

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 : May 24, 2010

Order Number: GETEC-C1-10-125

Test Report Number: GETEC-E3-10-066

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJM2380DFM

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	: M2380DFM, M2380DM
Trade Name	: LG

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

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

Tested by,

Reviewed by,


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.** BEJM2380DFM
- **EUT Type** LED LCD TV/Monitor
- **Model Name** M2380DFM(basic model), M2380DM(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** May 14, 2010
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-10-066
- **Dates of Issue** May 24, 2010



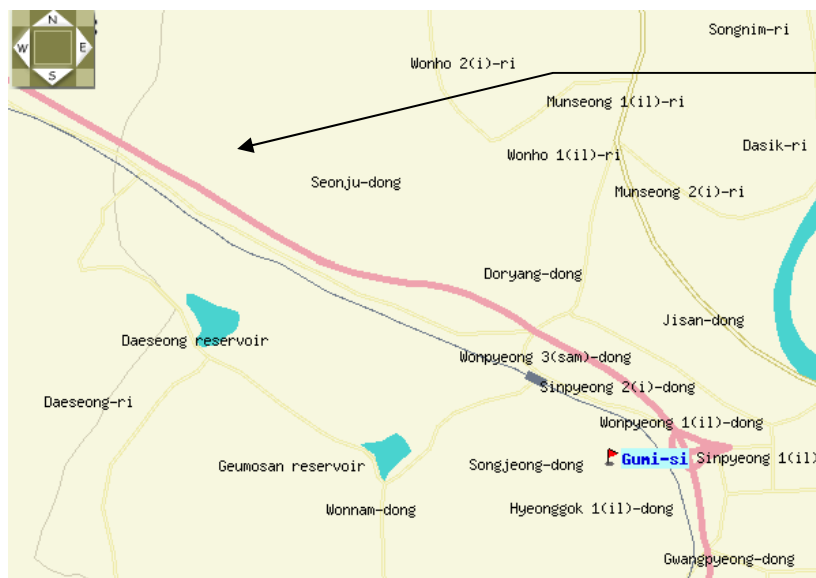
2. Introduction

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: M2380DFM, M2380DM)**

These measurement tests were conducted at **Gumi College EMC Center**.

The site address is 407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.

This test site is one of the highest point of Gumi 1 college at about 200 km away from Seoul city and 40 km away from Daegu city. It is located in the valley surrounded by mountains in all directions where ambient radio signal conditions are quiet and a favorable area to measure the radio frequency interference on open field test site for the computing and ISM devices manufactures. The detailed description of the measurement facility was found to be in compliance with the requirements of §2.948 according to ANSI C63.4 (2003)



GUMI COLLEGE EMC CENTER
407, Bugok-dong, Gumi-si,
Gyeongbuk 730-711, Korea.
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. LED LCD TV/Monitor (Model Name: M2380DFM, M2380DM) FCC ID.: BEJM2380DFM**

LCD Panel	Screen Type	584.2 mm Wide (23 inch) TFT (Thin Film Transistor) LCD (Liquid Crystal Display) Panel Visible diagonal size: 584.2 mm
	Pixel Pitch	0.265 mm (H) x 0.265 mm (V)
Video Signal	Max. Resolution	1920 x 1080 @ 60 Hz
	Recommended Resolution	1920 x 1080 @ 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 $\pm$ 2.4 A
	Power Consumption	On Mode : 33 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)		547 mm x 427.9 mm x 193.9 mm (21.53 inch x 16.85 inch x 7.6 inch)
Weight		4.4 kg (9.7 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: LITE-ON TECHNOLOGY CORPORATION
Input rating: AC (100 – 240) V~, (50 – 60) Hz, 2.0 A
Output rating: DC 19 V, 3.42 A
Serial number: OA421612314010131



3.2 Support Equipment / Cables used

3.2.1 Used Support Equipment

Description	Manufacturer	Model Name	S/N & FCC ID.
PC	Hewlett Packard	D530	S/N: CNG34800PY FCC ID.: DoC
Video card	ATI	ATI RV360(9600)	S/N: SN0402017176 FCC ID.: DoC
Key board	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID.: AQ6-23K15
PS2 mouse	LOGITECH	M-S69	S/N: 334684-108 FCC ID.: JNZ211443
Joy stick	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.: -

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	1.50 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 with a ferrite core
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: 1 920 × 1 080 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

Conducted emission: 1 920 × 1 080 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)

1 024 × 768 / 60 Hz (RGB: Analog), 640 × 480 / 60 Hz (RGB: Analog)

◆ Operating test pattern

- "H" character scrolling mode (Font size: 10)
- Black background white character
- Brightness and contrast was adjusted as maximum level
- 1 kHz sound tone 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

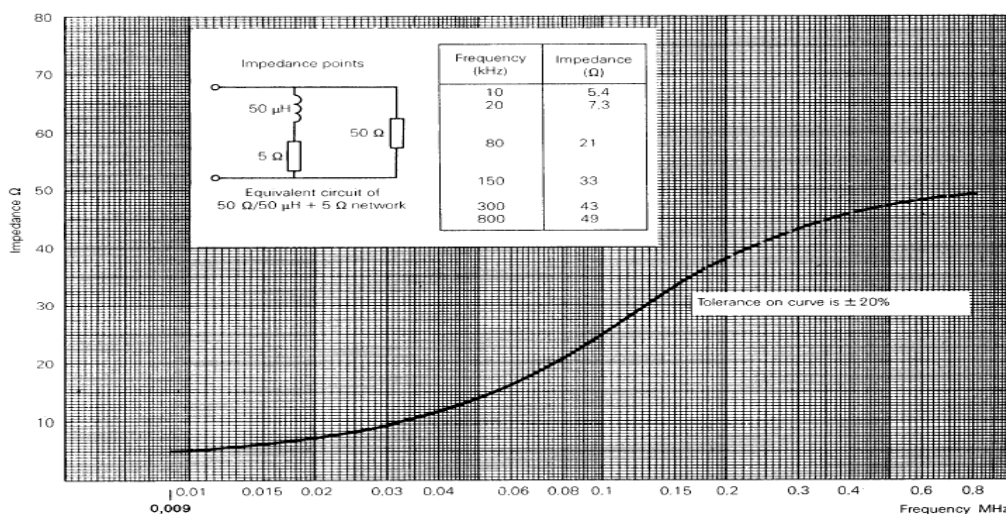


Fig 2. Impedance of LISN



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

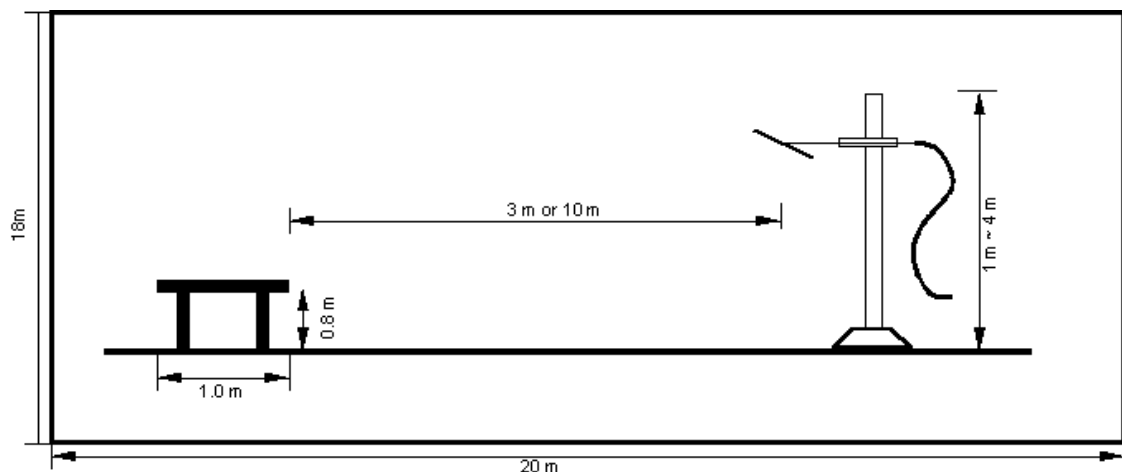


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 24 °C
Relative Humidity : 36 % R.H.

5.2 Test Set-up

The conducted emission measurements were performed in the shielded room.

The EUT was placed on wooden table, 0.8 m heights above the floor, 0.4 m from the reference ground plane (GRP) wall and 0.8 m from AMN.

AMN is bonded on horizontal reference ground plane.

The ground plane, which was electrically bonded to the shield room, ground system and all power lines entering the shield room, were filtered.

5.3 Measurement Uncertainty

The measurement uncertainty was calculated in accordance with ISO "Guide to the expression of uncertainty in measurement."

The measurement uncertainty was given with a confidence of 95 %.

Test Items	Uncertainty	Remark
Conducted emission (9 kHz ~ 150 kHz)	± 2.69 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

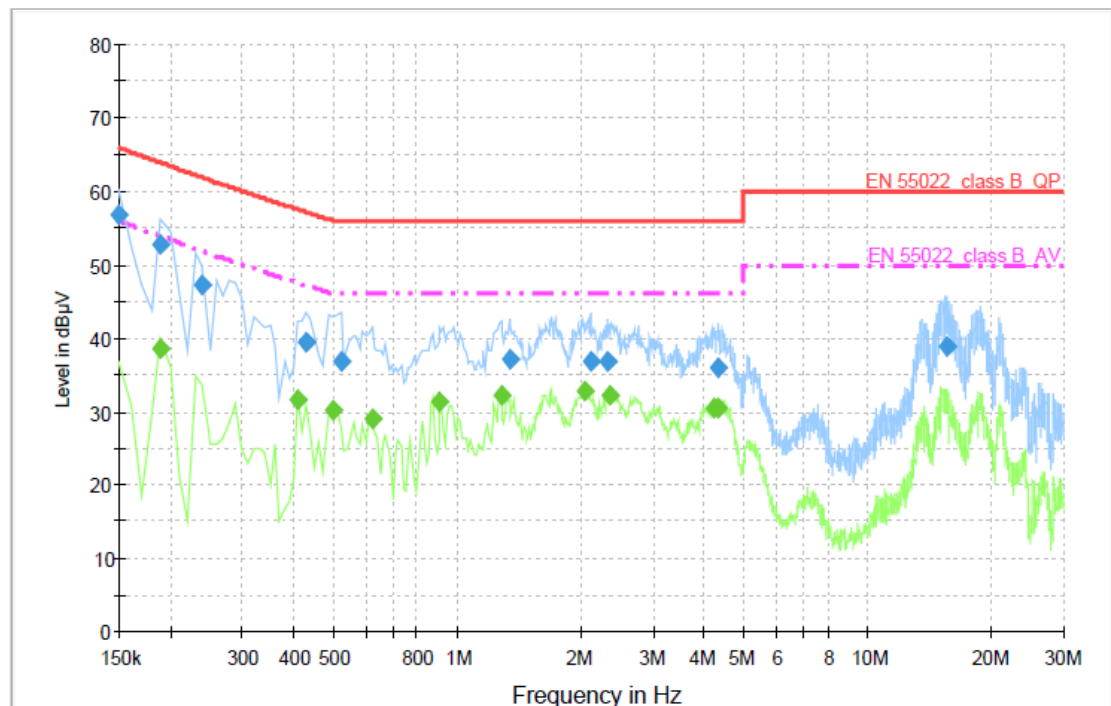
5.6 Test data for Conducted Emission

- . Test Date : May 14, 2010
- . Resolution Bandwidth : 9 kHz
- . Frequency Range : 0.15 MHz ~ 30 MHz



◆ Operating condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	56.9	1000.000	9.000	GND	L1	10.0	9.2	66.0	
0.190000	52.8	1000.000	9.000	GND	L1	10.0	11.1	63.9	
0.240000	47.3	1000.000	9.000	GND	L1	10.0	14.6	61.9	
0.430000	39.5	1000.000	9.000	GND	L1	10.0	17.7	57.2	
0.520000	36.9	1000.000	9.000	GND	L1	10.0	19.2	56.0	
1.340000	37.1	1000.000	9.000	GND	L1	10.1	18.9	56.0	
2.110000	36.8	1000.000	9.000	GND	L1	10.1	19.2	56.0	
2.330000	36.8	1000.000	9.000	GND	L1	10.1	19.2	56.0	
4.320000	35.9	1000.000	9.000	GND	L1	10.2	20.1	56.0	
15.550000	38.9	1000.000	9.000	GND	L1	10.7	21.1	60.0	

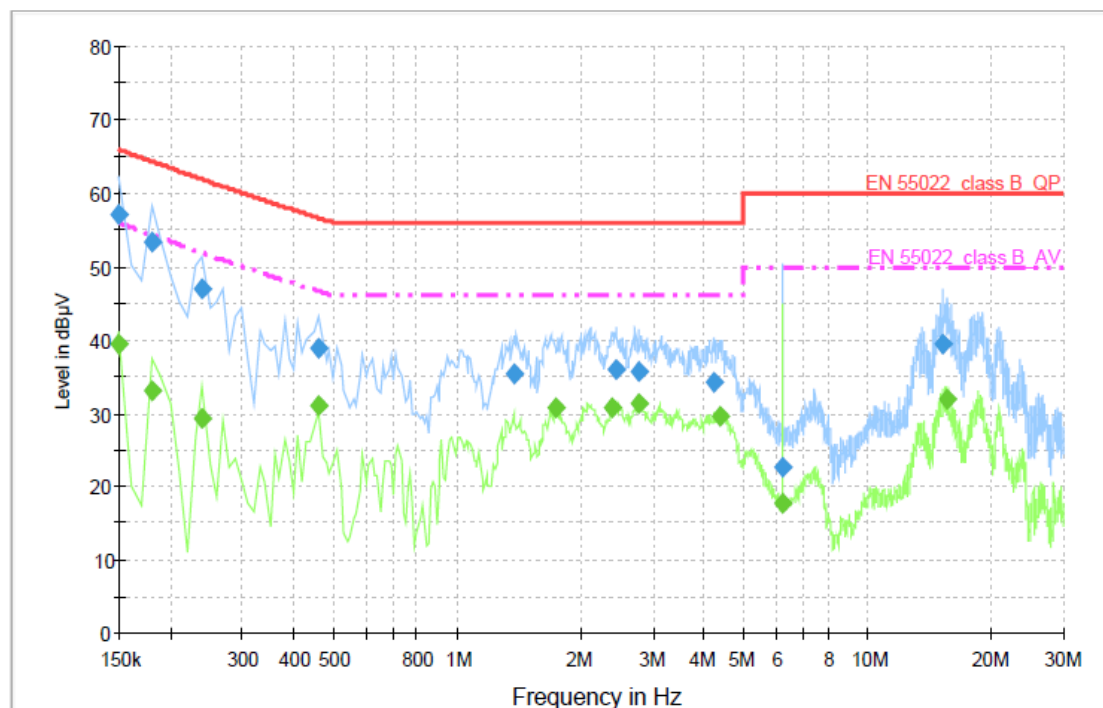
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.190000	38.6	1000.000	9.000	GND	L1	10.0	15.3	53.9	
0.410000	31.5	1000.000	9.000	GND	L1	10.0	16.0	47.5	
0.500000	30.3	1000.000	9.000	GND	L1	10.0	15.7	46.0	
0.620000	29.0	1000.000	9.000	GND	L1	10.0	17.0	46.0	
0.910000	31.2	1000.000	9.000	GND	L1	10.0	14.8	46.0	
1.280000	32.0	1000.000	9.000	GND	L1	10.1	14.0	46.0	
2.050000	32.7	1000.000	9.000	GND	L1	10.1	13.3	46.0	
2.370000	32.3	1000.000	9.000	GND	L1	10.1	13.7	46.0	
4.230000	30.3	1000.000	9.000	GND	L1	10.2	15.7	46.0	
4.300000	30.5	1000.000	9.000	GND	L1	10.2	15.5	46.0	

< 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	57.1	1000.000	9.000	GND	N	10.0	8.9	66.0	
0.180000	53.3	1000.000	9.000	GND	N	10.0	11.1	64.4	
0.240000	46.9	1000.000	9.000	GND	N	10.0	15.0	61.9	
0.460000	38.9	1000.000	9.000	GND	N	10.0	17.7	56.6	
1.370000	35.5	1000.000	9.000	GND	N	10.1	20.5	56.0	
2.440000	35.9	1000.000	9.000	GND	N	10.1	20.1	56.0	
2.780000	35.6	1000.000	9.000	GND	N	10.1	20.4	56.0	
4.200000	34.2	1000.000	9.000	GND	N	10.2	21.8	56.0	
6.200000	22.7	1000.000	9.000	GND	N	10.2	37.3	60.0	
15.310000	39.4	1000.000	9.000	GND	N	10.6	20.6	60.0	

Final Measurement Detector 2

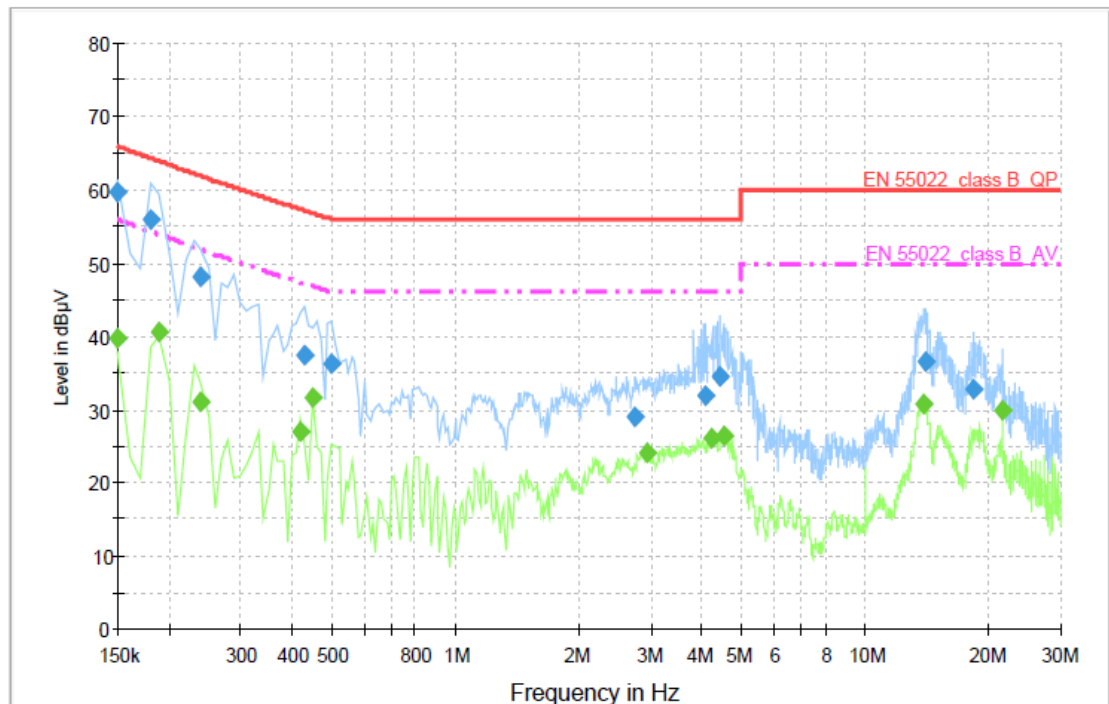
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	39.4	1000.000	9.000	GND	N	10.0	16.6	56.0	
0.180000	33.1	1000.000	9.000	GND	N	10.0	21.3	54.4	
0.240000	29.4	1000.000	9.000	GND	N	10.0	22.5	51.9	
0.460000	30.9	1000.000	9.000	GND	N	10.0	15.7	46.6	
1.730000	30.7	1000.000	9.000	GND	N	10.1	15.3	46.0	
2.380000	30.6	1000.000	9.000	GND	N	10.1	15.4	46.0	
2.780000	31.2	1000.000	9.000	GND	N	10.1	14.8	46.0	
4.370000	29.4	1000.000	9.000	GND	N	10.2	16.6	46.0	
6.200000	17.6	1000.000	9.000	GND	N	10.2	32.4	50.0	
15.630000	31.9	1000.000	9.000	GND	N	10.6	18.1	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	59.7	1000.000	9.000	GND	L1	10.0	6.3	66.0	
0.180000	56.0	1000.000	9.000	GND	L1	10.0	8.4	64.4	
0.240000	48.2	1000.000	9.000	GND	L1	10.0	13.7	61.9	
0.430000	37.5	1000.000	9.000	GND	L1	10.0	19.7	57.2	
0.500000	36.1	1000.000	9.000	GND	L1	10.0	19.9	56.0	
2.740000	29.0	1000.000	9.000	GND	L1	10.1	27.0	56.0	
4.060000	31.8	1000.000	9.000	GND	L1	10.2	24.2	56.0	
4.420000	34.5	1000.000	9.000	GND	L1	10.2	21.5	56.0	
14.070000	36.6	1000.000	9.000	GND	L1	10.7	23.4	60.0	
18.410000	32.7	1000.000	9.000	GND	L1	10.9	27.3	60.0	

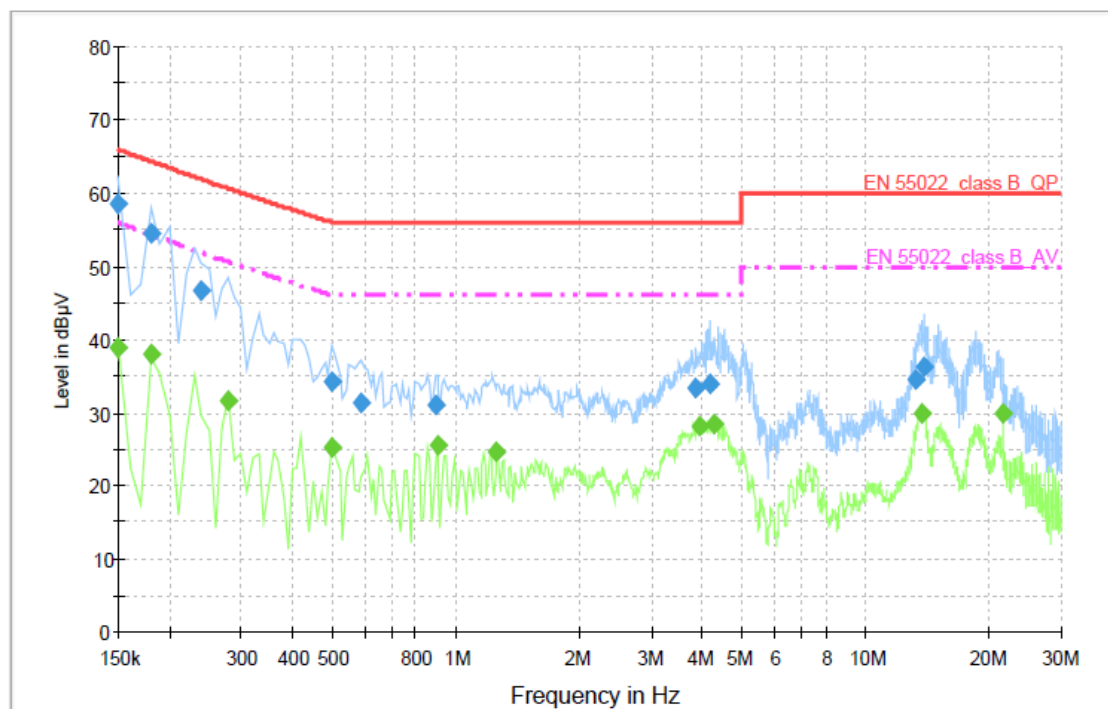
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	39.8	1000.000	9.000	GND	L1	10.0	16.2	56.0	
0.190000	40.5	1000.000	9.000	GND	L1	10.0	13.4	53.9	
0.240000	30.9	1000.000	9.000	GND	L1	10.0	21.0	51.9	
0.420000	27.1	1000.000	9.000	GND	L1	10.0	20.2	47.3	
0.450000	31.7	1000.000	9.000	GND	L1	10.0	15.1	46.8	
2.930000	24.2	1000.000	9.000	GND	L1	10.1	21.8	46.0	
4.240000	26.0	1000.000	9.000	GND	L1	10.2	20.0	46.0	
4.530000	26.4	1000.000	9.000	GND	L1	10.2	19.6	46.0	
13.900000	30.7	1000.000	9.000	GND	L1	10.6	19.3	50.0	
21.600000	29.8	1000.000	9.000	GND	L1	11.1	20.2	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	58.5	1000.000	9.000	GND	N	10.0	7.5	66.0	
0.180000	54.5	1000.000	9.000	GND	N	10.0	9.9	64.4	
0.240000	46.6	1000.000	9.000	GND	N	10.0	15.3	61.9	
0.500000	34.2	1000.000	9.000	GND	N	10.0	21.8	56.0	
0.590000	31.4	1000.000	9.000	GND	N	10.0	24.6	56.0	
0.890000	31.0	1000.000	9.000	GND	N	10.0	25.0	56.0	
3.860000	33.5	1000.000	9.000	GND	N	10.2	22.6	56.0	
4.170000	33.9	1000.000	9.000	GND	N	10.2	22.1	56.0	
13.320000	34.6	1000.000	9.000	GND	N	10.5	25.4	60.0	
13.900000	36.2	1000.000	9.000	GND	N	10.5	23.8	60.0	

Final Measurement Detector 2

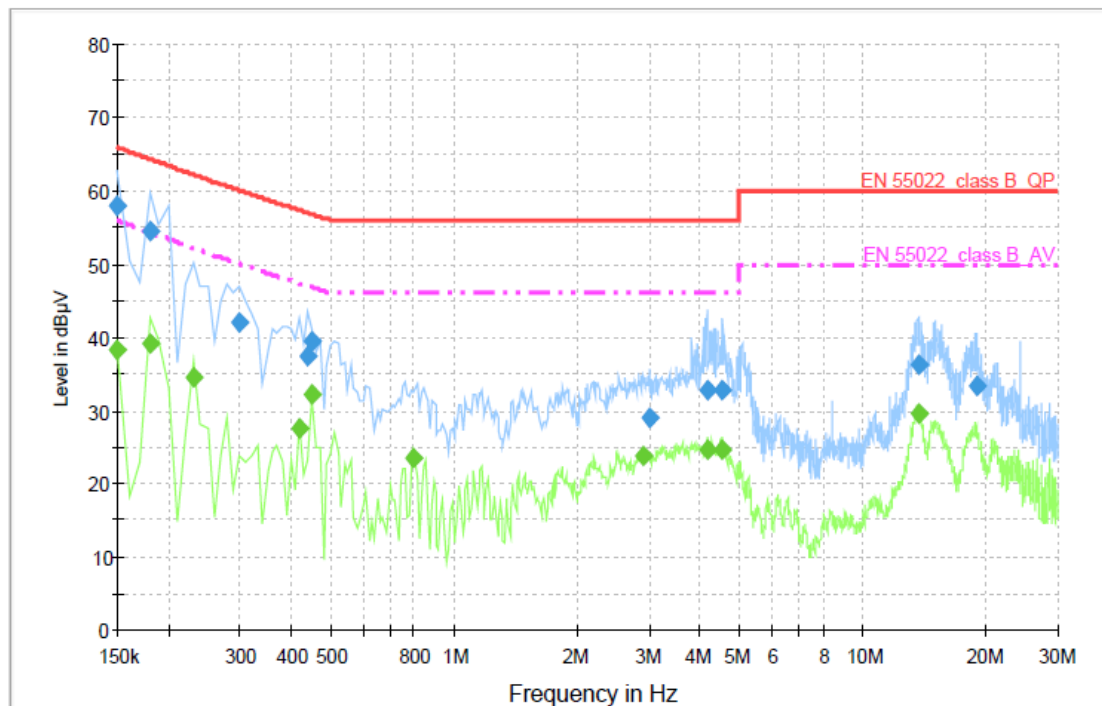
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	38.9	1000.000	9.000	GND	N	10.0	17.1	56.0	
0.180000	37.9	1000.000	9.000	GND	N	10.0	16.5	54.4	
0.280000	31.6	1000.000	9.000	GND	N	10.0	19.0	50.6	
0.500000	25.2	1000.000	9.000	GND	N	10.0	20.8	46.0	
0.900000	25.6	1000.000	9.000	GND	N	10.0	20.4	46.0	
1.260000	24.7	1000.000	9.000	GND	N	10.1	21.3	46.0	
3.930000	28.1	1000.000	9.000	GND	N	10.2	17.9	46.0	
4.260000	28.3	1000.000	9.000	GND	N	10.2	17.7	46.0	
13.730000	29.9	1000.000	9.000	GND	N	10.5	20.1	50.0	
21.600000	29.8	1000.000	9.000	GND	N	10.8	20.2	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	58.0	1000.000	9.000	GND	L1	10.0	8.0	66.0	
0.180000	54.6	1000.000	9.000	GND	L1	10.0	9.8	64.4	
0.300000	41.9	1000.000	9.000	GND	L1	10.0	18.1	60.0	
0.440000	37.5	1000.000	9.000	GND	L1	10.0	19.5	57.0	
0.450000	39.5	1000.000	9.000	GND	L1	10.0	17.4	56.8	
3.010000	29.0	1000.000	9.000	GND	L1	10.1	27.0	56.0	
4.150000	32.7	1000.000	9.000	GND	L1	10.2	23.3	56.0	
4.550000	32.8	1000.000	9.000	GND	L1	10.2	23.2	56.0	
13.740000	36.1	1000.000	9.000	GND	L1	10.6	23.9	60.0	
18.950000	33.4	1000.000	9.000	GND	L1	11.0	26.6	60.0	

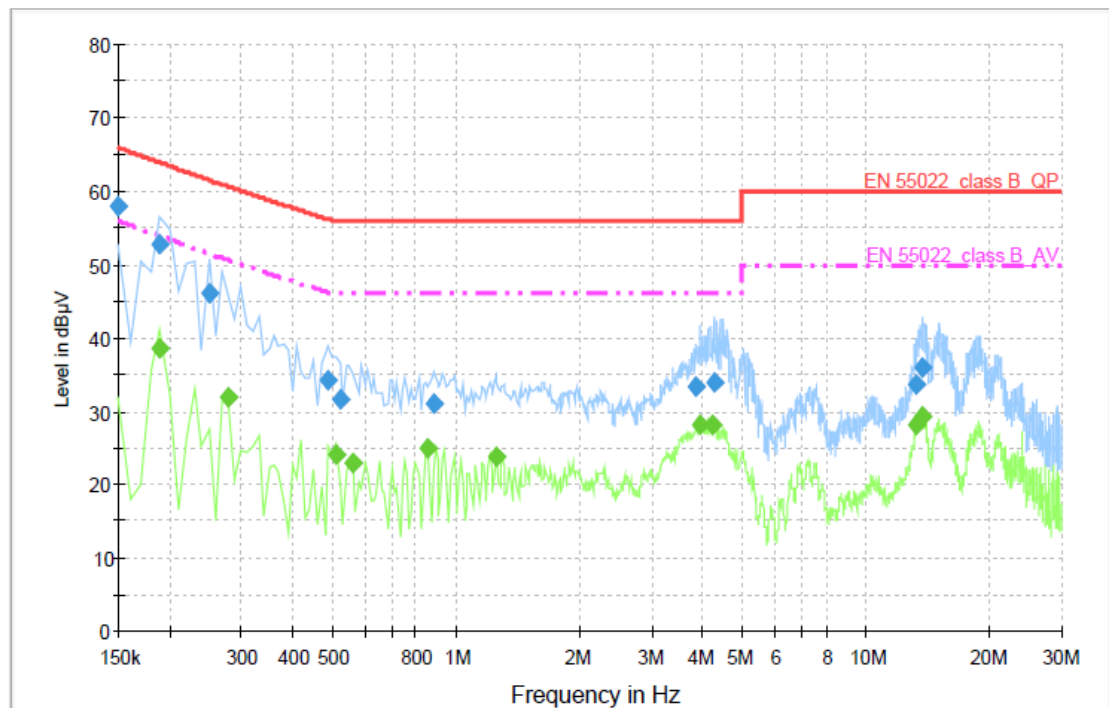
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	38.4	1000.000	9.000	GND	L1	10.0	17.6	56.0	
0.180000	39.1	1000.000	9.000	GND	L1	10.0	15.3	54.4	
0.230000	34.6	1000.000	9.000	GND	L1	10.0	17.6	52.2	
0.420000	27.7	1000.000	9.000	GND	L1	10.0	19.7	47.3	
0.450000	32.1	1000.000	9.000	GND	L1	10.0	14.7	46.8	
0.800000	23.5	1000.000	9.000	GND	L1	10.0	22.5	46.0	
2.920000	23.7	1000.000	9.000	GND	L1	10.1	22.3	46.0	
4.150000	24.5	1000.000	9.000	GND	L1	10.2	21.5	46.0	
4.550000	24.7	1000.000	9.000	GND	L1	10.2	21.3	46.0	
13.680000	29.6	1000.000	9.000	GND	L1	10.6	20.4	50.0	

< Fig 8. Conducted emission result (Live line)>



Voltage with 4-Line-LISN_N



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	58.0	1000.000	9.000	GND	N	10.0	8.0	66.0	
0.190000	52.8	1000.000	9.000	GND	N	10.0	11.1	63.9	
0.250000	46.2	1000.000	9.000	GND	N	10.0	15.4	61.6	
0.490000	34.3	1000.000	9.000	GND	N	10.0	21.9	56.2	
0.520000	31.7	1000.000	9.000	GND	N	10.0	24.3	56.0	
0.880000	31.1	1000.000	9.000	GND	N	10.0	24.9	56.0	
3.840000	33.2	1000.000	9.000	GND	N	10.2	22.8	56.0	
4.250000	34.0	1000.000	9.000	GND	N	10.2	22.0	56.0	
13.190000	33.7	1000.000	9.000	GND	N	10.5	26.3	60.0	
13.760000	35.9	1000.000	9.000	GND	N	10.5	24.1	60.0	

Final Measurement Detector 2

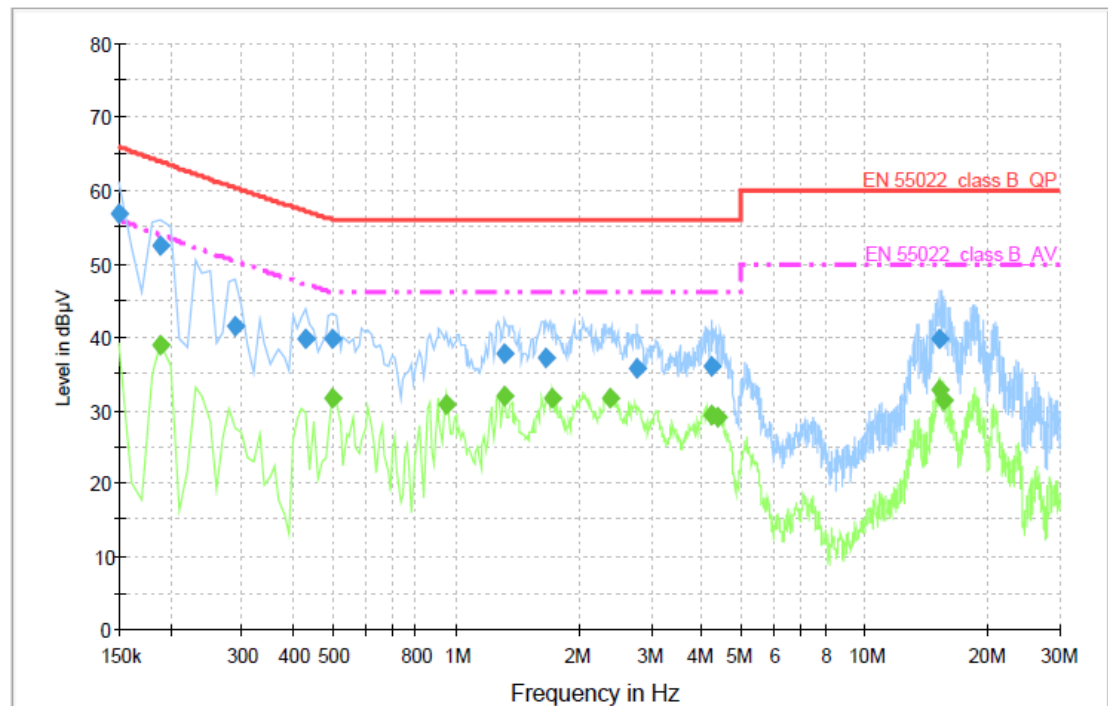
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.190000	38.6	1000.000	9.000	GND	N	10.0	15.3	53.9	
0.280000	32.0	1000.000	9.000	GND	N	10.0	18.6	50.6	
0.510000	24.2	1000.000	9.000	GND	N	10.0	21.8	46.0	
0.560000	23.0	1000.000	9.000	GND	N	10.0	23.0	46.0	
0.850000	25.0	1000.000	9.000	GND	N	10.0	21.0	46.0	
1.260000	23.9	1000.000	9.000	GND	N	10.1	22.1	46.0	
3.920000	28.0	1000.000	9.000	GND	N	10.2	18.0	46.0	
4.240000	28.1	1000.000	9.000	GND	N	10.2	17.9	46.0	
13.320000	28.1	1000.000	9.000	GND	N	10.5	21.9	50.0	
13.760000	29.3	1000.000	9.000	GND	N	10.5	20.7	50.0	

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



◆ Operating condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	56.8	1000.000	9.000	GND	L1	10.0	9.2	66.0	
0.190000	52.6	1000.000	9.000	GND	L1	10.0	11.3	63.9	
0.290000	41.4	1000.000	9.000	GND	L1	10.0	18.9	60.3	
0.430000	39.8	1000.000	9.000	GND	L1	10.0	17.4	57.2	
0.500000	39.6	1000.000	9.000	GND	L1	10.0	16.4	56.0	
1.320000	37.6	1000.000	9.000	GND	L1	10.1	18.4	56.0	
1.660000	37.1	1000.000	9.000	GND	L1	10.1	18.9	56.0	
2.780000	35.5	1000.000	9.000	GND	L1	10.1	20.5	56.0	
4.220000	35.9	1000.000	9.000	GND	L1	10.2	20.1	56.0	
15.300000	39.7	1000.000	9.000	GND	L1	10.7	20.4	60.0	

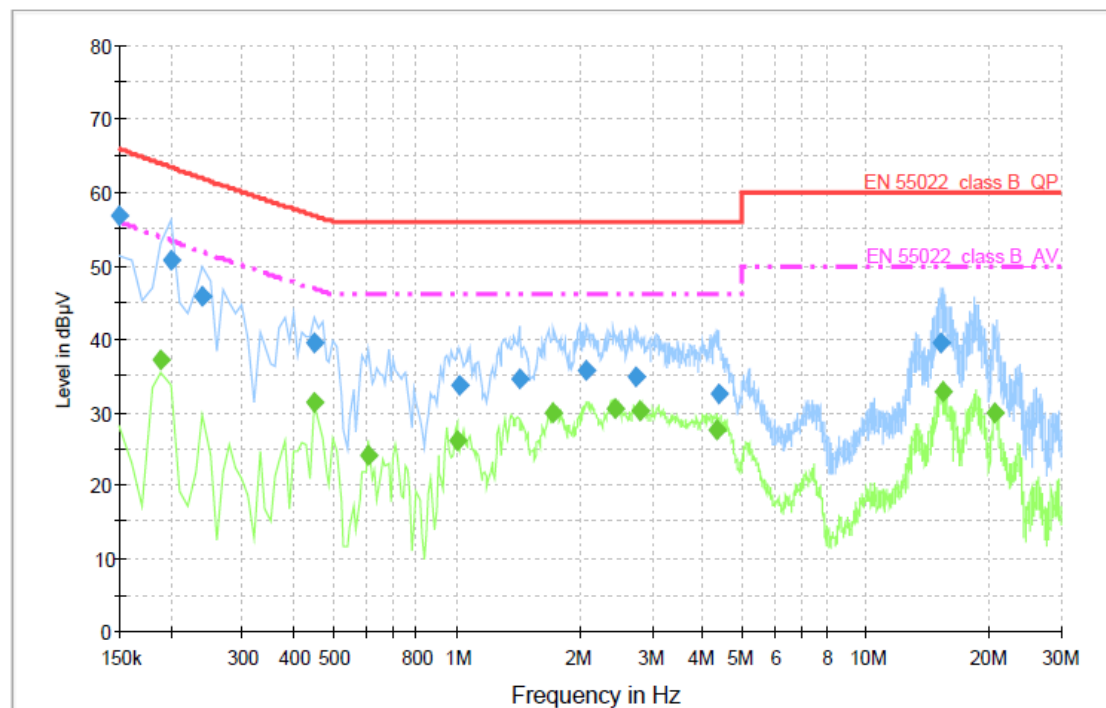
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.190000	38.8	1000.000	9.000	GND	L1	10.0	15.1	53.9	
0.500000	31.6	1000.000	9.000	GND	L1	10.0	14.4	46.0	
0.950000	30.8	1000.000	9.000	GND	L1	10.0	15.2	46.0	
1.310000	31.9	1000.000	9.000	GND	L1	10.1	14.1	46.0	
1.720000	31.7	1000.000	9.000	GND	L1	10.1	14.3	46.0	
2.390000	31.6	1000.000	9.000	GND	L1	10.1	14.4	46.0	
4.200000	29.2	1000.000	9.000	GND	L1	10.2	16.8	46.0	
4.390000	29.1	1000.000	9.000	GND	L1	10.2	16.9	46.0	
15.300000	32.7	1000.000	9.000	GND	L1	10.7	17.3	50.0	
15.690000	31.4	1000.000	9.000	GND	L1	10.8	18.6	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	56.9	1000.000	9.000	GND	N	10.0	9.1	66.0	
0.200000	50.8	1000.000	9.000	GND	N	10.0	12.7	63.5	
0.240000	45.8	1000.000	9.000	GND	N	10.0	16.1	61.9	
0.450000	39.5	1000.000	9.000	GND	N	10.0	17.3	56.8	
1.020000	33.6	1000.000	9.000	GND	N	10.1	22.4	56.0	
1.420000	34.4	1000.000	9.000	GND	N	10.1	21.6	56.0	
2.080000	35.7	1000.000	9.000	GND	N	10.1	20.3	56.0	
2.750000	34.8	1000.000	9.000	GND	N	10.1	21.2	56.0	
4.360000	32.5	1000.000	9.000	GND	N	10.2	23.5	56.0	
15.220000	39.5	1000.000	9.000	GND	N	10.6	20.5	60.0	

Final Measurement Detector 2

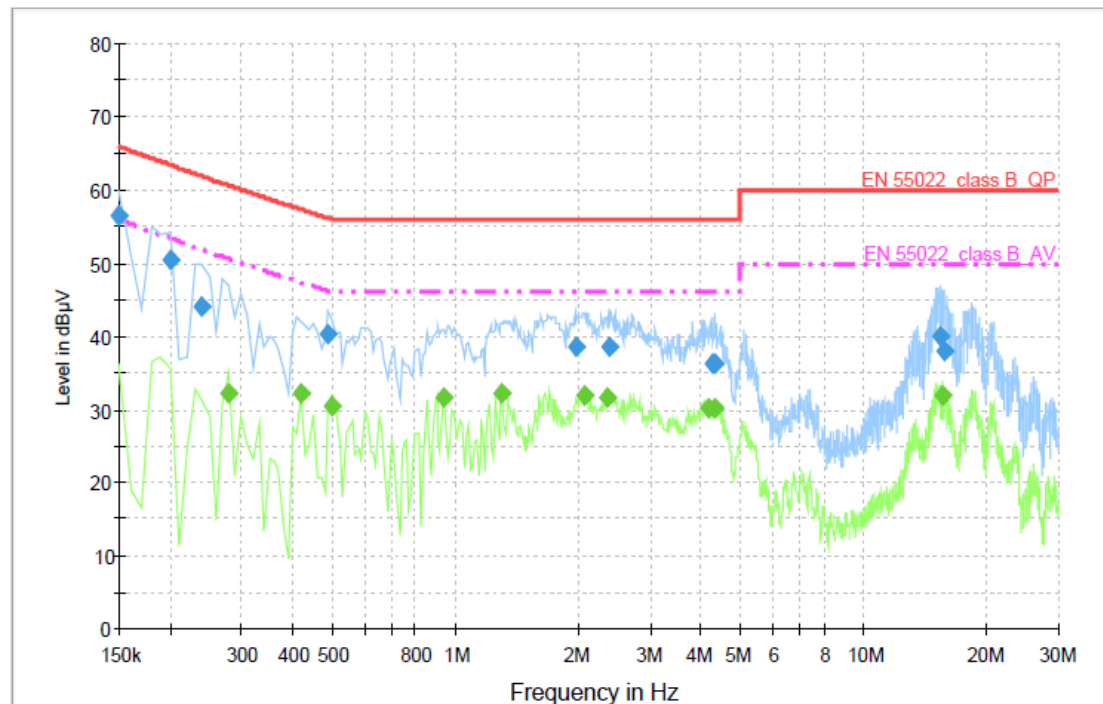
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.190000	37.0	1000.000	9.000	GND	N	10.0	16.9	53.9	
0.450000	31.3	1000.000	9.000	GND	N	10.0	15.5	46.8	
0.610000	24.0	1000.000	9.000	GND	N	10.0	22.0	46.0	
1.000000	26.1	1000.000	9.000	GND	N	10.1	19.9	46.0	
1.720000	29.8	1000.000	9.000	GND	N	10.1	16.2	46.0	
2.440000	30.3	1000.000	9.000	GND	N	10.1	15.7	46.0	
2.810000	30.2	1000.000	9.000	GND	N	10.1	15.8	46.0	
4.330000	27.5	1000.000	9.000	GND	N	10.2	18.5	46.0	
15.340000	32.8	1000.000	9.000	GND	N	10.6	17.2	50.0	
20.700000	29.8	1000.000	9.000	GND	N	10.8	20.2	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	56.4	1000.000	9.000	GND	L1	10.0	9.6	66.0	
0.200000	50.5	1000.000	9.000	GND	L1	10.0	13.0	63.5	
0.240000	44.2	1000.000	9.000	GND	L1	10.0	17.7	61.9	
0.490000	40.3	1000.000	9.000	GND	L1	10.0	16.0	56.2	
1.970000	38.5	1000.000	9.000	GND	L1	10.1	17.5	56.0	
2.380000	38.5	1000.000	9.000	GND	L1	10.1	17.5	56.0	
4.280000	36.4	1000.000	9.000	GND	L1	10.2	19.6	56.0	
4.320000	36.2	1000.000	9.000	GND	L1	10.2	19.8	56.0	
15.430000	40.0	1000.000	9.000	GND	L1	10.7	20.0	60.0	
15.860000	38.0	1000.000	9.000	GND	L1	10.8	22.0	60.0	

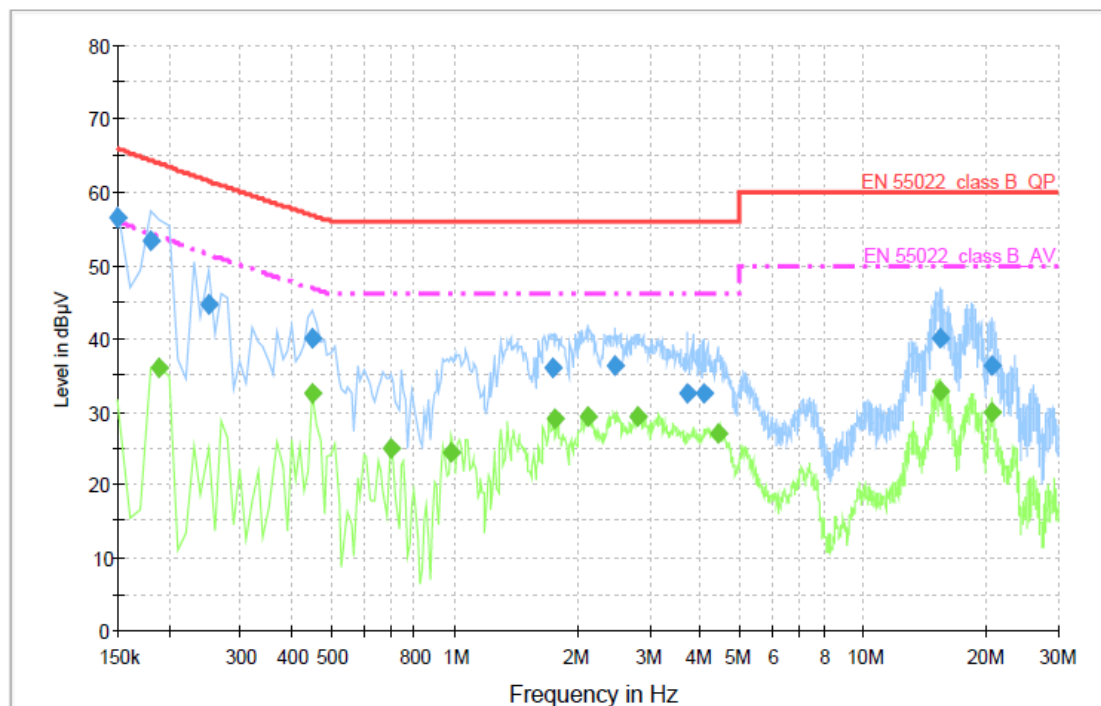
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.280000	32.2	1000.000	9.000	GND	L1	10.0	18.4	50.6	
0.420000	32.1	1000.000	9.000	GND	L1	10.0	15.2	47.3	
0.500000	30.4	1000.000	9.000	GND	L1	10.0	15.6	46.0	
0.940000	31.5	1000.000	9.000	GND	L1	10.0	14.5	46.0	
1.300000	32.2	1000.000	9.000	GND	L1	10.1	13.8	46.0	
2.070000	31.8	1000.000	9.000	GND	L1	10.1	14.2	46.0	
2.370000	31.7	1000.000	9.000	GND	L1	10.1	14.3	46.0	
4.150000	30.3	1000.000	9.000	GND	L1	10.2	15.7	46.0	
4.330000	30.2	1000.000	9.000	GND	L1	10.2	15.8	46.0	
15.550000	32.0	1000.000	9.000	GND	L1	10.7	18.0	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	56.6	1000.000	9.000	GND	N	10.0	9.4	66.0	
0.180000	53.3	1000.000	9.000	GND	N	10.0	11.1	64.4	
0.250000	44.5	1000.000	9.000	GND	N	10.0	17.1	61.6	
0.450000	40.0	1000.000	9.000	GND	N	10.0	16.8	56.8	
1.740000	35.9	1000.000	9.000	GND	N	10.1	20.1	56.0	
2.470000	36.3	1000.000	9.000	GND	N	10.1	19.7	56.0	
3.710000	32.4	1000.000	9.000	GND	N	10.2	23.6	56.0	
4.070000	32.6	1000.000	9.000	GND	N	10.2	23.4	56.0	
15.410000	39.9	1000.000	9.000	GND	N	10.6	20.1	60.0	
20.560000	36.2	1000.000	9.000	GND	N	10.8	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
0.190000	35.8	1000.000	9.000	GND	N	10.0	18.1	53.9	
0.450000	32.5	1000.000	9.000	GND	N	10.0	14.3	46.8	
0.700000	25.0	1000.000	9.000	GND	N	10.0	21.0	46.0	
0.980000	24.4	1000.000	9.000	GND	N	10.0	21.6	46.0	
1.750000	29.0	1000.000	9.000	GND	N	10.1	17.0	46.0	
2.110000	29.2	1000.000	9.000	GND	N	10.1	16.8	46.0	
2.810000	29.2	1000.000	9.000	GND	N	10.1	16.8	46.0	
4.430000	26.9	1000.000	9.000	GND	N	10.2	19.1	46.0	
15.400000	32.8	1000.000	9.000	GND	N	10.6	17.2	50.0	
20.550000	29.9	1000.000	9.000	GND	N	10.8	20.1	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 23 °C
Relative Humidity : 38 % 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(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

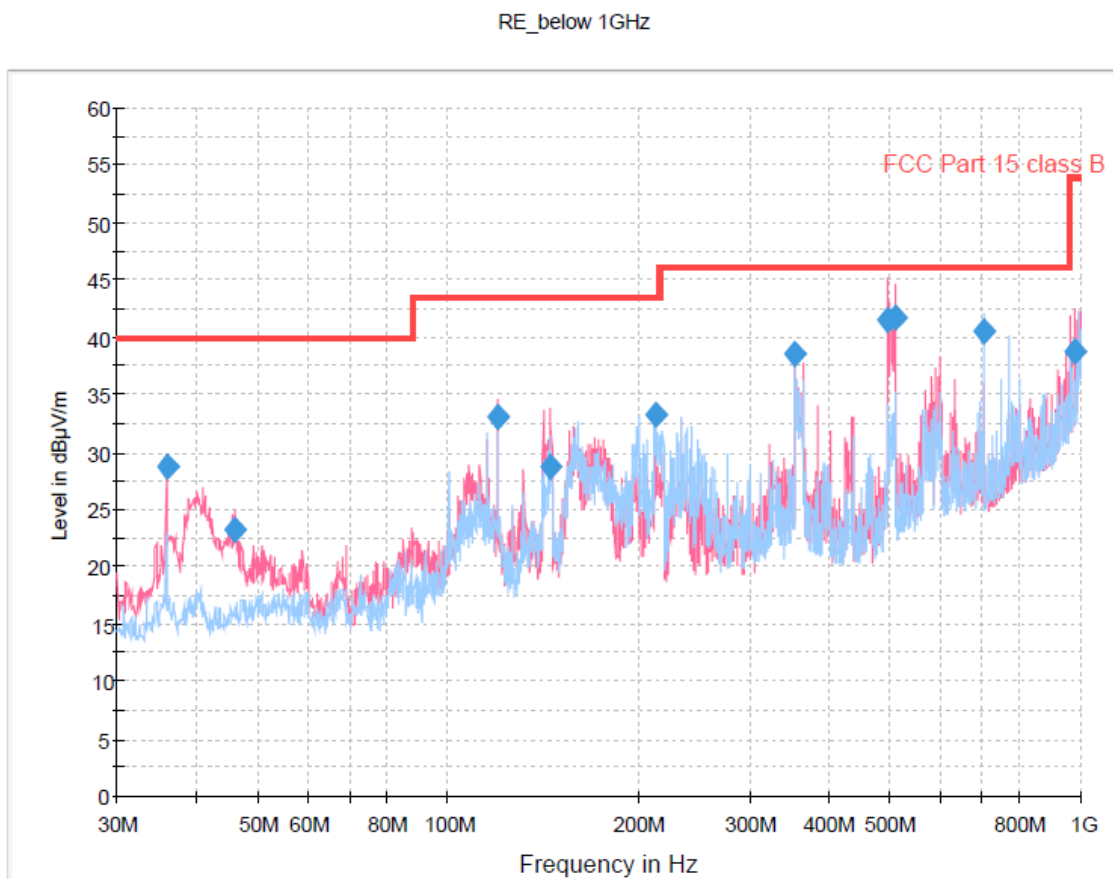
Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 11. 2010
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3193	03. 11. 2012
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 22. 2011
■ - MCU066	maturo GmbH	Position Controller	1390306	N/A
■ - TT2.5SI	maturo GmbH	Turntable	1390307	N/A
■ - AM 4.0	maturo GmbH	Antenna Mast	1390308	N/A
■ - AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 12. 2010

6.6 Test data for Radiated Emission

- . Test Date : May 14, 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: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Red trace: Vertical polarization, Blue trace: Horizontal polarization



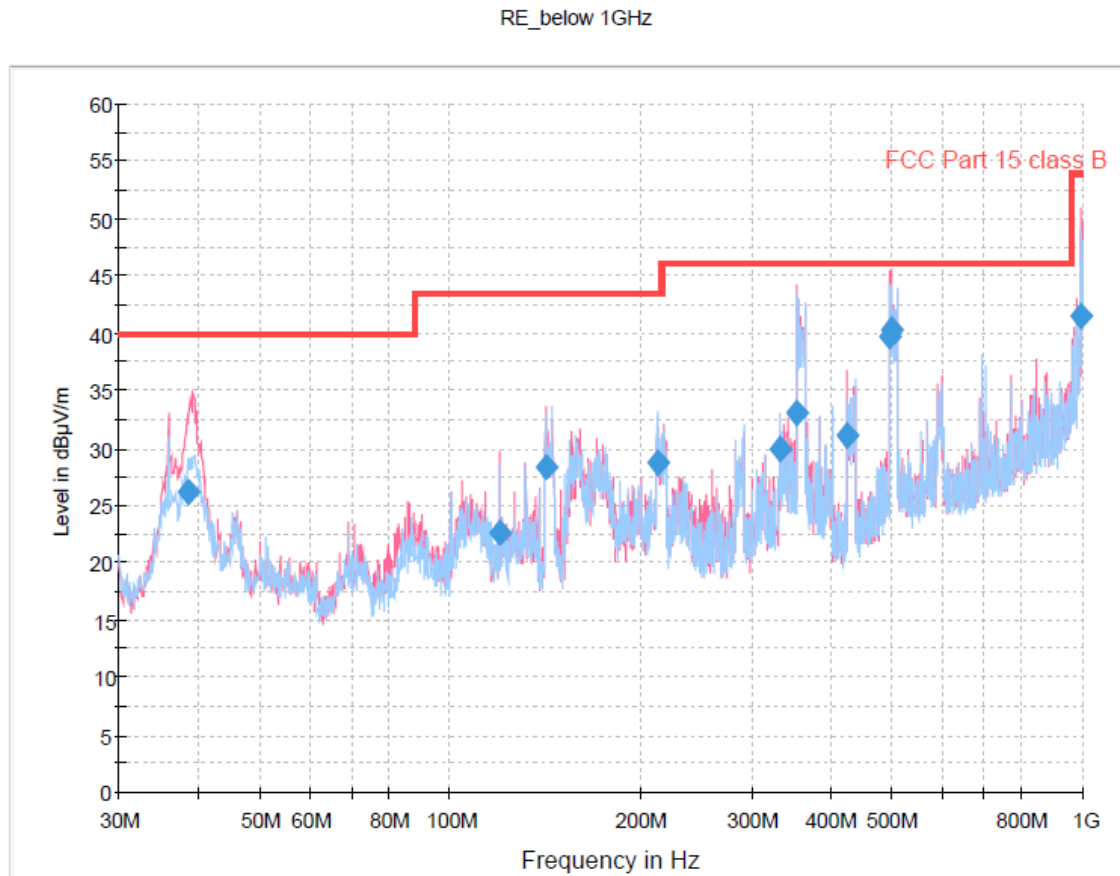
Final Result [1]

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
36.001250	28.6	1000.0	120.000	100.0	V	126.0	11.8	11.36	40.00
46.146250	23.2	1000.0	120.000	100.0	V	0.0	12.7	16.82	40.00
120.027500	33.0	1000.0	120.000	120.0	V	227.0	13.7	10.53	43.50
145.732500	28.8	1000.0	120.000	100.0	V	205.0	14.7	14.72	43.50
212.218750	33.3	1000.0	120.000	200.0	H	228.0	12.4	10.17	43.50
353.595000	38.6	1000.0	120.000	150.0	V	24.0	17.5	7.44	46.00
495.013750	41.5	1000.0	120.000	100.0	V	171.0	20.8	4.54	46.00
510.413750	41.7	1000.0	120.000	100.0	V	171.0	21.2	4.30	46.00
702.027500	40.6	1000.0	120.000	109.0	H	162.0	23.5	5.40	46.00
980.731250	38.8	1000.0	120.000	100.0	V	183.0	30.9	15.19	54.00

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



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



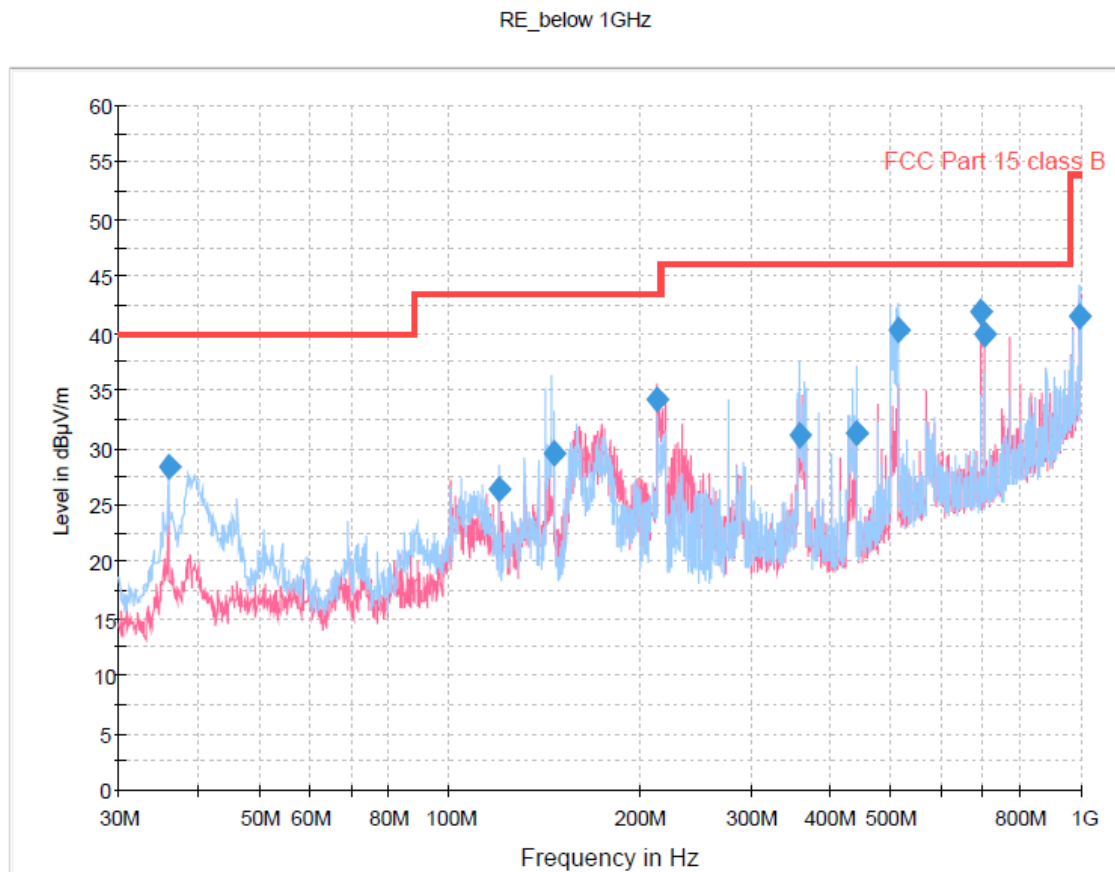
Final Result [1]

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
38.716250	26.2	1000.0	120.000	100.0	V	33.0	12.4	13.77	40.00
119.987500	22.6	1000.0	120.000	150.0	V	0.0	13.7	20.93	43.50
141.490000	28.2	1000.0	120.000	100.0	V	358.0	14.5	15.26	43.50
212.218750	28.7	1000.0	120.000	100.0	H	210.0	12.4	14.83	43.50
331.083750	29.9	1000.0	120.000	150.0	H	25.0	17.3	16.14	46.00
353.762500	33.0	1000.0	120.000	170.0	V	33.0	17.5	12.96	46.00
424.526250	31.1	1000.0	120.000	150.0	V	161.0	18.5	14.90	46.00
495.180000	39.8	1000.0	120.000	143.0	V	161.0	20.8	6.22	46.00
496.357500	40.3	1000.0	120.000	130.0	V	172.0	20.9	5.69	46.00
993.195000	41.5	1000.0	120.000	111.0	V	217.0	31.4	12.53	54.00

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



- ◆ Operating Condition: USB memory stick play mode
Red trace: Vertical polarization, Blue trace: Horizontal polarization



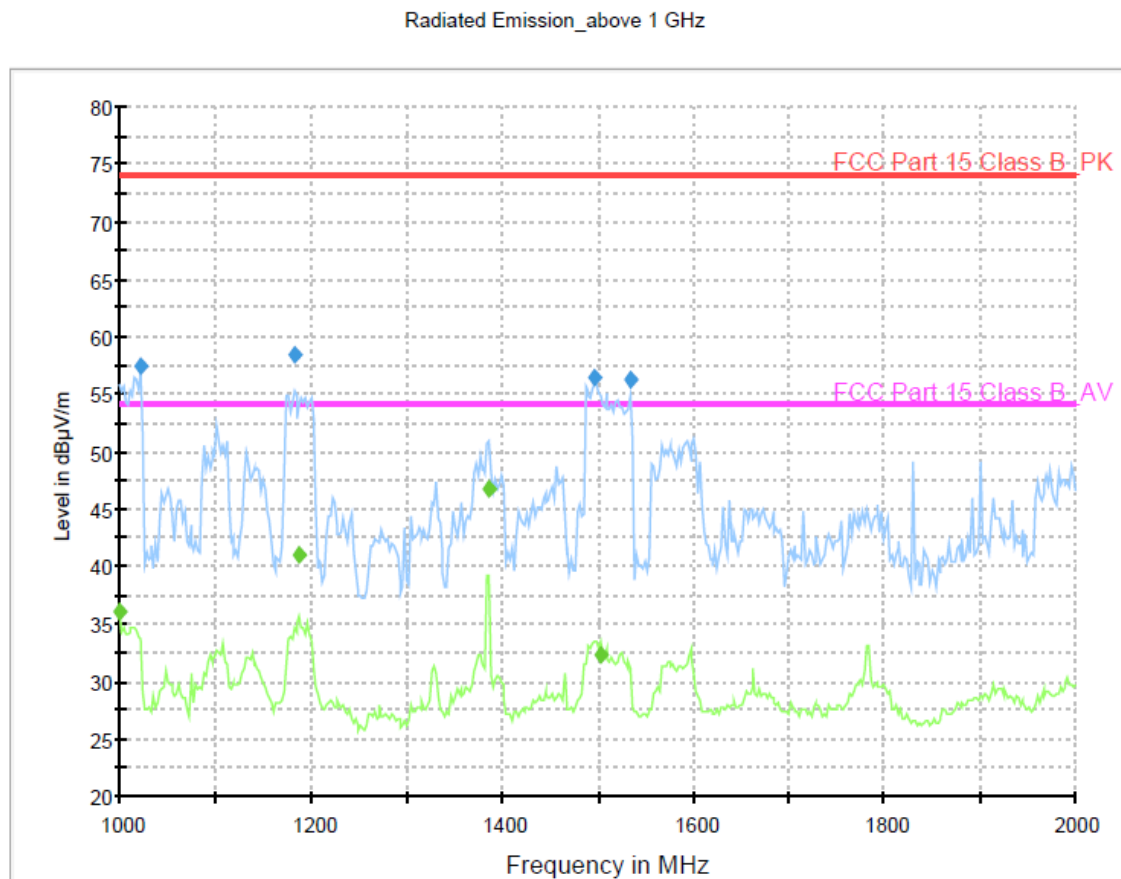
Final Result [1]

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
36.001250	28.4	1000.0	120.000	100.0	H	80.0	11.8	11.63	40.00
120.027500	26.4	1000.0	120.000	100.0	H	0.0	13.7	17.05	43.50
146.528750	29.4	1000.0	120.000	111.0	H	220.0	14.8	14.06	43.50
213.708750	34.3	1000.0	120.000	171.0	V	229.0	12.5	9.25	43.50
358.698750	31.0	1000.0	120.000	141.0	H	47.0	17.6	15.01	46.00
439.287500	31.3	1000.0	120.000	121.0	H	24.0	19.0	14.67	46.00
513.116250	40.3	1000.0	120.000	100.0	H	173.0	21.2	5.70	46.00
691.883750	42.0	1000.0	120.000	200.0	V	240.0	23.3	4.05	46.00
702.027500	40.0	1000.0	120.000	200.0	V	149.0	23.5	6.02	46.00
994.723750	41.5	1000.0	120.000	100.0	H	220.0	31.5	12.50	54.00

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



- ◆ Operating Condition: 1 920 × 1 080 / 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)
1023.044088	57.5	100.0	1000.000	113.0	V	168.0	-15.8	16.5	74.0
1183.764730	58.4	100.0	1000.000	173.0	H	231.0	-15.1	15.6	74.0
1496.797996	56.4	100.0	1000.000	100.0	V	231.0	-14.3	17.6	74.0
1534.870140	56.2	100.0	1000.000	100.0	V	225.0	-14.0	17.8	74.0

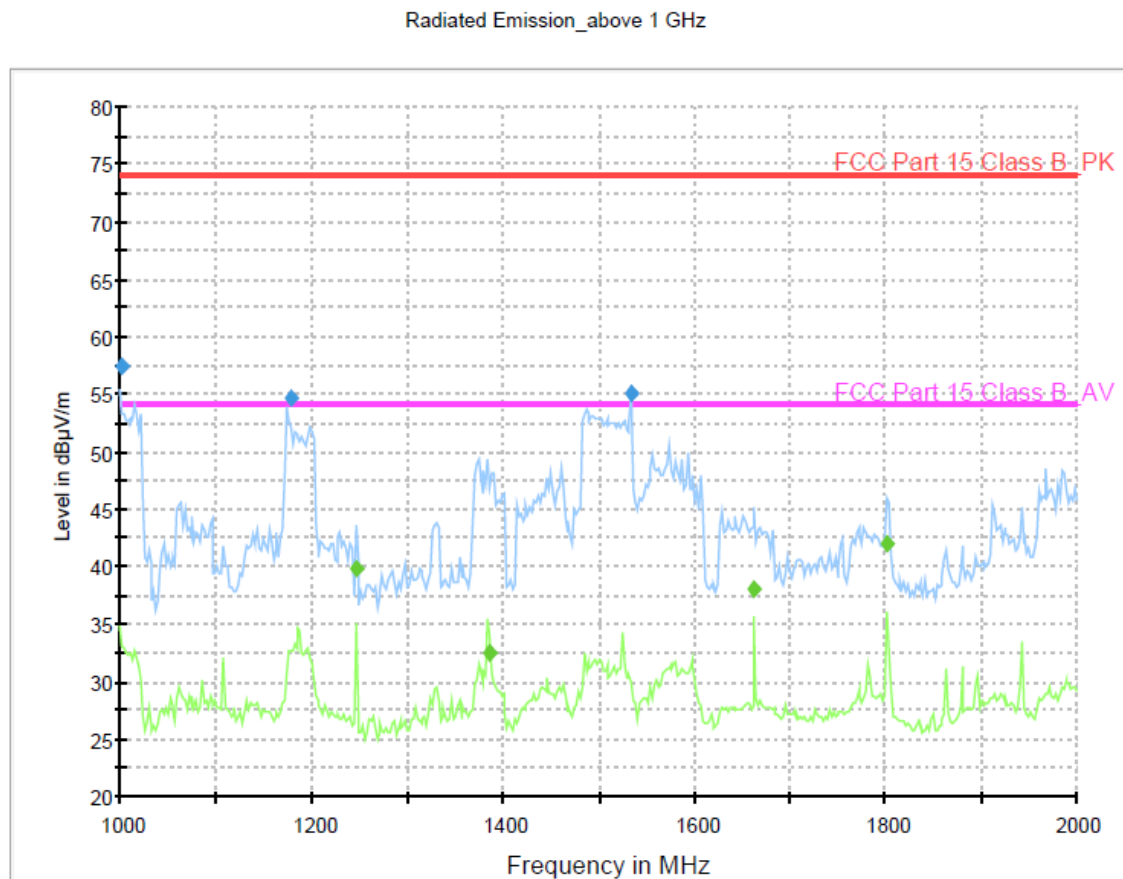
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1000.000000	36.0	100.0	1000.000	100.0	V	185.0	-15.9	18.0	54.0
1188.176754	41.1	100.0	1000.000	155.0	H	223.0	-15.1	12.9	54.0
1386.169539	46.7	100.0	1000.000	122.0	H	146.0	-14.4	7.3	54.0
1503.606012	32.3	100.0	1000.000	100.0	V	155.0	-14.2	21.7	54.0

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



- ◆ Operating Condition: 1 920 × 1 080 / 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)
1001.200000	57.5	100.0	1000.000	113.0	V	180.0	-15.9	16.5	74.0
1178.548697	54.7	100.0	1000.000	139.0	V	166.0	-15.1	19.3	74.0
1534.470140	55.0	100.0	1000.000	100.0	V	227.0	-14.0	19.0	74.0

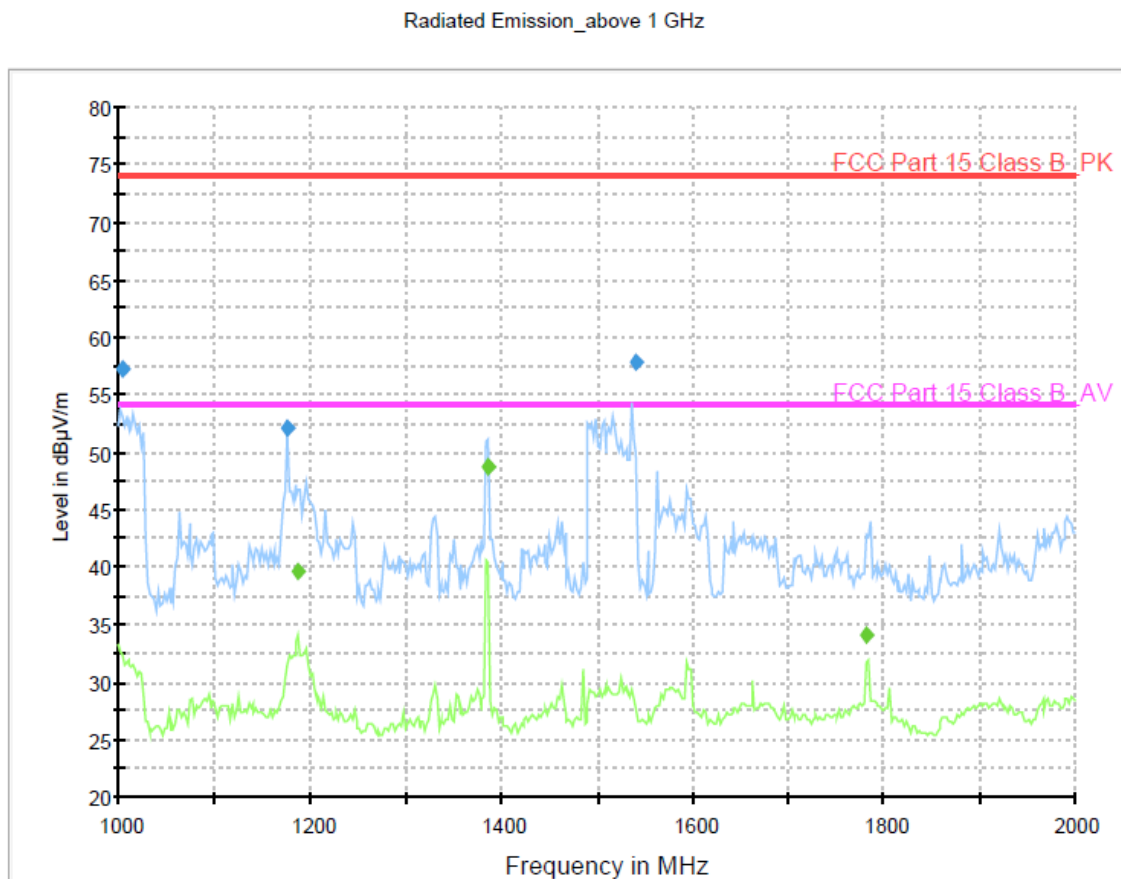
Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1247.492986	39.8	100.0	1000.000	100.0	H	114.0	-14.7	14.2	54.0
1386.169539	32.5	100.0	1000.000	130.0	H	122.0	-14.4	21.5	54.0
1663.126653	37.9	100.0	1000.000	100.0	H	137.0	-13.6	16.1	54.0
1801.803206	41.9	100.0	1000.000	100.0	H	166.0	-13.1	12.1	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)
1004.400000	57.2	100.0	1000.000	100.0	V	173.0	-15.9	16.8	74.0
1177.352705	52.1	100.0	1000.000	100.0	V	166.0	-15.1	21.9	74.0
1540.074148	57.8	100.0	1000.000	100.0	V	226.0	-14.0	16.2	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)
1188.176754	39.7	100.0	1000.000	123.0	H	134.0	-15.1	14.3	54.0
1386.169539	48.7	100.0	1000.000	100.0	H	195.0	-14.4	5.3	54.0
1782.167134	34.0	100.0	1000.000	121.0	V	159.0	-13.2	20.0	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: M2380DFM, M2380DM)** complies with §15.107 and 15.109 of the FCC Rules.