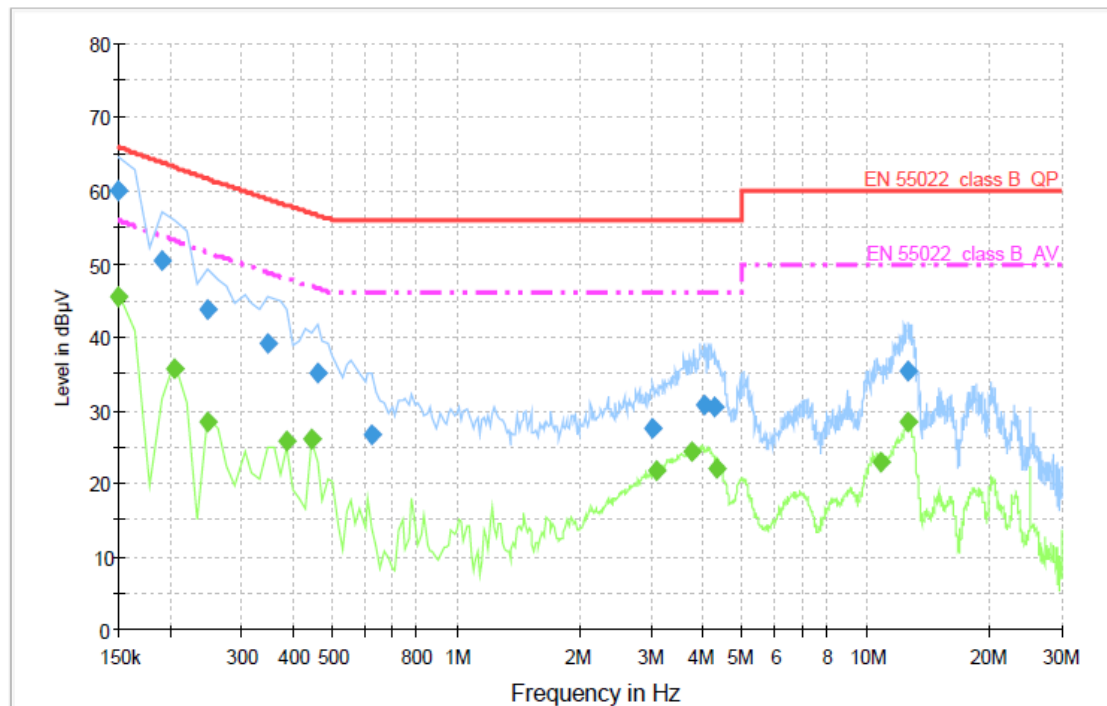
5.6 Test data for Conducted Emission

- . Test Date : June 21, 2010
- . Resolution Bandwidth : 9 kHz
- . Frequency Range : 0.15 MHz ~ 30 MHz



◆ Operating condition: 1 600 × 900 / 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
0.150000	60.1	1000.000	9.000	GND	L1	10.0	5.9	66.0	
0.192000	50.5	1000.000	9.000	GND	L1	10.0	13.4	63.8	
0.248000	43.9	1000.000	9.000	GND	L1	10.0	17.7	61.6	
0.346000	39.1	1000.000	9.000	GND	L1	10.0	19.8	58.9	
0.458000	35.2	1000.000	9.000	GND	L1	10.0	21.5	56.7	
0.626000	26.7	1000.000	9.000	GND	L1	10.0	29.3	56.0	
3.020000	27.6	1000.000	9.000	GND	L1	10.1	28.4	56.0	
4.042000	30.7	1000.000	9.000	GND	L1	10.2	25.3	56.0	
4.294000	30.4	1000.000	9.000	GND	L1	10.2	25.6	56.0	
12.708000	35.2	1000.000	9.000	GND	L1	10.6	24.8	60.0	

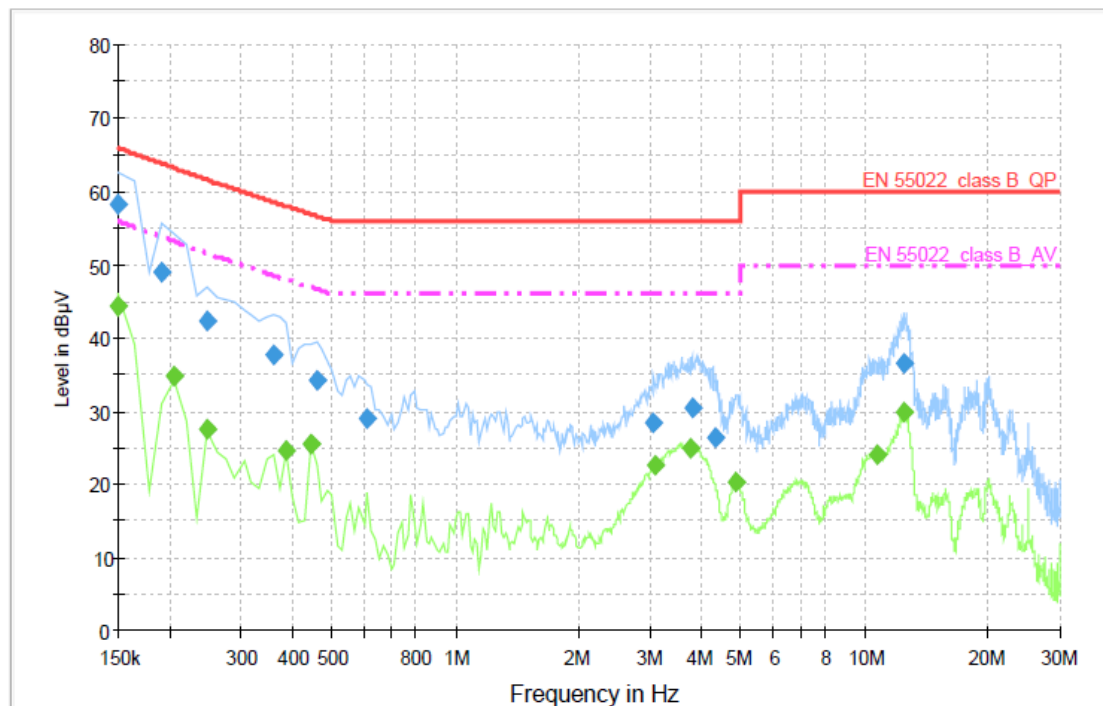
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	45.5	1000.000	9.000	GND	L1	10.0	10.5	56.0	
0.206000	35.6	1000.000	9.000	GND	L1	10.0	17.6	53.2	
0.248000	28.5	1000.000	9.000	GND	L1	10.0	23.1	51.6	
0.388000	25.7	1000.000	9.000	GND	L1	10.0	22.2	47.9	
0.444000	26.0	1000.000	9.000	GND	L1	10.0	20.9	46.9	
3.090000	21.8	1000.000	9.000	GND	L1	10.1	24.2	46.0	
3.762000	24.2	1000.000	9.000	GND	L1	10.2	21.8	46.0	
4.308000	22.1	1000.000	9.000	GND	L1	10.2	23.9	46.0	
10.832000	22.9	1000.000	9.000	GND	L1	10.5	27.1	50.0	
12.652000	28.5	1000.000	9.000	GND	L1	10.6	21.5	50.0	

< Fig 4. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	58.4	1000.000	9.000	GND	N	10.0	7.6	66.0	
0.192000	48.9	1000.000	9.000	GND	N	10.0	14.9	63.8	
0.248000	42.3	1000.000	9.000	GND	N	10.0	19.3	61.6	
0.360000	37.8	1000.000	9.000	GND	N	10.0	20.8	58.6	
0.458000	34.1	1000.000	9.000	GND	N	10.0	22.6	56.7	
0.612000	28.9	1000.000	9.000	GND	N	10.0	27.1	56.0	
3.062000	28.3	1000.000	9.000	GND	N	10.1	27.7	56.0	
3.790000	30.5	1000.000	9.000	GND	N	10.2	25.5	56.0	
4.322000	26.4	1000.000	9.000	GND	N	10.2	29.6	56.0	
12.512000	36.5	1000.000	9.000	GND	N	10.5	23.5	60.0	

Final Measurement Detector 2

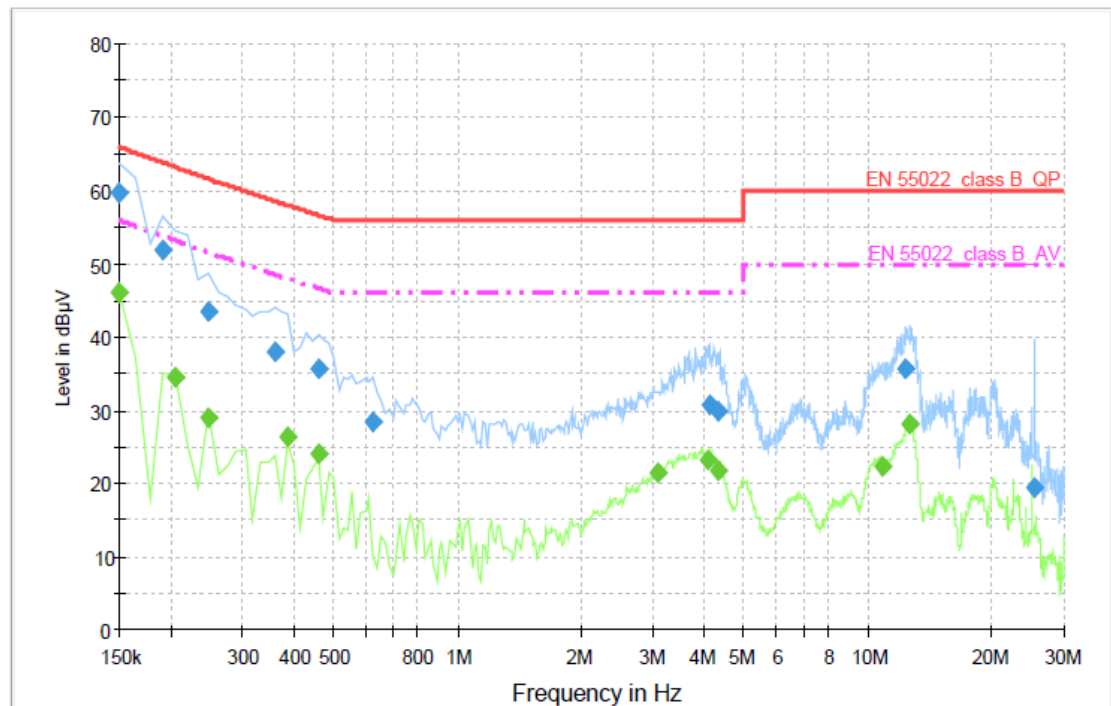
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	44.5	1000.000	9.000	GND	N	10.0	11.5	56.0	
0.206000	34.9	1000.000	9.000	GND	N	10.0	18.4	53.2	
0.248000	27.6	1000.000	9.000	GND	N	10.0	24.0	51.6	
0.388000	24.8	1000.000	9.000	GND	N	10.0	23.1	47.9	
0.444000	25.5	1000.000	9.000	GND	N	10.0	21.4	46.9	
3.090000	22.5	1000.000	9.000	GND	N	10.1	23.5	46.0	
3.762000	24.9	1000.000	9.000	GND	N	10.2	21.1	46.0	
4.882000	20.4	1000.000	9.000	GND	N	10.2	25.6	46.0	
10.720000	24.1	1000.000	9.000	GND	N	10.4	25.9	50.0	
12.484000	29.9	1000.000	9.000	GND	N	10.5	20.1	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
0.150000	59.6	1000.000	9.000	GND	L1	10.0	6.4	66.0	
0.192000	51.9	1000.000	9.000	GND	L1	10.0	11.9	63.8	
0.248000	43.4	1000.000	9.000	GND	L1	10.0	18.2	61.6	
0.360000	38.1	1000.000	9.000	GND	L1	10.0	20.5	58.6	
0.458000	35.6	1000.000	9.000	GND	L1	10.0	21.1	56.7	
0.626000	28.5	1000.000	9.000	GND	L1	10.0	27.5	56.0	
4.112000	30.8	1000.000	9.000	GND	L1	10.2	25.2	56.0	
4.308000	29.9	1000.000	9.000	GND	L1	10.2	26.1	56.0	
12.428000	35.6	1000.000	9.000	GND	L1	10.6	24.4	60.0	
25.588000	19.4	1000.000	9.000	GND	L1	11.3	40.6	60.0	

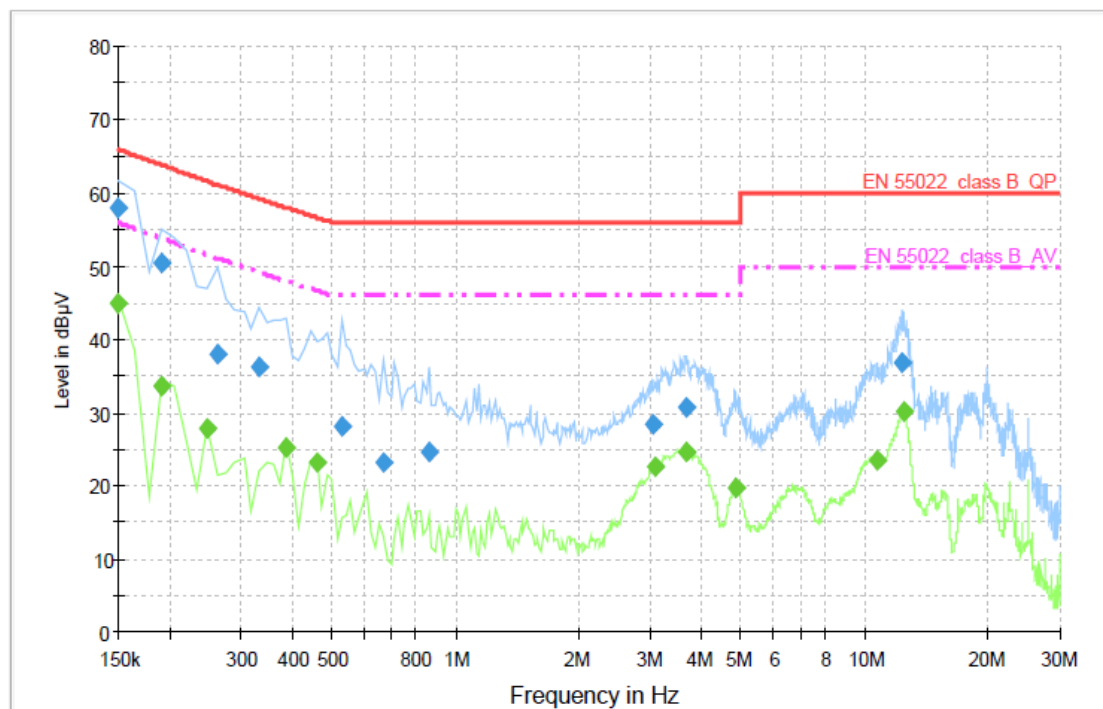
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	46.2	1000.000	9.000	GND	L1	10.0	9.8	56.0	
0.206000	34.5	1000.000	9.000	GND	L1	10.0	18.7	53.2	
0.248000	29.1	1000.000	9.000	GND	L1	10.0	22.5	51.6	
0.388000	26.3	1000.000	9.000	GND	L1	10.0	21.6	47.9	
0.458000	23.9	1000.000	9.000	GND	L1	10.0	22.8	46.7	
3.090000	21.5	1000.000	9.000	GND	L1	10.1	24.5	46.0	
4.070000	23.3	1000.000	9.000	GND	L1	10.2	22.7	46.0	
4.308000	21.6	1000.000	9.000	GND	L1	10.2	24.4	46.0	
10.888000	22.4	1000.000	9.000	GND	L1	10.5	27.6	50.0	
12.680000	28.1	1000.000	9.000	GND	L1	10.6	21.9	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	58.0	1000.000	9.000	GND	N	10.0	8.0	66.0	
0.192000	50.3	1000.000	9.000	GND	N	10.0	13.5	63.8	
0.262000	38.0	1000.000	9.000	GND	N	10.0	23.2	61.2	
0.332000	36.3	1000.000	9.000	GND	N	10.0	22.9	59.2	
0.528000	28.0	1000.000	9.000	GND	N	10.0	28.0	56.0	
0.668000	23.3	1000.000	9.000	GND	N	10.0	32.7	56.0	
0.864000	24.8	1000.000	9.000	GND	N	10.0	31.2	56.0	
3.048000	28.5	1000.000	9.000	GND	N	10.1	27.5	56.0	
3.650000	30.8	1000.000	9.000	GND	N	10.2	25.2	56.0	
12.400000	36.7	1000.000	9.000	GND	N	10.5	23.3	60.0	

Final Measurement Detector 2

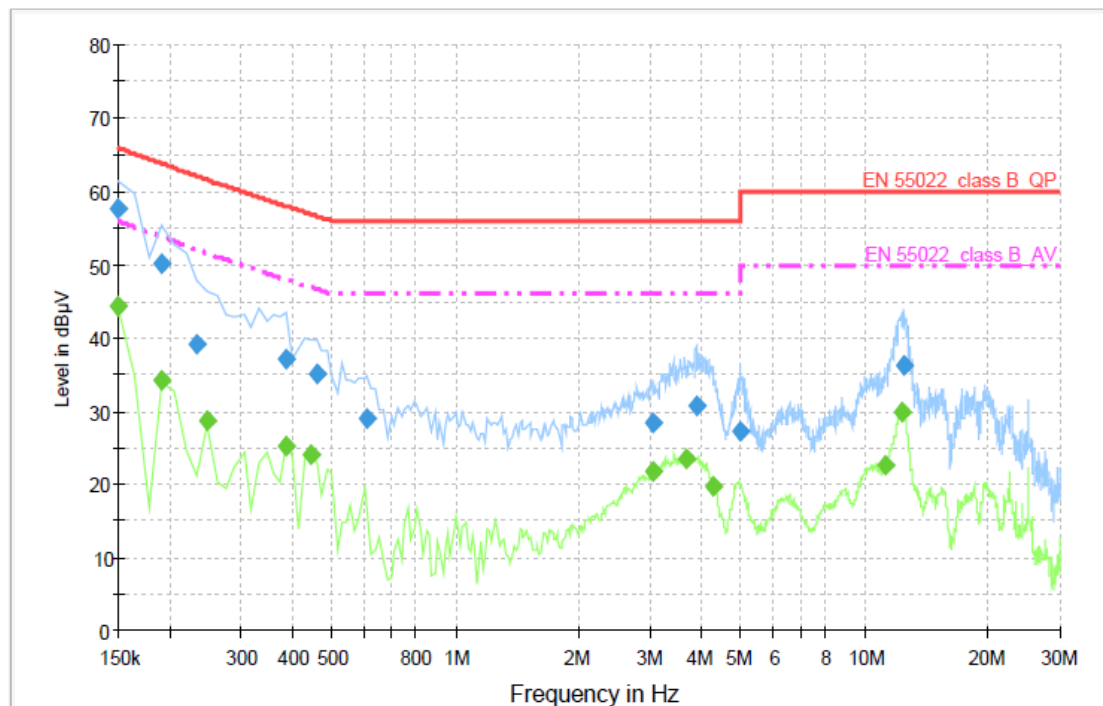
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	45.1	1000.000	9.000	GND	N	10.0	10.9	56.0	
0.192000	33.6	1000.000	9.000	GND	N	10.0	20.2	53.8	
0.248000	27.9	1000.000	9.000	GND	N	10.0	23.8	51.6	
0.388000	25.3	1000.000	9.000	GND	N	10.0	22.6	47.9	
0.458000	23.2	1000.000	9.000	GND	N	10.0	23.5	46.7	
3.090000	22.5	1000.000	9.000	GND	N	10.1	23.5	46.0	
3.692000	24.6	1000.000	9.000	GND	N	10.2	21.4	46.0	
4.854000	19.7	1000.000	9.000	GND	N	10.2	26.3	46.0	
10.706000	23.5	1000.000	9.000	GND	N	10.4	26.5	50.0	
12.442000	30.1	1000.000	9.000	GND	N	10.5	19.9	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
0.150000	57.6	1000.000	9.000	GND	L1	10.0	8.4	66.0	
0.192000	50.2	1000.000	9.000	GND	L1	10.0	13.6	63.8	
0.234000	39.2	1000.000	9.000	GND	L1	10.0	22.9	62.1	
0.388000	37.1	1000.000	9.000	GND	L1	10.0	20.9	58.0	
0.458000	34.9	1000.000	9.000	GND	L1	10.0	21.8	56.7	
0.612000	28.9	1000.000	9.000	GND	L1	10.0	27.1	56.0	
3.034000	28.3	1000.000	9.000	GND	L1	10.1	27.7	56.0	
3.874000	30.6	1000.000	9.000	GND	L1	10.2	25.4	56.0	
4.980000	27.1	1000.000	9.000	GND	L1	10.2	28.9	56.0	
12.498000	36.2	1000.000	9.000	GND	L1	10.6	23.8	60.0	

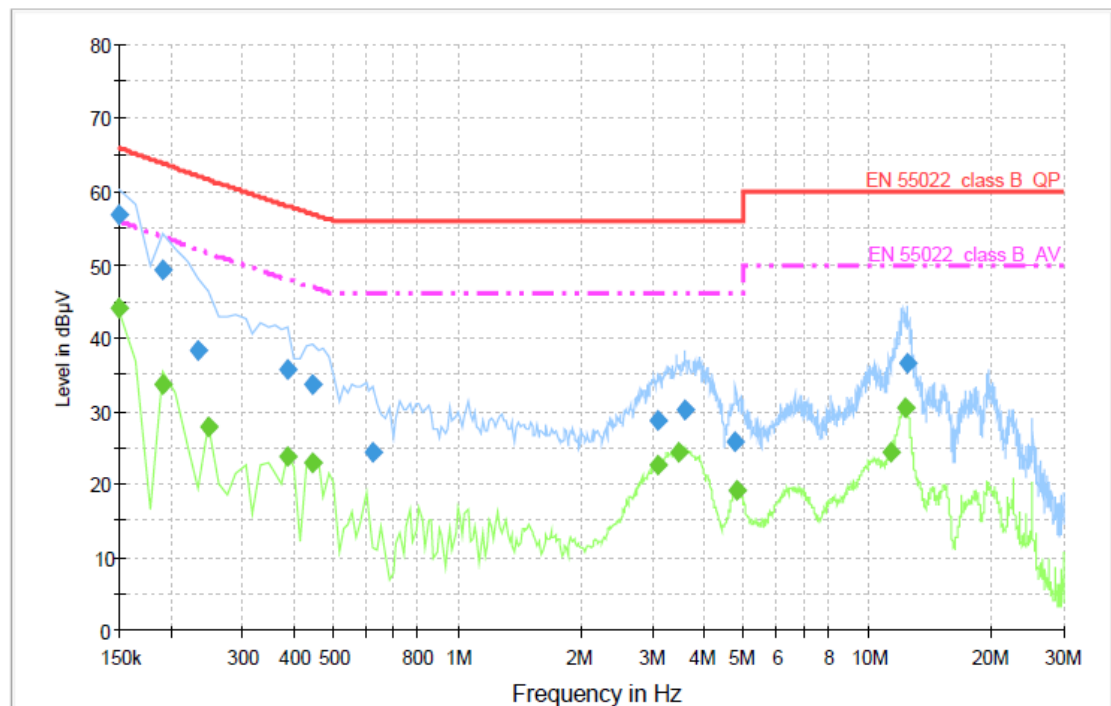
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	44.4	1000.000	9.000	GND	L1	10.0	11.6	56.0	
0.192000	34.1	1000.000	9.000	GND	L1	10.0	19.7	53.8	
0.248000	28.7	1000.000	9.000	GND	L1	10.0	22.9	51.6	
0.388000	25.3	1000.000	9.000	GND	L1	10.0	22.6	47.9	
0.444000	24.0	1000.000	9.000	GND	L1	10.0	22.9	46.9	
3.034000	21.7	1000.000	9.000	GND	L1	10.1	24.3	46.0	
3.664000	23.5	1000.000	9.000	GND	L1	10.2	22.5	46.0	
4.294000	19.8	1000.000	9.000	GND	L1	10.2	26.2	46.0	
11.308000	22.7	1000.000	9.000	GND	L1	10.5	27.3	50.0	
12.428000	29.8	1000.000	9.000	GND	L1	10.6	20.2	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	56.7	1000.000	9.000	GND	N	10.0	9.3	66.0	
0.192000	49.3	1000.000	9.000	GND	N	10.0	14.5	63.8	
0.234000	38.3	1000.000	9.000	GND	N	10.0	23.8	62.1	
0.388000	35.6	1000.000	9.000	GND	N	10.0	22.4	58.0	
0.444000	33.7	1000.000	9.000	GND	N	10.0	23.2	56.9	
0.626000	24.3	1000.000	9.000	GND	N	10.0	31.7	56.0	
3.090000	28.7	1000.000	9.000	GND	N	10.1	27.3	56.0	
3.580000	30.2	1000.000	9.000	GND	N	10.2	25.8	56.0	
4.770000	25.9	1000.000	9.000	GND	N	10.2	30.1	56.0	
12.456000	36.6	1000.000	9.000	GND	N	10.5	23.4	60.0	

Final Measurement Detector 2

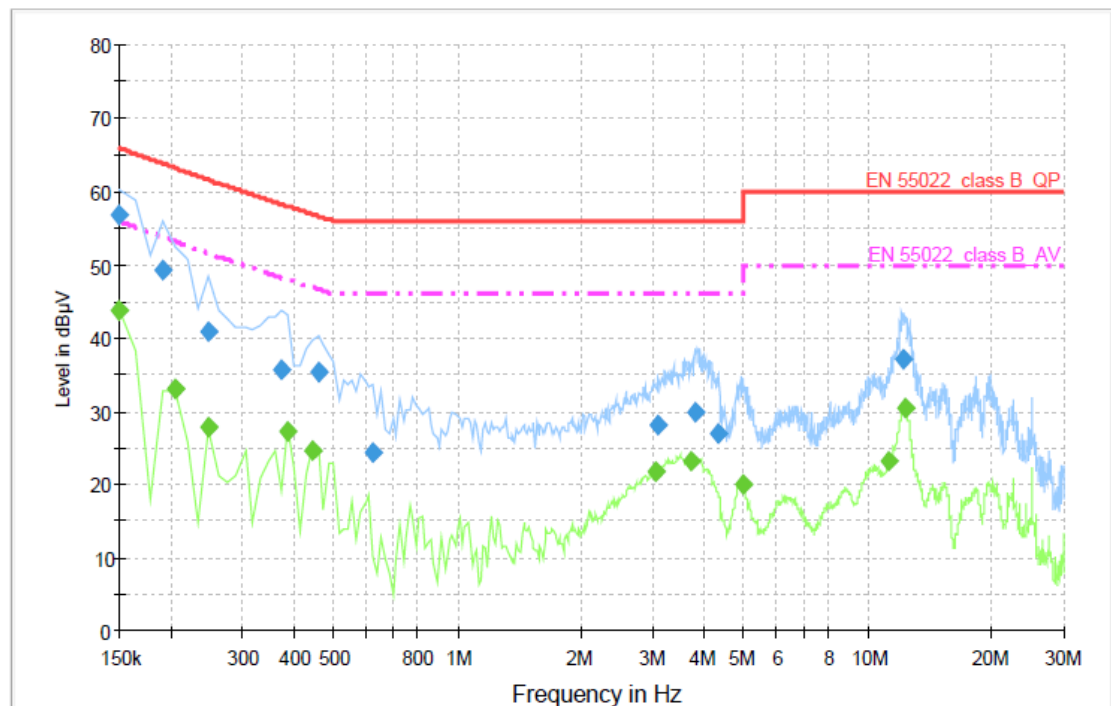
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	44.0	1000.000	9.000	GND	N	10.0	12.0	56.0	
0.192000	33.7	1000.000	9.000	GND	N	10.0	20.1	53.8	
0.248000	27.9	1000.000	9.000	GND	N	10.0	23.8	51.6	
0.388000	23.9	1000.000	9.000	GND	N	10.0	24.0	47.9	
0.444000	23.0	1000.000	9.000	GND	N	10.0	23.9	46.9	
3.076000	22.6	1000.000	9.000	GND	N	10.1	23.4	46.0	
3.454000	24.5	1000.000	9.000	GND	N	10.1	21.5	46.0	
4.826000	19.3	1000.000	9.000	GND	N	10.2	26.7	46.0	
11.322000	24.2	1000.000	9.000	GND	N	10.4	25.8	50.0	
12.302000	30.4	1000.000	9.000	GND	N	10.5	19.6	50.0	

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



◆ Operating condition: 1 600 × 900 / 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
0.150000	56.7	1000.000	9.000	GND	L1	10.0	9.3	66.0	
0.192000	49.2	1000.000	9.000	GND	L1	10.0	14.6	63.8	
0.248000	40.8	1000.000	9.000	GND	L1	10.0	20.8	61.6	
0.374000	35.7	1000.000	9.000	GND	L1	10.0	22.6	58.3	
0.458000	35.5	1000.000	9.000	GND	L1	10.0	21.2	56.7	
0.626000	24.3	1000.000	9.000	GND	L1	10.0	31.7	56.0	
3.090000	28.2	1000.000	9.000	GND	L1	10.1	27.8	56.0	
3.790000	29.9	1000.000	9.000	GND	L1	10.2	26.1	56.0	
4.336000	26.8	1000.000	9.000	GND	L1	10.2	29.2	56.0	
12.218000	37.0	1000.000	9.000	GND	L1	10.5	23.0	60.0	

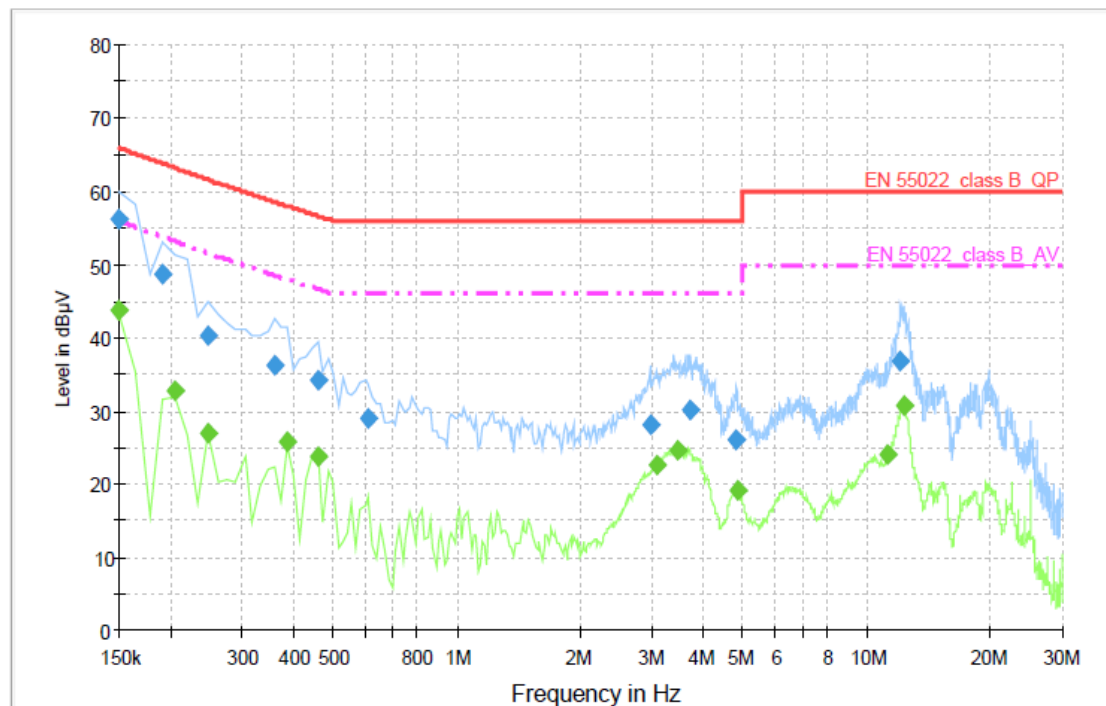
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.8	1000.000	9.000	GND	L1	10.0	12.2	56.0	
0.206000	33.0	1000.000	9.000	GND	L1	10.0	20.2	53.2	
0.248000	27.9	1000.000	9.000	GND	L1	10.0	23.8	51.6	
0.388000	27.2	1000.000	9.000	GND	L1	10.0	20.7	47.9	
0.444000	24.6	1000.000	9.000	GND	L1	10.0	22.3	46.9	
3.034000	21.7	1000.000	9.000	GND	L1	10.1	24.3	46.0	
3.720000	23.1	1000.000	9.000	GND	L1	10.2	22.9	46.0	
4.952000	19.9	1000.000	9.000	GND	L1	10.2	26.1	46.0	
11.308000	23.1	1000.000	9.000	GND	L1	10.5	26.9	50.0	
12.302000	30.3	1000.000	9.000	GND	L1	10.5	19.7	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	56.3	1000.000	9.000	GND	N	10.0	9.7	66.0	
0.192000	48.8	1000.000	9.000	GND	N	10.0	15.0	63.8	
0.248000	40.3	1000.000	9.000	GND	N	10.0	21.3	61.6	
0.360000	36.3	1000.000	9.000	GND	N	10.0	22.3	58.6	
0.458000	34.3	1000.000	9.000	GND	N	10.0	22.4	56.7	
0.612000	29.0	1000.000	9.000	GND	N	10.0	27.0	56.0	
2.964000	28.2	1000.000	9.000	GND	N	10.1	27.8	56.0	
3.734000	30.2	1000.000	9.000	GND	N	10.2	25.8	56.0	
4.826000	26.2	1000.000	9.000	GND	N	10.2	29.8	56.0	
12.134000	36.9	1000.000	9.000	GND	N	10.5	23.1	60.0	

Final Measurement Detector 2

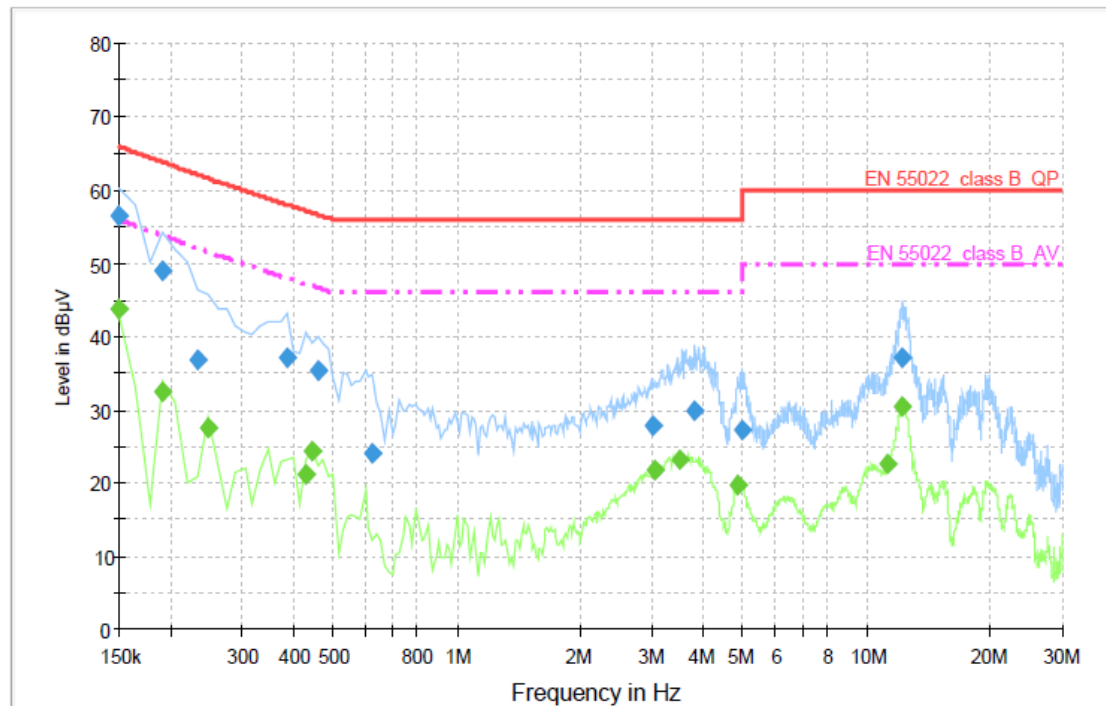
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.8	1000.000	9.000	GND	N	10.0	12.2	56.0	
0.206000	32.7	1000.000	9.000	GND	N	10.0	20.6	53.2	
0.248000	27.0	1000.000	9.000	GND	N	10.0	24.6	51.6	
0.388000	25.7	1000.000	9.000	GND	N	10.0	22.2	47.9	
0.458000	23.6	1000.000	9.000	GND	N	10.0	23.1	46.7	
3.076000	22.6	1000.000	9.000	GND	N	10.1	23.4	46.0	
3.468000	24.6	1000.000	9.000	GND	N	10.1	21.4	46.0	
4.854000	19.2	1000.000	9.000	GND	N	10.2	26.8	46.0	
11.280000	24.0	1000.000	9.000	GND	N	10.4	26.0	50.0	
12.288000	30.8	1000.000	9.000	GND	N	10.5	19.2	50.0	

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



◆ Operating condition: USB memory stick 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
0.150000	56.6	1000.000	9.000	GND	L1	10.0	9.4	66.0	
0.192000	49.0	1000.000	9.000	GND	L1	10.0	14.8	63.8	
0.234000	36.7	1000.000	9.000	GND	L1	10.0	25.4	62.1	
0.388000	37.2	1000.000	9.000	GND	L1	10.0	20.8	58.0	
0.458000	35.3	1000.000	9.000	GND	L1	10.0	21.4	56.7	
0.626000	24.1	1000.000	9.000	GND	L1	10.0	31.9	56.0	
3.006000	28.0	1000.000	9.000	GND	L1	10.1	28.0	56.0	
3.818000	29.8	1000.000	9.000	GND	L1	10.2	26.2	56.0	
4.952000	27.1	1000.000	9.000	GND	L1	10.2	28.9	56.0	
12.274000	37.1	1000.000	9.000	GND	L1	10.5	22.9	60.0	

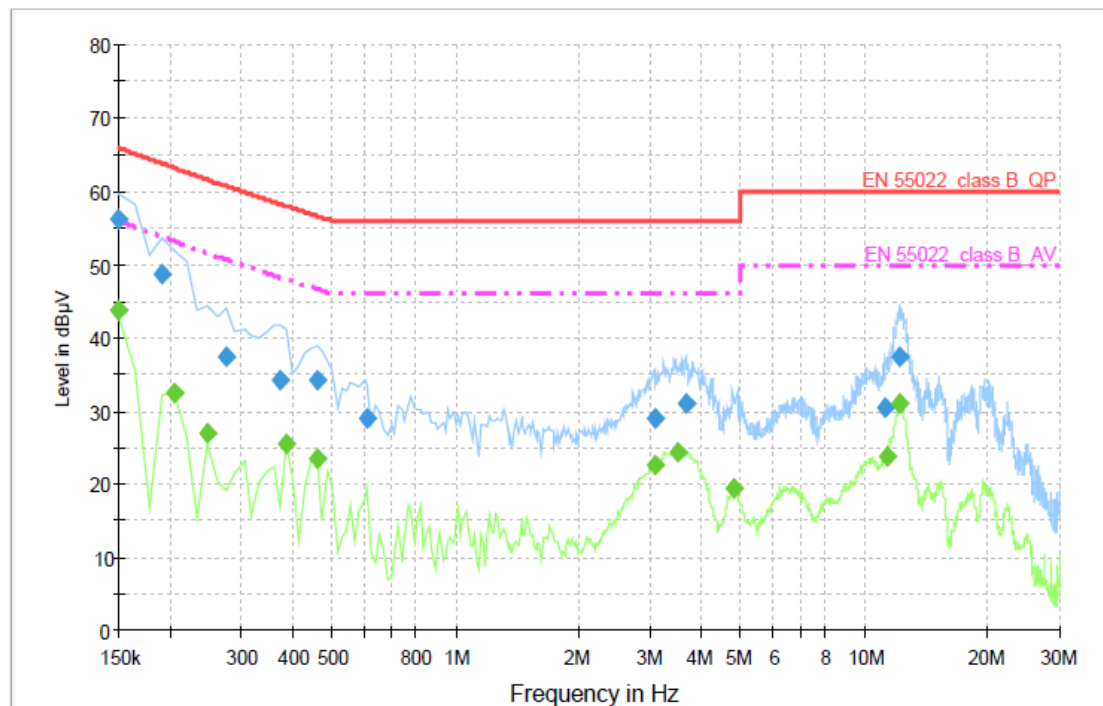
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.6	1000.000	9.000	GND	L1	10.0	12.4	56.0	
0.192000	32.4	1000.000	9.000	GND	L1	10.0	21.4	53.8	
0.248000	27.6	1000.000	9.000	GND	L1	10.0	24.0	51.6	
0.430000	21.3	1000.000	9.000	GND	L1	10.0	25.8	47.1	
0.444000	24.5	1000.000	9.000	GND	L1	10.0	22.4	46.9	
3.062000	21.8	1000.000	9.000	GND	L1	10.1	24.2	46.0	
3.510000	23.2	1000.000	9.000	GND	L1	10.2	22.8	46.0	
4.868000	19.8	1000.000	9.000	GND	L1	10.2	26.2	46.0	
11.308000	22.7	1000.000	9.000	GND	L1	10.5	27.3	50.0	
12.274000	30.3	1000.000	9.000	GND	L1	10.5	19.7	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
0.150000	56.2	1000.000	9.000	GND	N	10.0	9.8	66.0	
0.192000	48.7	1000.000	9.000	GND	N	10.0	15.1	63.8	
0.276000	37.5	1000.000	9.000	GND	N	10.0	23.2	60.7	
0.374000	34.2	1000.000	9.000	GND	N	10.0	24.1	58.3	
0.458000	34.3	1000.000	9.000	GND	N	10.0	22.4	56.7	
0.612000	29.0	1000.000	9.000	GND	N	10.0	27.0	56.0	
3.076000	29.1	1000.000	9.000	GND	N	10.1	26.9	56.0	
3.650000	30.9	1000.000	9.000	GND	N	10.2	25.1	56.0	
11.308000	30.4	1000.000	9.000	GND	N	10.4	29.6	60.0	
12.260000	37.5	1000.000	9.000	GND	N	10.5	22.5	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	43.6	1000.000	9.000	GND	N	10.0	12.4	56.0	
0.206000	32.6	1000.000	9.000	GND	N	10.0	20.6	53.2	
0.248000	27.0	1000.000	9.000	GND	N	10.0	24.6	51.6	
0.388000	25.5	1000.000	9.000	GND	N	10.0	22.4	47.9	
0.458000	23.6	1000.000	9.000	GND	N	10.0	23.1	46.7	
3.076000	22.6	1000.000	9.000	GND	N	10.1	23.4	46.0	
3.496000	24.4	1000.000	9.000	GND	N	10.1	21.6	46.0	
4.826000	19.3	1000.000	9.000	GND	N	10.2	26.7	46.0	
11.322000	23.9	1000.000	9.000	GND	N	10.4	26.1	50.0	
12.246000	30.9	1000.000	9.000	GND	N	10.5	19.1	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 24 °C
Relative Humidity : 40 % 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)	± 4.32 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 4.21 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.96 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.97 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
■ - ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 11. 2010
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3193	03. 15. 2012
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 22. 2011
■ - MCU066	matur GmbH	Position Controller	1390306	N/A
■ - TT2.5SI	matur GmbH	Turntable	1390307	N/A
■ - AM 4.0	matur GmbH	Antenna Mast	1390308	N/A
■ - AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 12. 2010

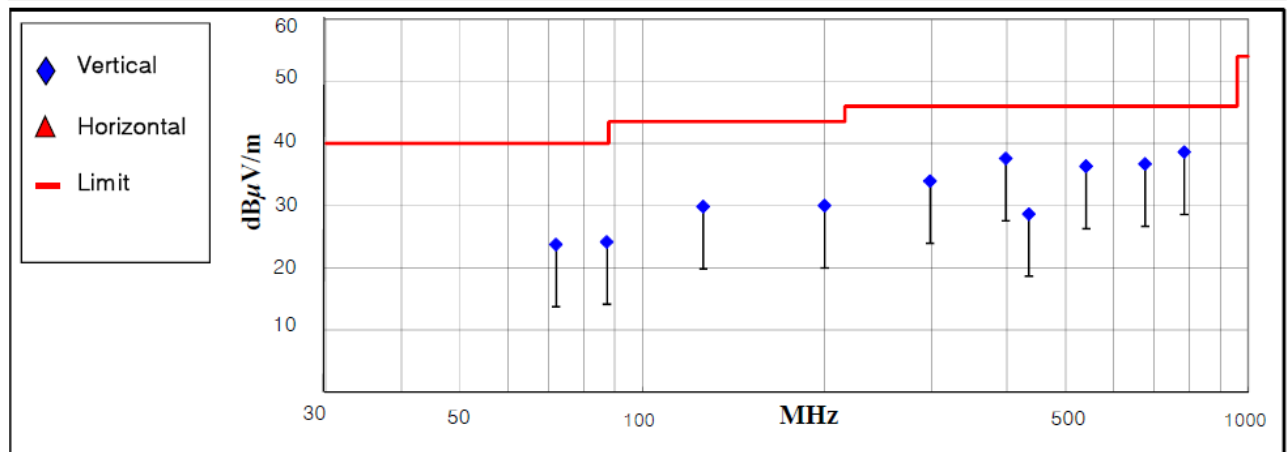
6.6 Test data for Radiated Emission

- Test Date : June 21 ~ 22, 2010
- Resolution Bandwidth : 120 kHz/1 MHz
- Frequency Range : 30 MHz ~ 2 000 MHz
- Measurement Distance : 3 m
- Note : The highest frequency of the internal source of the EUT is between 108 MHz and 500 MHz (400 MHz). The measurement was made up to 2 000 MHz



- ◆ Operating Condition: 1 600 × 900 / 60 Hz (RGB: Analog)
Detector mode: Quasi-Peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
72.00	12.85	9.51	1.40	23.76	40.00	16.24	V	100	0
87.35	15.12	7.49	1.56	24.17	40.00	15.83	V	126	341
126.00	16.22	11.73	1.90	29.85	43.50	13.65	V	100	36
199.86	18.69	8.90	2.42	30.01	43.50	13.49	V	107	10
298.42	17.54	13.42	2.99	33.95	46.00	12.05	V	224	354
397.95	18.12	16.01	3.45	37.58	46.00	8.42	V	100	167
434.45	8.57	16.48	3.60	28.65	46.00	17.35	V	132	175
540.00	14.14	18.18	4.01	36.33	46.00	9.67	V	100	133
675.71	11.93	20.26	4.51	36.70	46.00	9.30	V	192	162
784.30	11.68	22.07	4.86	38.61	46.00	7.39	V	100	184

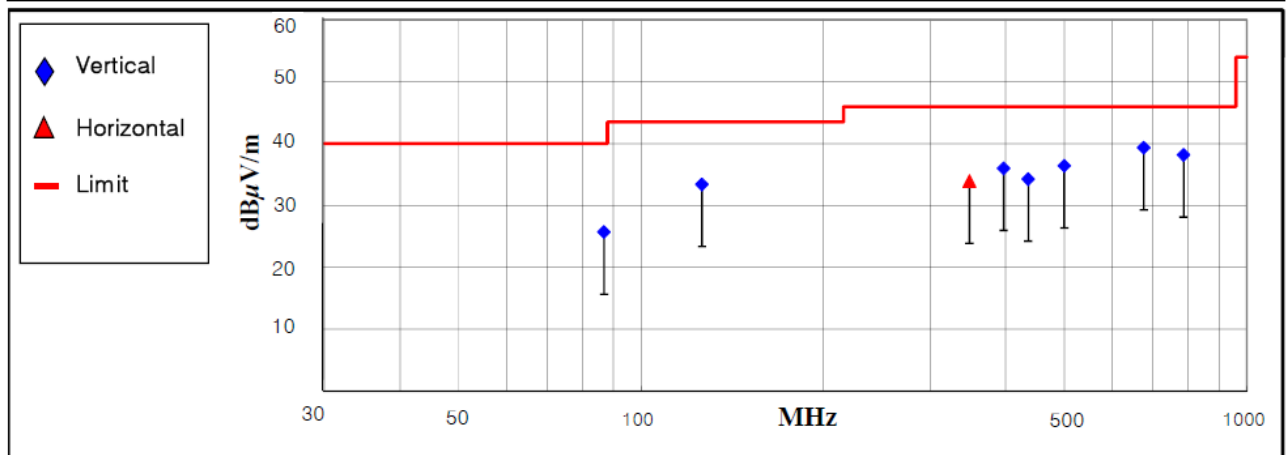


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 600 × 900 / 60 Hz (HDMI/DVI: Digital)
Detector mode: Quasi-Peak detector mode

Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
86.81	16.66	7.49	1.56	25.71	40.00	14.29	V	144	223
126.00	19.77	11.73	1.90	33.40	43.50	10.10	V	106	25
348.30	16.00	14.72	3.23	33.95	46.00	12.05	H	103	192
396.71	16.57	15.97	3.45	35.99	46.00	10.01	V	112	175
435.52	14.15	16.49	3.61	34.25	46.00	11.75	V	103	153
499.50	15.29	17.27	3.85	36.41	46.00	9.59	V	118	100
675.61	14.56	20.26	4.51	39.33	46.00	6.67	V	192	169
785.92	11.21	22.10	4.86	38.17	46.00	7.83	V	128	222

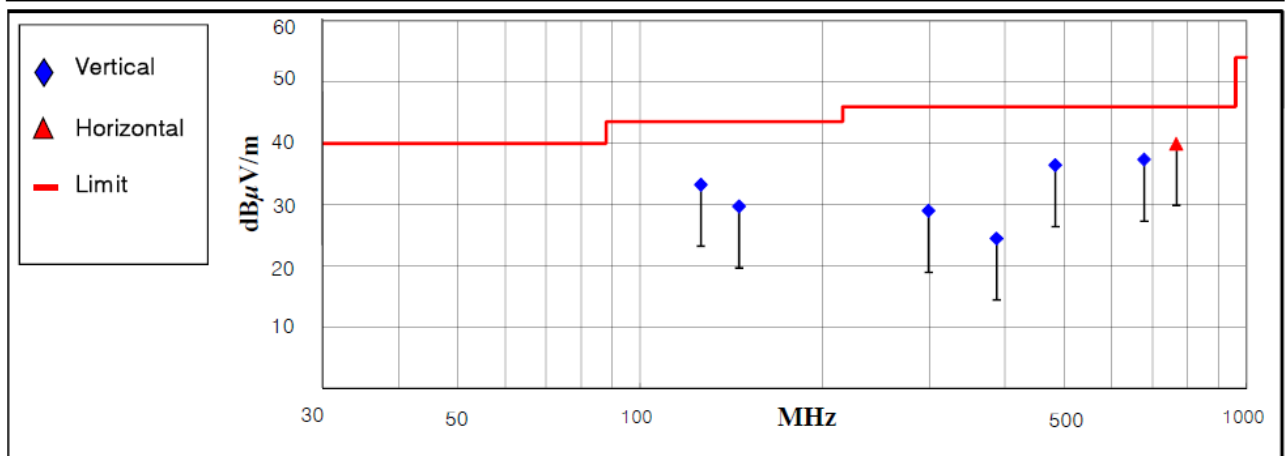


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: USB memory stick play mode
Detector mode: Quasi-Peak detector mode

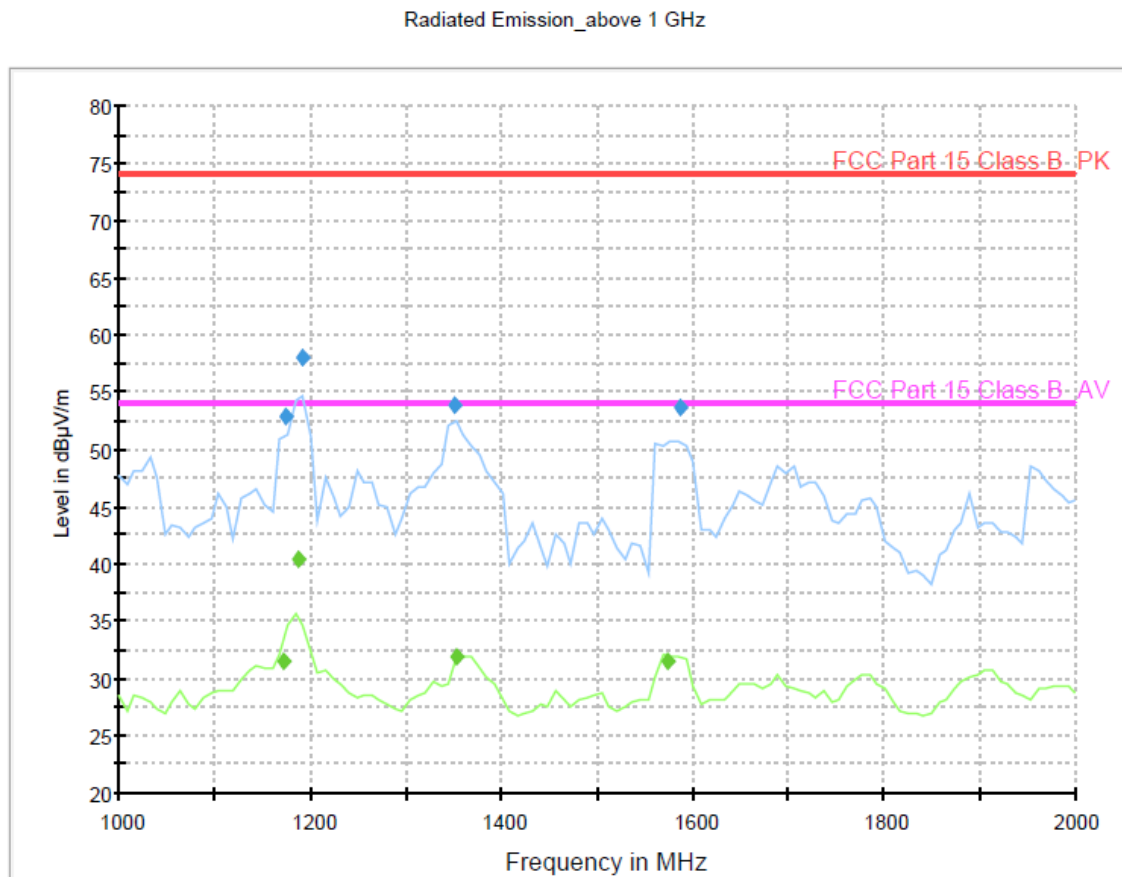
Frequency (MHz)	Measurement Level				Limit (dBμ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dBμ V)	Factor(dB/m)	Loss(dB)	(dBμ V/m)			(H/V)	(cm)	(°)
126.00	19.60	11.73	1.90	33.23	43.50	10.27	V	103	27
145.63	15.28	12.38	2.05	29.71	43.50	13.79	V	104	182
299.04	12.55	13.45	2.99	28.99	46.00	17.01	V	244	355
387.18	5.32	15.73	3.40	24.45	46.00	21.55	V	100	176
483.90	15.55	17.08	3.79	36.42	46.00	9.58	V	106	180
678.19	12.54	20.29	4.52	37.35	46.00	8.65	V	209	153
766.32	13.39	21.73	4.80	39.92	46.00	6.08	H	100	142



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



- ◆ Operating Condition: 1 600 × 900 / 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)
1173.336673	53.0	100.0	1000.000	100.0	V	137.0	-15.1	21.0	74.0
1190.984770	58.1	100.0	1000.000	122.0	V	137.0	-15.1	15.9	74.0
1351.305411	53.9	100.0	1000.000	100.0	H	174.0	-14.4	20.1	74.0
1586.970341	53.8	100.0	1000.000	122.0	H	214.0	-13.7	20.2	74.0

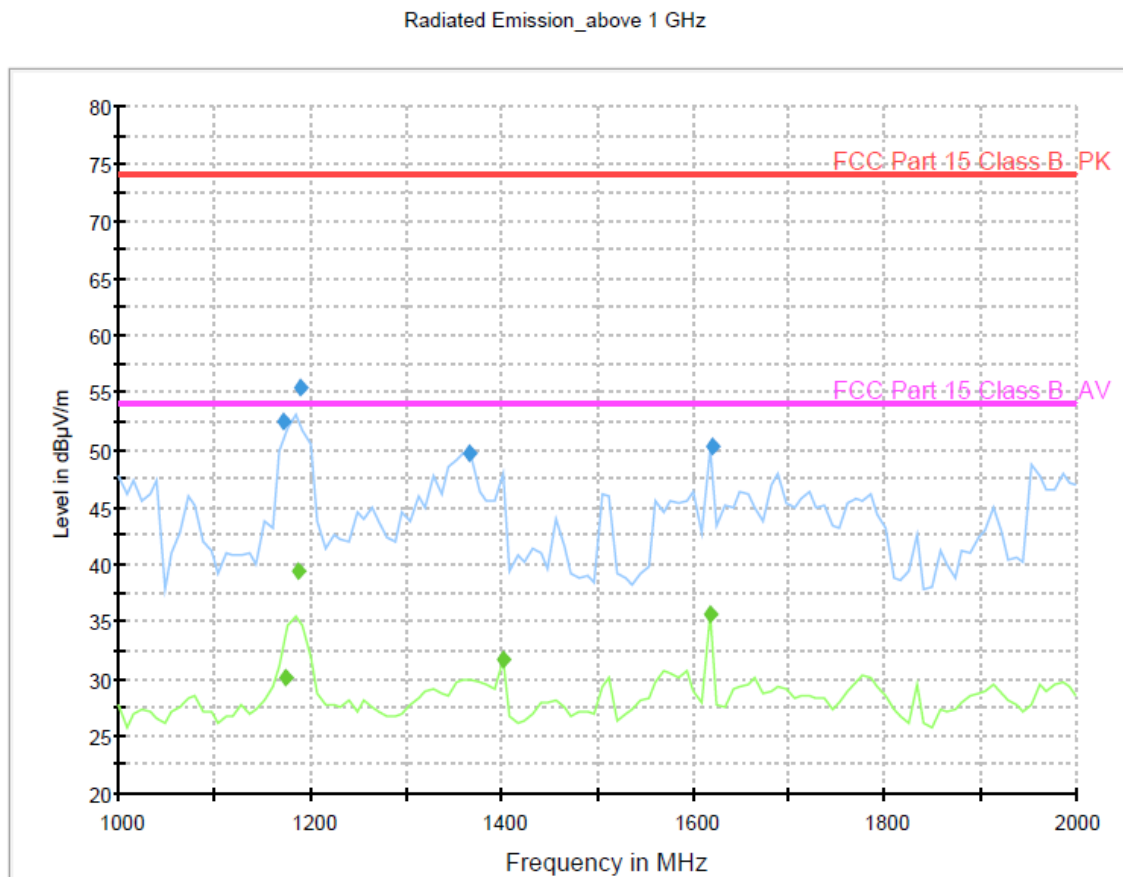
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1171.336673	31.4	100.0	1000.000	100.0	V	137.0	-15.1	22.6	54.0
1188.168738	40.5	100.0	1000.000	156.0	V	137.0	-15.1	13.5	54.0
1352.705411	31.8	100.0	1000.000	100.0	H	174.0	-14.4	22.2	54.0
1574.138277	31.5	100.0	1000.000	157.0	H	174.0	-13.8	22.5	54.0

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



- ◆ Operating Condition: 1 600 × 900 / 60 Hz (HDMI/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)
1172.936673	52.5	100.0	1000.000	130.0	V	131.0	-15.1	21.5	74.0
1189.368738	55.5	100.0	1000.000	130.0	V	137.0	-15.1	18.5	74.0
1365.721443	49.6	100.0	1000.000	100.0	H	208.0	-14.4	24.4	74.0
1619.834469	50.4	100.0	1000.000	197.0	V	198.0	-13.6	23.6	74.0

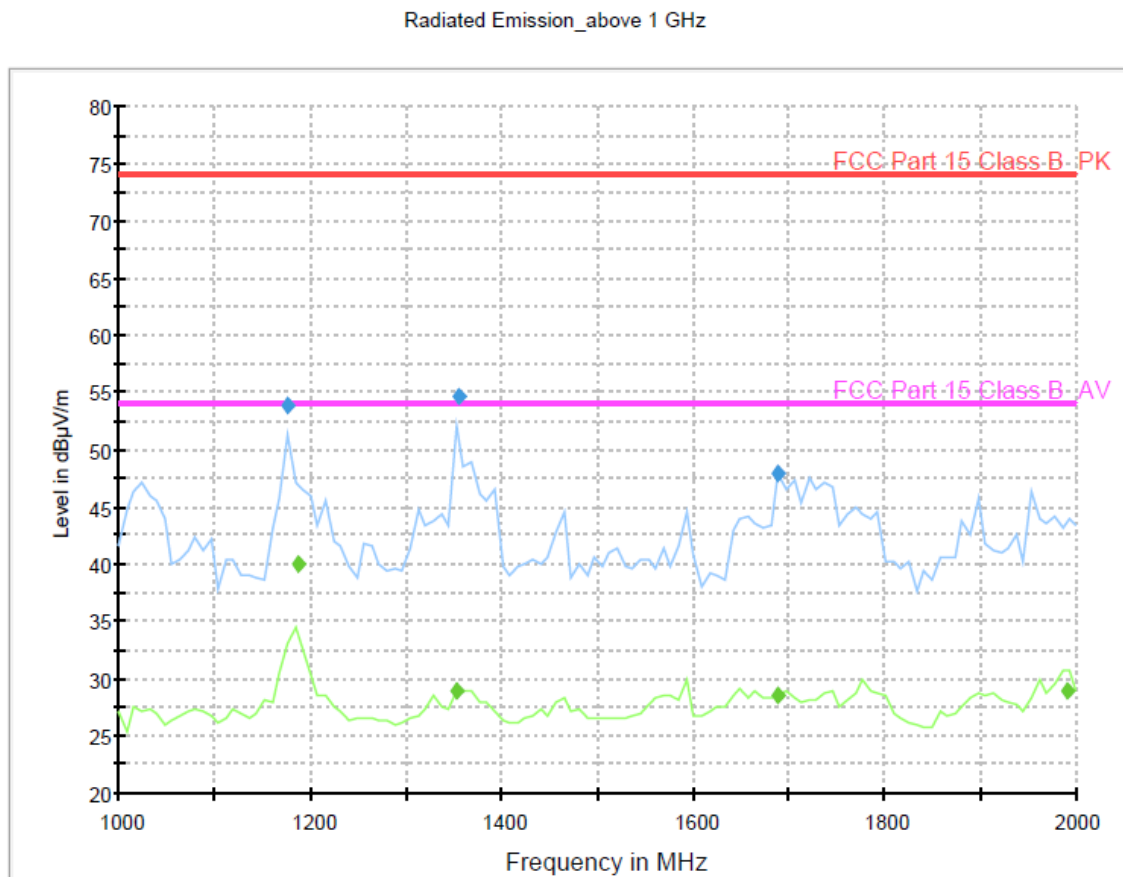
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1173.336673	30.1	100.0	1000.000	100.0	V	131.0	-15.1	23.9	54.0
1188.168738	39.4	100.0	1000.000	155.0	V	137.0	-15.1	14.6	54.0
1400.801603	31.7	100.0	1000.000	100.0	H	122.0	-14.5	22.3	54.0
1617.234469	35.6	100.0	1000.000	200.0	V	198.0	-13.6	18.4	54.0

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



- ◆ Operating Condition: USB memory stick play mode
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)
1176.152706	53.8	100.0	1000.000	100.0	V	131.0	-15.1	20.2	74.0
1354.905411	54.7	100.0	1000.000	100.0	H	173.0	-14.4	19.3	74.0
1689.378758	48.0	100.0	1000.000	100.0	H	126.0	-9.7	26.0	74.0

Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1188.168738	40.0	100.0	1000.000	154.0	V	131.0	-15.1	14.0	54.0
1352.705411	29.0	100.0	1000.000	100.0	H	173.0	-11.0	25.0	54.0
1689.378758	28.5	100.0	1000.000	100.0	H	126.0	-13.6	25.5	54.0
1990.587976	28.9	100.0	1000.000	100.0	H	221.0	-12.8	25.1	54.0

< 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 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. LED LCD TV/Monitor (Model Name: M2080DFM, M2080DM)** complies with §15.107 and 15.109 of the FCC Rules.