

FCC EVALUATION REPORT FOR CERTIFICATION

Applicant : LG Electronics Inc.

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

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Sang-Wook Lee, Chief research engineer

Date of Issue : December 17, 2009

Order Number: GETEC-C1-09-258

Test Report Number: GETEC-E3-09-153

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJ55LD650UA

Applicant: LG Electronics Inc.

Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: LCD TV/Monitor
Type of Authority	: Certification
Model Name	: 55LD650-UA
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,



Hyoung Seop Kim, Associate 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. Sang-Wook Lee, Chief research engineer

Tel. Number: +82-31-610-9623

- **FCC ID.** BEJ55LD650UA
- **EUT Type** LCD TV/Monitor
- **Model Name** 55LD650-UA
- **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** December 9, 2009
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-09-153
- **Dates of Issue** December 17, 2009



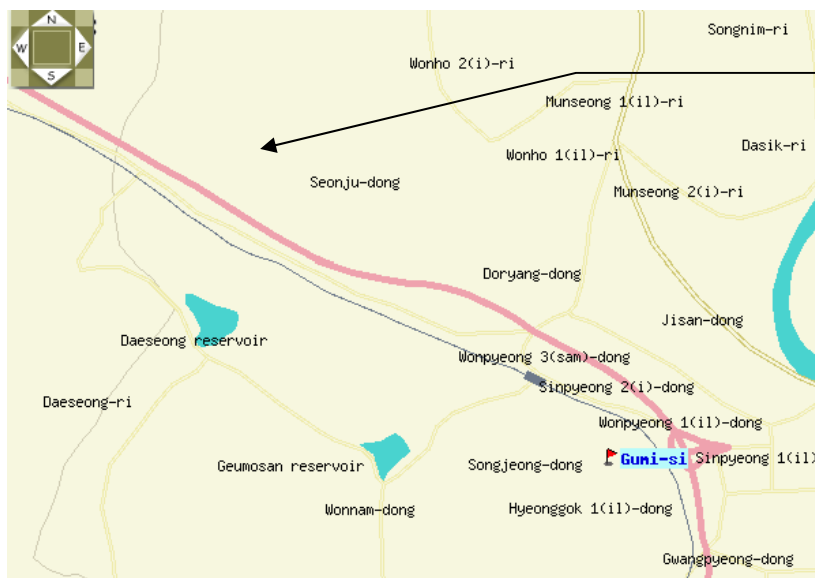
2. Introduction

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 TV/Monitor (Model Name: 55LD650-UA)**

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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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 TV/Monitor (Model Name: 55LD650-UA) FCC ID.: BEJ55LD650UA**

MODELS		47LD650 (47LD650-UA)	55LD650 (55LD650-UA)
Dimensions (Width x Height x Depth)	With stand	44.7 x 29.8 x 10.6 inches 1137.0 x 758.0 x 270.0 mm	52.3 x 34.3 x 12.9 inches 1329.0 x 872.0 x 330.0 mm
	Without stand	44.7 x 26.9 x 3.0 inches 1137.0 x 685.0 x 76.8 mm	52.3 x 31.3 x 3.7 inches 1329.0 x 796.0 x 96.5 mm
Weight	With stand	44.7 lbs / 20.3 kg	70.7 lbs / 32.1 kg
	Without stand	40.3 lbs / 18.3 kg	63.7 lbs / 28.9 kg
Power requirement		AC100-240V ~ 50/60Hz	
Television System		NTSC-M, ATSC, 64 & 256 QAM	
Program Coverage		VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135	
External Antenna Impedance		75 ohm	
Environment condition	Operating Temperature	32 ~ 104°F (0 ~ 40°C)	
	Operating Humidity	Less than 80%	
	Storage Temperature	-4 ~ 140°F (-20 ~ 60°C)	
	Storage Humidity	Less than 85%	

Maximum Frequency range : 667 MHz



3.2 Support Equipment / Cables used

3.2.1 Used Support Equipment

Description	Manufacturer	Model Name	S/N & FCC ID
PC	Hewlett Packard	D530	S/N: CNG34800PY FCC ID: DoC
Video card	ATI	ARI RV360(9600)	S/N: SN0402017176 FCC ID: DoC
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
Headset	GOWOONSORI	GW-500M	S/N: N/A FCC ID: DoC
Printer	Hewlett Packard	970CXI	S/N: MY9B01F1FG FCC ID: DoC
TV signal generator	FLUKE	54200	S/N: 831011 FCC ID: DoC
USB memory stick	SM Electronics	UDD-32M	S/N: N/A FCC ID: DoC
Wireless Ready Dongle	LG Electronics Inc.	-	S/N: N/A FCC ID: -

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



3.2.2 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.8 m unshielded
Video(RGB) input cable	Connected to the EUT and PC	1.8 m shielded with two ferrite cores
Video(HDMI/DVI) input cable	Connected to the EUT and PC	1.95 m shielded
Audio input cable	Connected to the EUT and PC	1.8 m shielded
RS-232C (Service only)	Connected to the EUT and PC	1.2 m shielded with two ferrite cores
Wireless control cable	Connected to the EUT and Wireless Ready Dongle	0.25 m shielded
Component input cable	Connected to the EUT and DVD Player	2.0 m shielded
Component sound input cable	Connected to the EUT and DVD Player	3.0 m shielded
AV input cable	Connected to the EUT and DVD Player	3.0 m shielded
Headset cable	Connected to the EUT	2.75 m shielded
Antenna cable	Connected to the EUT and TV signal generator	10.0 m shielded
LAN cable	Connected to the EUT and Network	10.0 m unshielded

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), 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital)

Conducted emission: 1 920 * 1 080 / 60 Hz (RGB: Analog), 1 920 * 1 080 / 60 Hz (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
- . Network connecting

- . **USB memory stick play mode**

◆ Operating test pattern

- . Continuous playback mode with Picture file and 1 kHz audio file.

"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

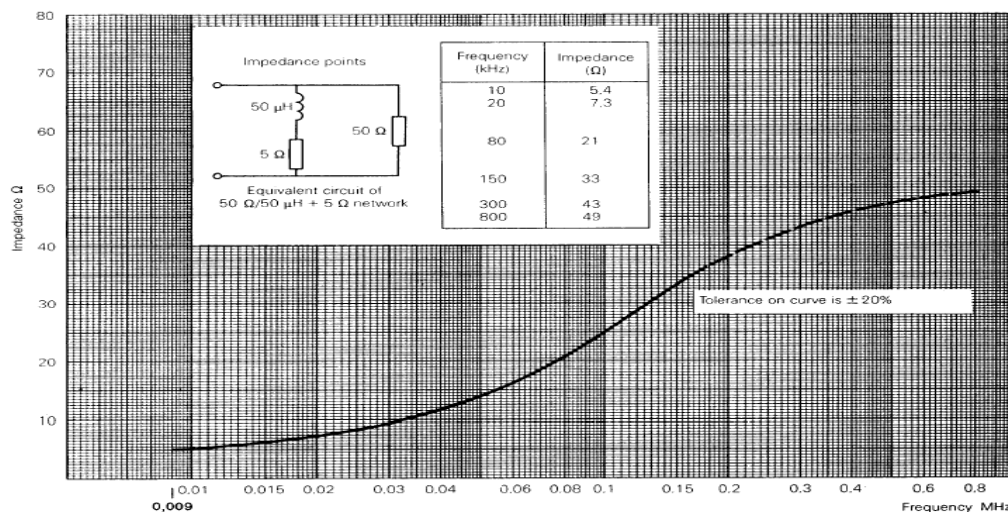


Fig 2. Impedance of LISN



4.3 Radiated Emission

The measurements were conducted 3 m anechoic chamber (FCC Registration No.: 443957) 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.

The spectrum was scanned from 30 to 1000 MHz, using bicornical log antenna (Schwarzbeck, VULB9160).

Above 1 GHz, horn antenna (Schwarzbeck, BBHA9120D / EMCO 3160) was used.

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 1MHz 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 m to 4 m and stopped at the azimuth or height producing the maximum emission.

Each EME reported was calibrated using the R/S signal generator

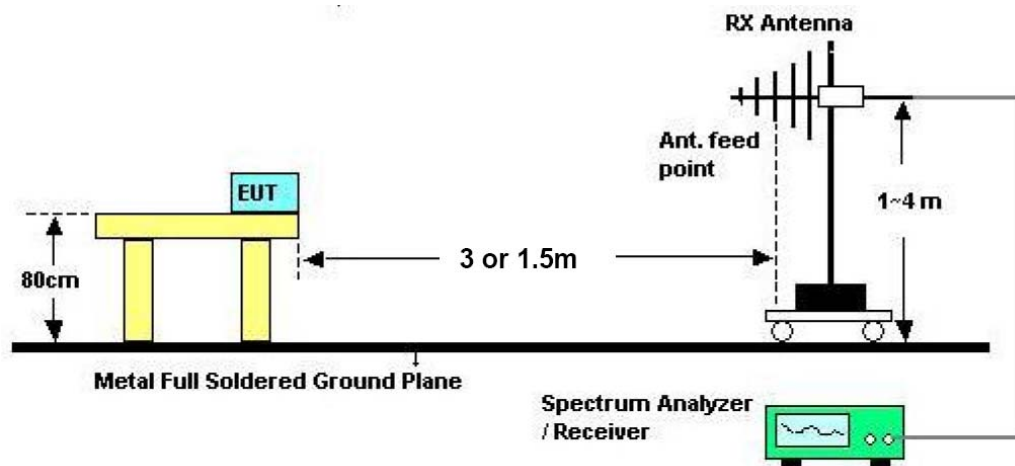


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 26 °C
Relative Humidity : 42 % 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) 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

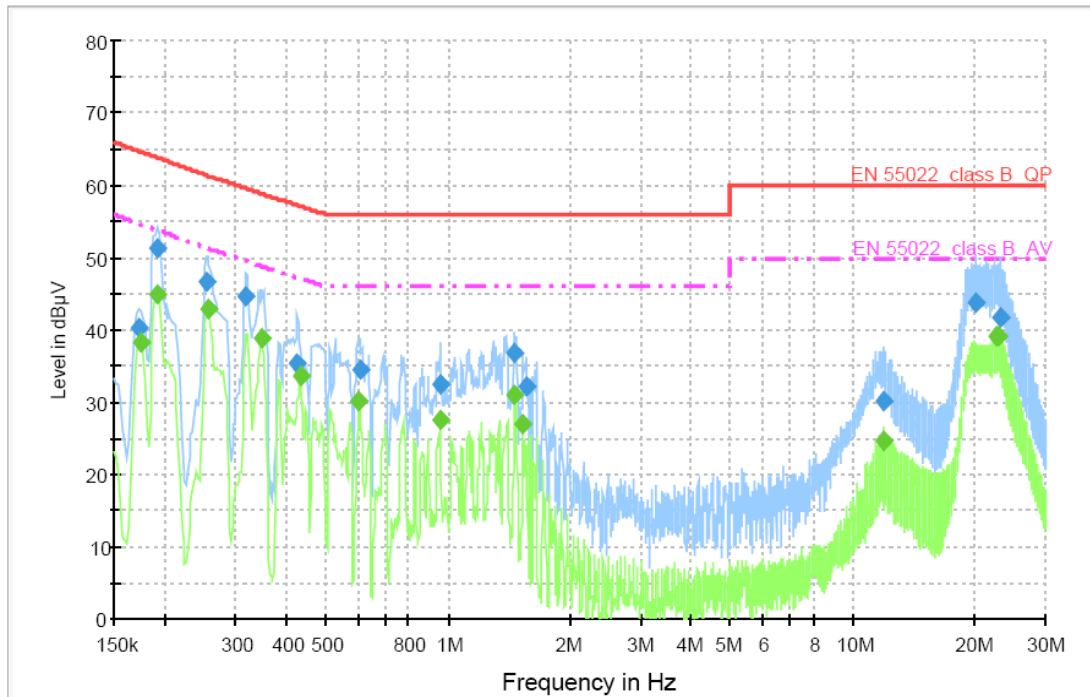
Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESCS30	Rohde & Schwarz	EMI test receiver	839809/003	12. 13. 2009
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 12. 2009
■ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 12. 2009
■ - ISN T8	TESEQ. GmbH	ISN	24568	10. 16. 2010

5.6 Test data for Conducted Emission

- . Test Date : December 9, 2009
- . Resolution Bandwidth : 9 kHz
- . Frequency Range : 0.15 MHz ~ 30 MHz



◆ Test resolution: 1 920 * 1 080 / 60 Hz (RGB: Analog 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
0.172000	40.4	1000.000	9.000	GND	L1	10.0	24.4	64.8	
0.192000	51.4	1000.000	9.000	GND	L1	10.0	12.4	63.8	
0.254000	46.7	1000.000	9.000	GND	L1	10.0	14.8	61.4	
0.318000	44.6	1000.000	9.000	GND	L1	10.0	15.0	59.6	
0.426000	35.5	1000.000	9.000	GND	L1	10.0	21.7	57.2	
0.608000	34.5	1000.000	9.000	GND	L1	10.0	21.5	56.0	
0.958000	32.4	1000.000	9.000	GND	L1	10.0	23.6	56.0	
1.466000	36.8	1000.000	9.000	GND	L1	10.1	19.2	56.0	
1.560000	32.2	1000.000	9.000	GND	L1	10.1	23.8	56.0	
11.936000	30.1	1000.000	9.000	GND	L1	10.4	29.9	60.0	
20.270000	43.8	1000.000	9.000	GND	L1	10.8	16.2	60.0	
23.162000	41.7	1000.000	9.000	GND	L1	10.9	18.3	60.0	

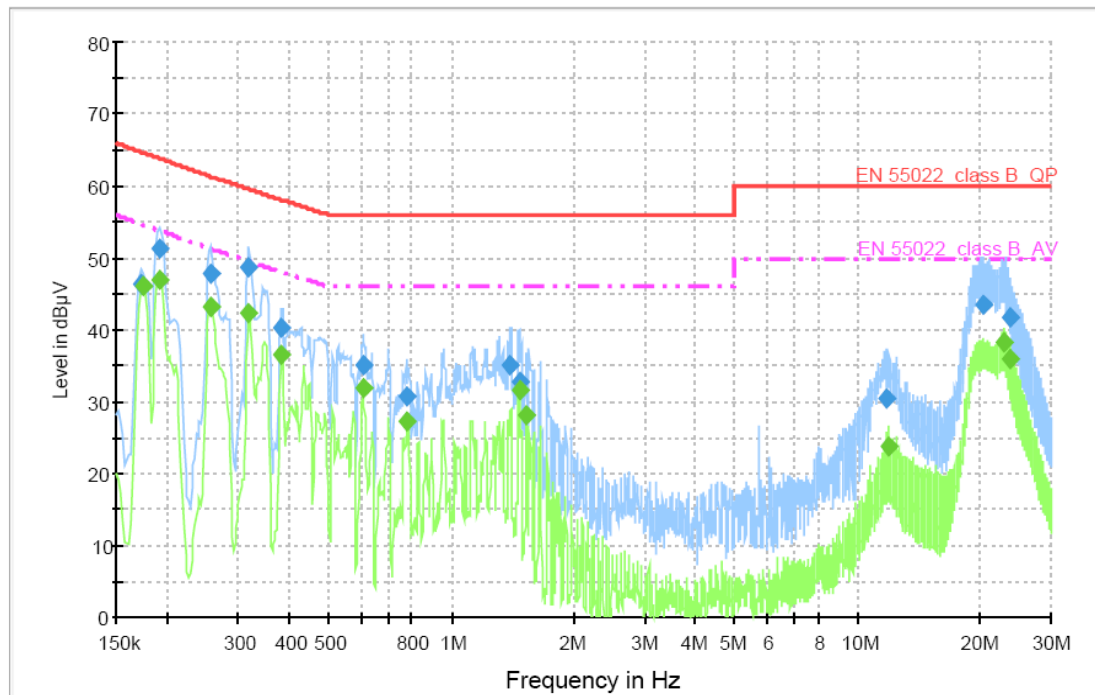
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.174000	38.3	1000.000	9.000	GND	L1	10.0	16.4	54.7	
0.192000	45.0	1000.000	9.000	GND	L1	10.0	8.8	53.8	
0.256000	42.8	1000.000	9.000	GND	L1	10.0	8.5	51.3	
0.346000	38.9	1000.000	9.000	GND	L1	10.0	10.0	48.9	
0.432000	33.7	1000.000	9.000	GND	L1	10.0	13.4	47.1	
0.604000	30.0	1000.000	9.000	GND	L1	10.0	16.0	46.0	
0.958000	27.7	1000.000	9.000	GND	L1	10.0	18.3	46.0	
1.466000	30.9	1000.000	9.000	GND	L1	10.1	15.1	46.0	
1.534000	27.0	1000.000	9.000	GND	L1	10.1	19.0	46.0	
11.934000	24.7	1000.000	9.000	GND	L1	10.4	25.3	50.0	
22.784000	39.2	1000.000	9.000	GND	L1	10.9	10.8	50.0	
22.916000	39.2	1000.000	9.000	GND	L1	10.9	10.8	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
0.172000	46.4	1000.000	9.000	GND	N	10.0	18.4	64.8	
0.192000	51.2	1000.000	9.000	GND	N	10.0	12.6	63.8	
0.256000	47.9	1000.000	9.000	GND	N	10.0	13.5	61.4	
0.318000	48.6	1000.000	9.000	GND	N	10.0	11.0	59.6	
0.382000	40.4	1000.000	9.000	GND	N	10.0	17.7	58.1	
0.608000	34.9	1000.000	9.000	GND	N	10.0	21.1	56.0	
0.776000	30.8	1000.000	9.000	GND	N	10.0	25.2	56.0	
1.400000	35.2	1000.000	9.000	GND	N	10.1	20.8	56.0	
1.480000	32.9	1000.000	9.000	GND	N	10.1	23.1	56.0	
11.808000	30.4	1000.000	9.000	GND	N	10.4	29.6	60.0	
20.330000	43.5	1000.000	9.000	GND	N	10.7	16.5	60.0	
23.812000	41.8	1000.000	9.000	GND	N	10.8	18.2	60.0	

Final Measurement Detector 2

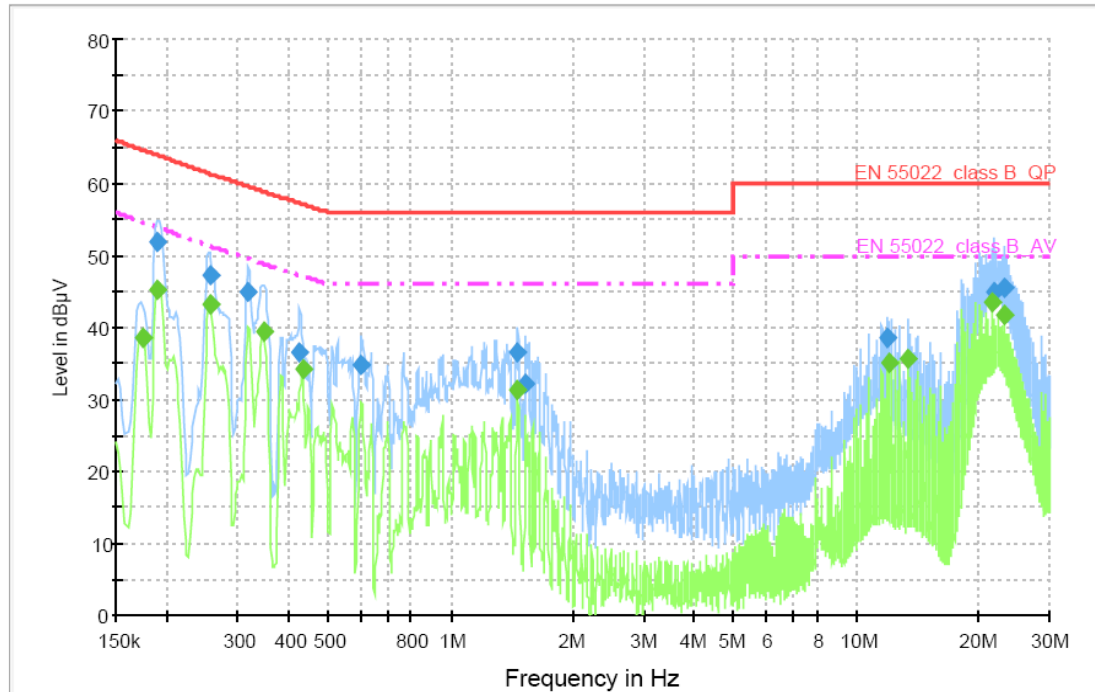
Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.174000	46.2	1000.000	9.000	GND	N	10.0	8.5	54.7	
0.192000	47.0	1000.000	9.000	GND	N	10.0	6.8	53.8	
0.256000	43.1	1000.000	9.000	GND	N	10.0	8.2	51.3	
0.318000	42.2	1000.000	9.000	GND	N	10.0	7.3	49.5	
0.382000	36.4	1000.000	9.000	GND	N	10.0	11.7	48.1	
0.608000	31.8	1000.000	9.000	GND	N	10.0	14.2	46.0	
0.778000	27.2	1000.000	9.000	GND	N	10.0	18.8	46.0	
1.470000	31.7	1000.000	9.000	GND	N	10.1	14.3	46.0	
1.532000	28.0	1000.000	9.000	GND	N	10.1	18.0	46.0	
11.998000	23.8	1000.000	9.000	GND	N	10.4	26.2	50.0	
22.916000	38.4	1000.000	9.000	GND	N	10.8	11.6	50.0	
23.804000	36.0	1000.000	9.000	GND	N	10.8	14.0	50.0	

< Fig 5. Conducted emission result (Neutral line)>



◆ Test resolution: 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital 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
0.190000	51.8	1000.000	9.000	GND	L1	10.0	12.1	63.9	
0.256000	47.2	1000.000	9.000	GND	L1	10.0	14.2	61.4	
0.318000	45.0	1000.000	9.000	GND	L1	10.0	14.6	59.6	
0.426000	36.4	1000.000	9.000	GND	L1	10.0	20.8	57.2	
0.604000	34.7	1000.000	9.000	GND	L1	10.0	21.3	56.0	
1.468000	36.6	1000.000	9.000	GND	L1	10.1	19.4	56.0	
1.534000	32.1	1000.000	9.000	GND	L1	10.1	24.0	56.0	
11.892000	38.4	1000.000	9.000	GND	L1	10.4	21.6	60.0	
21.910000	44.9	1000.000	9.000	GND	L1	10.9	15.1	60.0	
23.130000	45.6	1000.000	9.000	GND	L1	10.9	14.4	60.0	

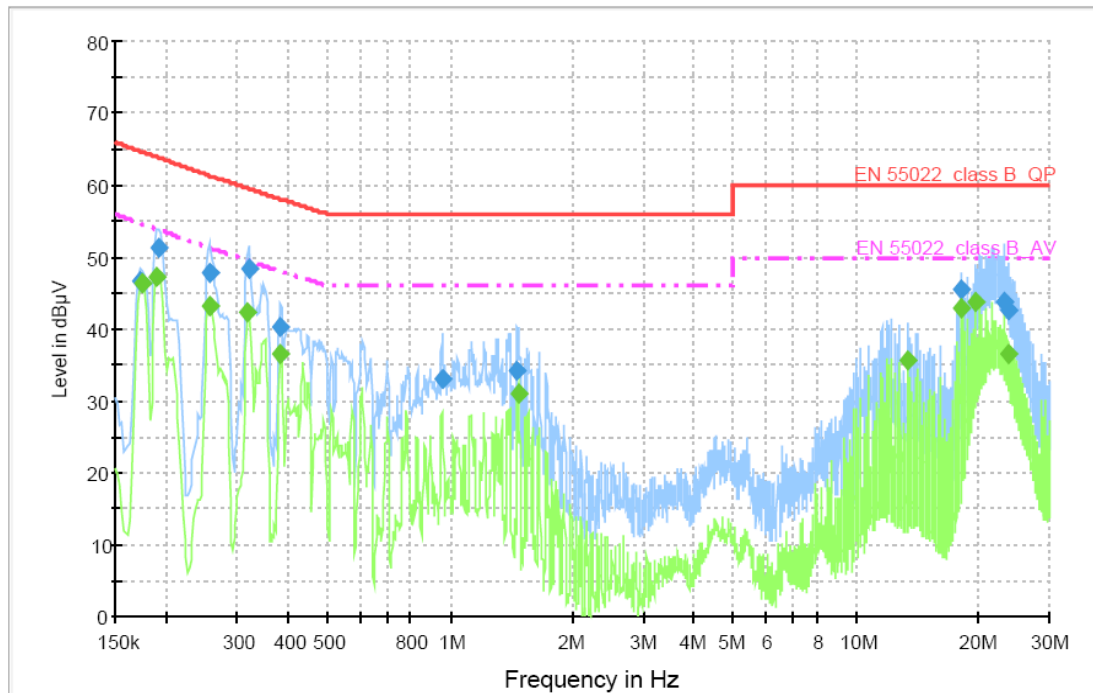
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.174000	38.6	1000.000	9.000	GND	L1	10.0	16.1	54.7	
0.190000	45.2	1000.000	9.000	GND	L1	10.0	8.7	53.9	
0.256000	43.2	1000.000	9.000	GND	L1	10.0	8.1	51.3	
0.346000	39.5	1000.000	9.000	GND	L1	10.0	9.4	48.9	
0.432000	34.2	1000.000	9.000	GND	L1	10.0	12.9	47.1	
1.468000	31.3	1000.000	9.000	GND	L1	10.1	14.7	46.0	
12.136000	35.0	1000.000	9.000	GND	L1	10.4	15.0	50.0	
13.418000	35.6	1000.000	9.000	GND	L1	10.5	14.4	50.0	
21.662000	43.4	1000.000	9.000	GND	L1	10.9	6.6	50.0	
23.130000	41.7	1000.000	9.000	GND	L1	10.9	8.3	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
0.172000	46.5	1000.000	9.000	GND	N	10.0	18.3	64.8	
0.192000	51.4	1000.000	9.000	GND	N	10.0	12.4	63.8	
0.256000	47.9	1000.000	9.000	GND	N	10.0	13.5	61.4	
0.320000	48.5	1000.000	9.000	GND	N	10.0	11.0	59.5	
0.382000	40.4	1000.000	9.000	GND	N	10.0	17.7	58.1	
0.958000	33.1	1000.000	9.000	GND	N	10.0	22.9	56.0	
1.468000	34.1	1000.000	9.000	GND	N	10.1	21.9	56.0	
18.242000	45.5	1000.000	9.000	GND	N	10.6	14.5	60.0	
23.110000	43.7	1000.000	9.000	GND	N	10.8	16.3	60.0	
23.810000	42.7	1000.000	9.000	GND	N	10.8	17.3	60.0	

Final Measurement Detector 2

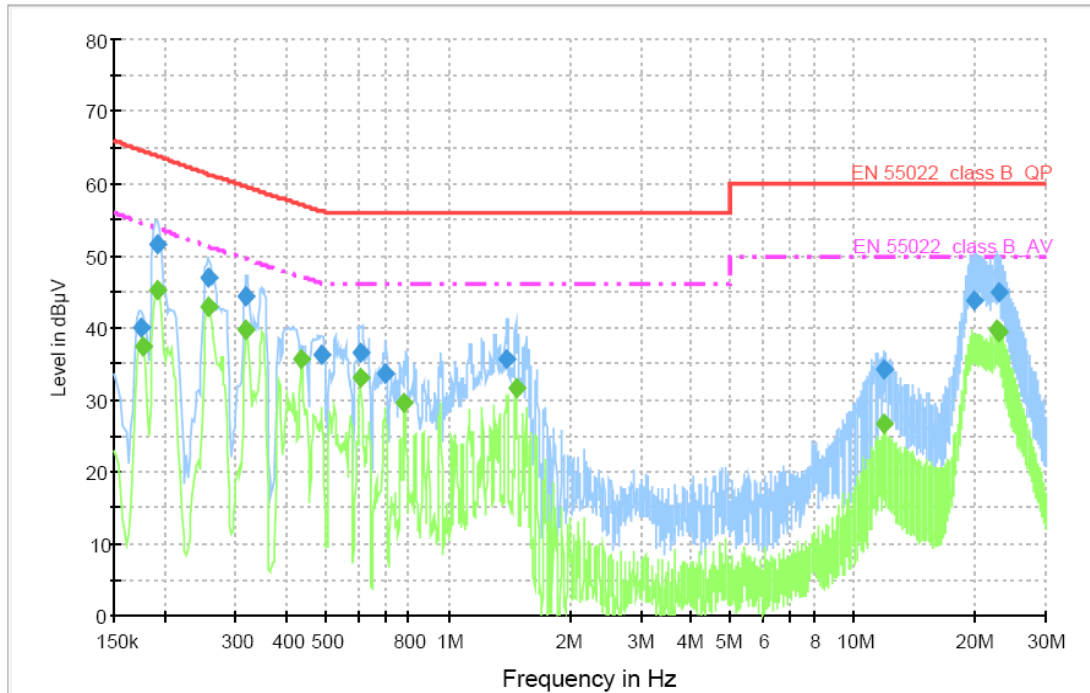
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.174000	46.3	1000.000	9.000	GND	N	10.0	8.4	54.7	
0.190000	47.1	1000.000	9.000	GND	N	10.0	6.8	53.9	
0.258000	43.3	1000.000	9.000	GND	N	10.0	8.0	51.3	
0.318000	42.3	1000.000	9.000	GND	N	10.0	7.2	49.5	
0.382000	36.5	1000.000	9.000	GND	N	10.0	11.6	48.1	
1.472000	31.1	1000.000	9.000	GND	N	10.1	14.9	46.0	
13.418000	35.8	1000.000	9.000	GND	N	10.5	14.2	50.0	
18.242000	42.9	1000.000	9.000	GND	N	10.6	7.1	50.0	
19.708000	43.7	1000.000	9.000	GND	N	10.7	6.3	50.0	
23.874000	36.5	1000.000	9.000	GND	N	10.8	13.5	50.0	

< Fig 7. Conducted emission result (Neutral line)>



◆ Test resolution: 1 024 * 768 / 60 Hz (RGB: Analog 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
0.174000	40.0	1000.000	9.000	GND	L1	10.0	24.7	64.7	
0.192000	51.7	1000.000	9.000	GND	L1	10.0	12.2	63.8	
0.256000	46.8	1000.000	9.000	GND	L1	10.0	14.6	61.4	
0.318000	44.5	1000.000	9.000	GND	L1	10.0	15.2	59.6	
0.488000	36.4	1000.000	9.000	GND	L1	10.0	19.8	56.2	
0.610000	36.5	1000.000	9.000	GND	L1	10.0	19.5	56.0	
0.704000	33.6	1000.000	9.000	GND	L1	10.0	22.4	56.0	
1.400000	35.5	1000.000	9.000	GND	L1	10.1	20.5	56.0	
11.872000	34.3	1000.000	9.000	GND	L1	10.4	25.7	60.0	
19.876000	43.9	1000.000	9.000	GND	L1	10.8	16.1	60.0	
22.980000	44.8	1000.000	9.000	GND	L1	10.9	15.2	60.0	

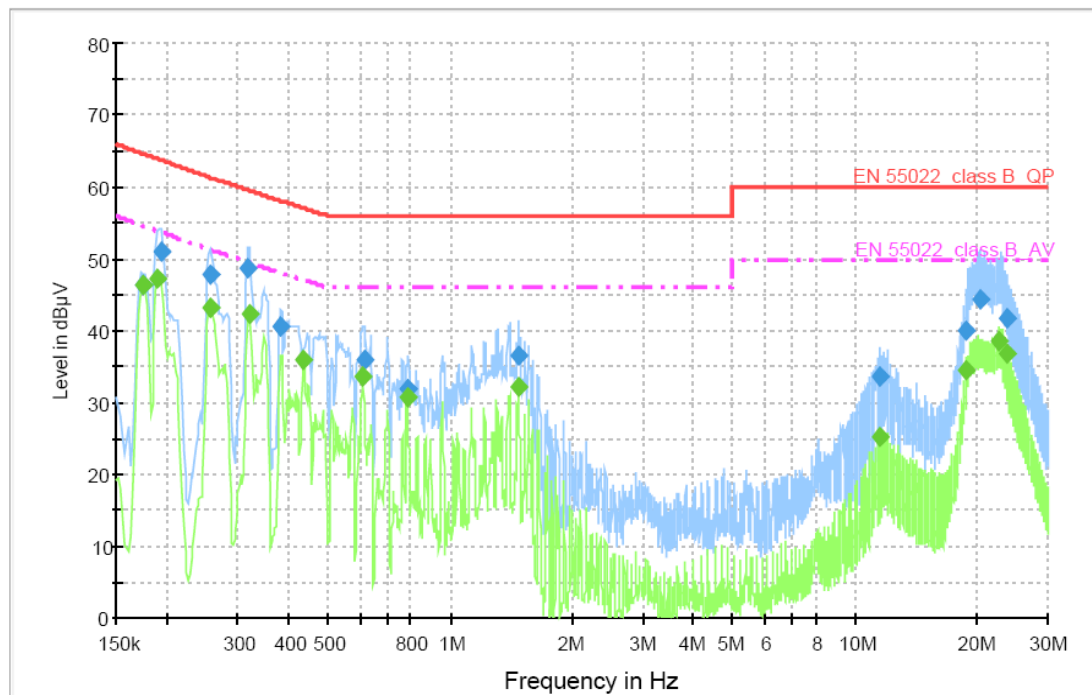
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.176000	37.5	1000.000	9.000	GND	L1	10.0	17.1	54.6	
0.192000	45.4	1000.000	9.000	GND	L1	10.0	8.4	53.8	
0.256000	42.9	1000.000	9.000	GND	L1	10.0	8.4	51.3	
0.318000	39.6	1000.000	9.000	GND	L1	10.0	9.9	49.5	
0.436000	35.6	1000.000	9.000	GND	L1	10.0	11.4	47.0	
0.610000	33.0	1000.000	9.000	GND	L1	10.0	13.0	46.0	
0.782000	29.7	1000.000	9.000	GND	L1	10.0	16.3	46.0	
1.476000	31.6	1000.000	9.000	GND	L1	10.1	14.4	46.0	
11.872000	26.6	1000.000	9.000	GND	L1	10.4	23.4	50.0	
22.786000	39.8	1000.000	9.000	GND	L1	10.9	10.2	50.0	
22.974000	39.5	1000.000	9.000	GND	L1	10.9	10.5	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
0.174000	46.5	1000.000	9.000	GND	N	10.0	18.2	64.7	
0.194000	50.9	1000.000	9.000	GND	N	10.0	12.8	63.7	
0.258000	47.8	1000.000	9.000	GND	N	10.0	13.5	61.3	
0.318000	48.8	1000.000	9.000	GND	N	10.0	10.8	59.6	
0.382000	40.6	1000.000	9.000	GND	N	10.0	17.5	58.1	
0.614000	35.8	1000.000	9.000	GND	N	10.0	20.2	56.0	
0.790000	31.8	1000.000	9.000	GND	N	10.0	24.2	56.0	
1.476000	36.5	1000.000	9.000	GND	N	10.1	19.5	56.0	
11.550000	33.7	1000.000	9.000	GND	N	10.4	26.3	60.0	
18.864000	40.0	1000.000	9.000	GND	N	10.6	20.0	60.0	
20.440000	44.2	1000.000	9.000	GND	N	10.7	15.8	60.0	
23.866000	41.7	1000.000	9.000	GND	N	10.8	18.3	60.0	

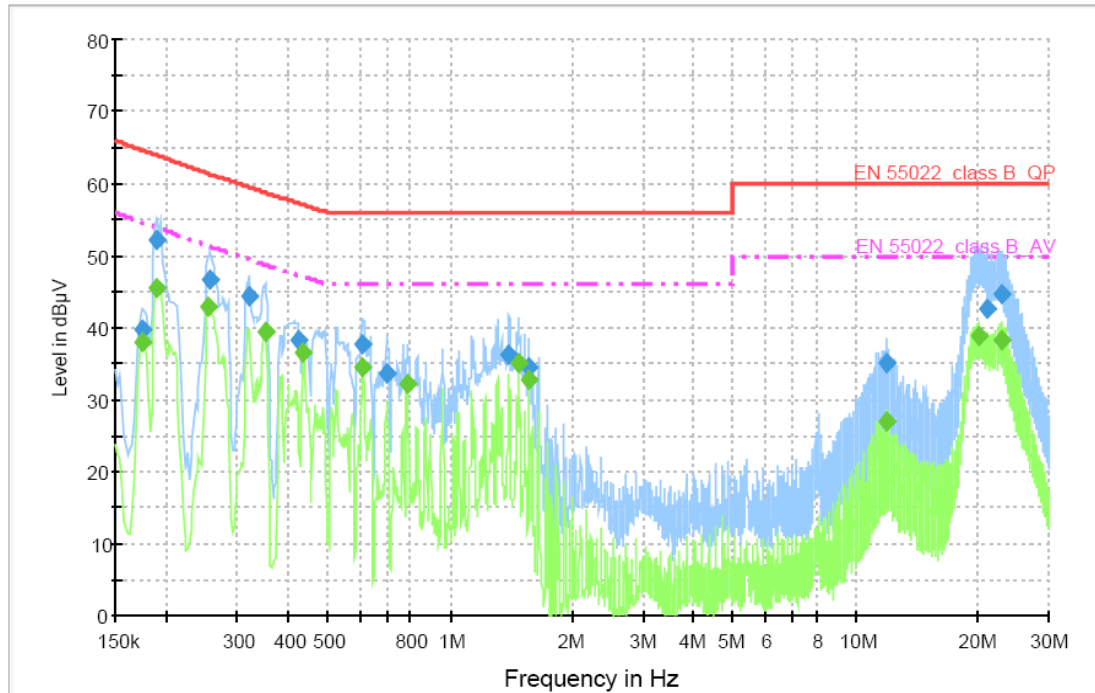
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.174000	46.3	1000.000	9.000	GND	N	10.0	8.4	54.7	
0.190000	47.3	1000.000	9.000	GND	N	10.0	6.6	53.9	
0.256000	43.1	1000.000	9.000	GND	N	10.0	8.2	51.3	
0.320000	42.2	1000.000	9.000	GND	N	10.0	7.3	49.5	
0.436000	36.0	1000.000	9.000	GND	N	10.0	11.0	47.0	
0.610000	33.5	1000.000	9.000	GND	N	10.0	12.5	46.0	
0.784000	30.7	1000.000	9.000	GND	N	10.0	15.3	46.0	
1.476000	32.1	1000.000	9.000	GND	N	10.1	13.9	46.0	
11.546000	25.3	1000.000	9.000	GND	N	10.4	24.7	50.0	
18.860000	34.5	1000.000	9.000	GND	N	10.6	15.5	50.0	
22.722000	38.6	1000.000	9.000	GND	N	10.8	11.4	50.0	
23.804000	36.8	1000.000	9.000	GND	N	10.8	13.2	50.0	

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



◆ Test resolution: 640 * 480 / 60 Hz (RGB: Analog 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
0.174000	39.9	1000.000	9.000	GND	L1	10.0	24.9	64.7	
0.190000	52.2	1000.000	9.000	GND	L1	10.0	11.7	63.9	
0.258000	46.7	1000.000	9.000	GND	L1	10.0	14.6	61.3	
0.320000	44.2	1000.000	9.000	GND	L1	10.0	15.3	59.5	
0.422000	38.4	1000.000	9.000	GND	L1	10.0	18.9	57.3	
0.610000	37.6	1000.000	9.000	GND	L1	10.0	18.4	56.0	
0.698000	33.8	1000.000	9.000	GND	L1	10.0	22.2	56.0	
1.400000	36.2	1000.000	9.000	GND	L1	10.1	19.8	56.0	
1.568000	34.4	1000.000	9.000	GND	L1	10.1	21.6	56.0	
11.934000	35.2	1000.000	9.000	GND	L1	10.4	24.8	60.0	
21.246000	42.7	1000.000	9.000	GND	L1	10.9	17.3	60.0	
22.976000	44.5	1000.000	9.000	GND	L1	10.9	15.5	60.0	

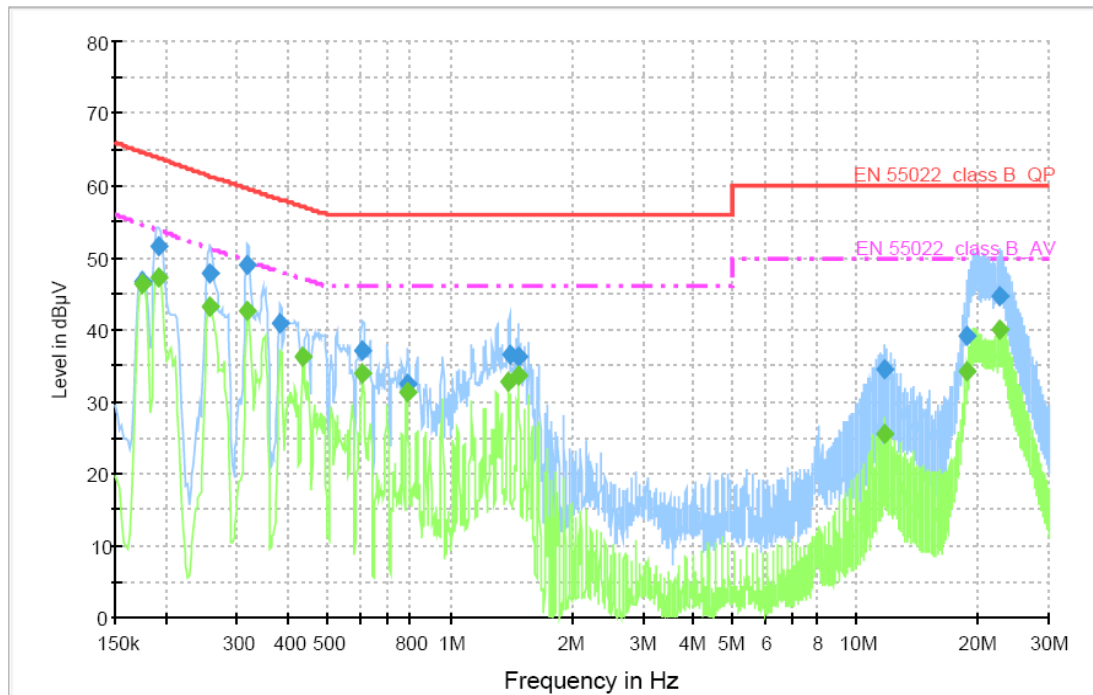
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.174000	37.9	1000.000	9.000	GND	L1	10.0	16.8	54.7	
0.190000	45.7	1000.000	9.000	GND	L1	10.0	8.3	53.9	
0.254000	42.9	1000.000	9.000	GND	L1	10.0	8.5	51.4	
0.350000	39.3	1000.000	9.000	GND	L1	10.0	9.5	48.8	
0.436000	36.6	1000.000	9.000	GND	L1	10.0	10.4	47.0	
0.610000	34.4	1000.000	9.000	GND	L1	10.0	11.6	46.0	
0.784000	32.1	1000.000	9.000	GND	L1	10.0	13.9	46.0	
1.482000	35.0	1000.000	9.000	GND	L1	10.1	11.0	46.0	
1.570000	32.6	1000.000	9.000	GND	L1	10.1	13.4	46.0	
11.930000	27.0	1000.000	9.000	GND	L1	10.4	23.0	50.0	
20.200000	38.9	1000.000	9.000	GND	L1	10.8	11.1	50.0	
22.974000	38.4	1000.000	9.000	GND	L1	10.9	11.6	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
0.174000	46.6	1000.000	9.000	GND	N	10.0	18.1	64.7	
0.192000	51.6	1000.000	9.000	GND	N	10.0	12.2	63.8	
0.258000	47.8	1000.000	9.000	GND	N	10.0	13.5	61.3	
0.318000	48.9	1000.000	9.000	GND	N	10.0	10.7	59.6	
0.382000	40.9	1000.000	9.000	GND	N	10.0	17.2	58.1	
0.612000	37.1	1000.000	9.000	GND	N	10.0	18.9	56.0	
0.788000	32.4	1000.000	9.000	GND	N	10.0	23.6	56.0	
1.402000	36.4	1000.000	9.000	GND	N	10.1	19.6	56.0	
1.476000	36.3	1000.000	9.000	GND	N	10.1	19.7	56.0	
11.742000	34.6	1000.000	9.000	GND	N	10.4	25.4	60.0	
18.862000	39.1	1000.000	9.000	GND	N	10.6	20.9	60.0	
22.786000	44.7	1000.000	9.000	GND	N	10.8	15.3	60.0	

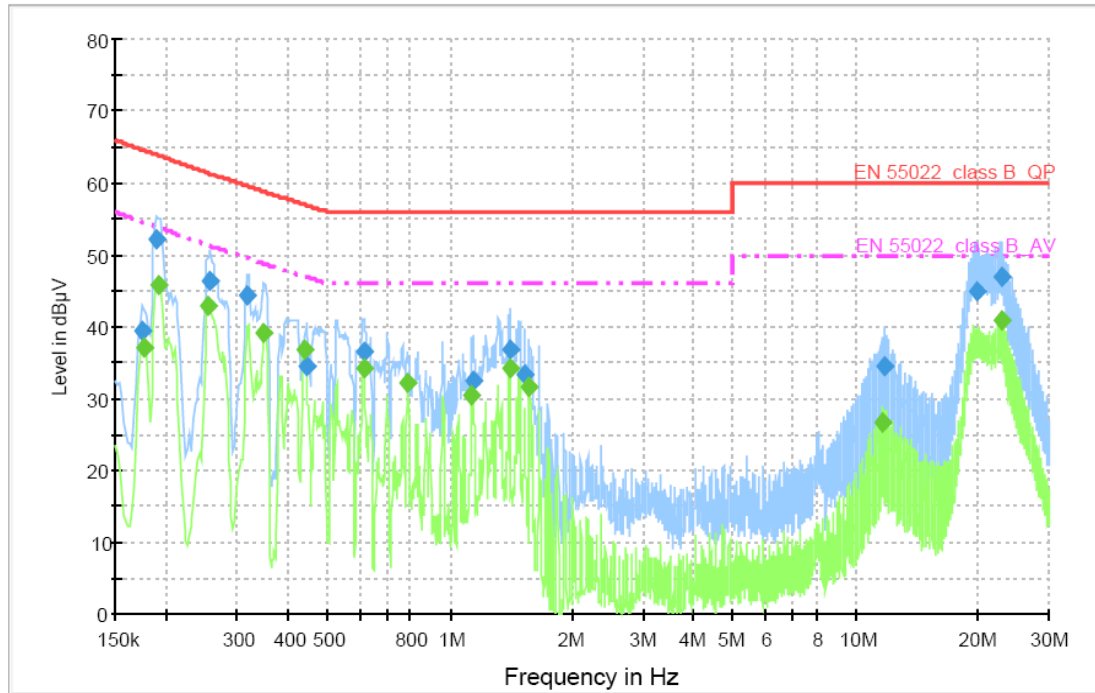
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.174000	46.4	1000.000	9.000	GND	N	10.0	8.3	54.7	
0.192000	47.4	1000.000	9.000	GND	N	10.0	6.4	53.8	
0.256000	43.1	1000.000	9.000	GND	N	10.0	8.2	51.3	
0.318000	42.5	1000.000	9.000	GND	N	10.0	7.0	49.5	
0.436000	36.4	1000.000	9.000	GND	N	10.0	10.6	47.0	
0.610000	34.0	1000.000	9.000	GND	N	10.0	12.0	46.0	
0.784000	31.4	1000.000	9.000	GND	N	10.0	14.6	46.0	
1.394000	32.8	1000.000	9.000	GND	N	10.1	13.2	46.0	
1.480000	33.5	1000.000	9.000	GND	N	10.1	12.5	46.0	
11.736000	25.5	1000.000	9.000	GND	N	10.4	24.5	50.0	
18.860000	34.1	1000.000	9.000	GND	N	10.6	15.9	50.0	
22.782000	39.9	1000.000	9.000	GND	N	10.8	10.1	50.0	

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



◆ Test resolution: 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
0.174000	39.5	1000.000	9.000	GND	L1	10.0	25.2	64.7	
0.190000	52.3	1000.000	9.000	GND	L1	10.0	11.7	63.9	
0.258000	46.4	1000.000	9.000	GND	L1	10.0	14.9	61.3	
0.318000	44.4	1000.000	9.000	GND	L1	10.0	15.2	59.6	
0.444000	34.6	1000.000	9.000	GND	L1	10.0	22.3	56.9	
0.616000	36.6	1000.000	9.000	GND	L1	10.0	19.4	56.0	
1.142000	32.6	1000.000	9.000	GND	L1	10.0	23.4	56.0	
1.406000	36.9	1000.000	9.000	GND	L1	10.1	19.1	56.0	
1.534000	33.5	1000.000	9.000	GND	L1	10.1	22.6	56.0	
11.804000	34.5	1000.000	9.000	GND	L1	10.4	25.5	60.0	
20.052000	45.0	1000.000	9.000	GND	L1	10.8	15.0	60.0	
22.970000	46.8	1000.000	9.000	GND	L1	10.9	13.2	60.0	

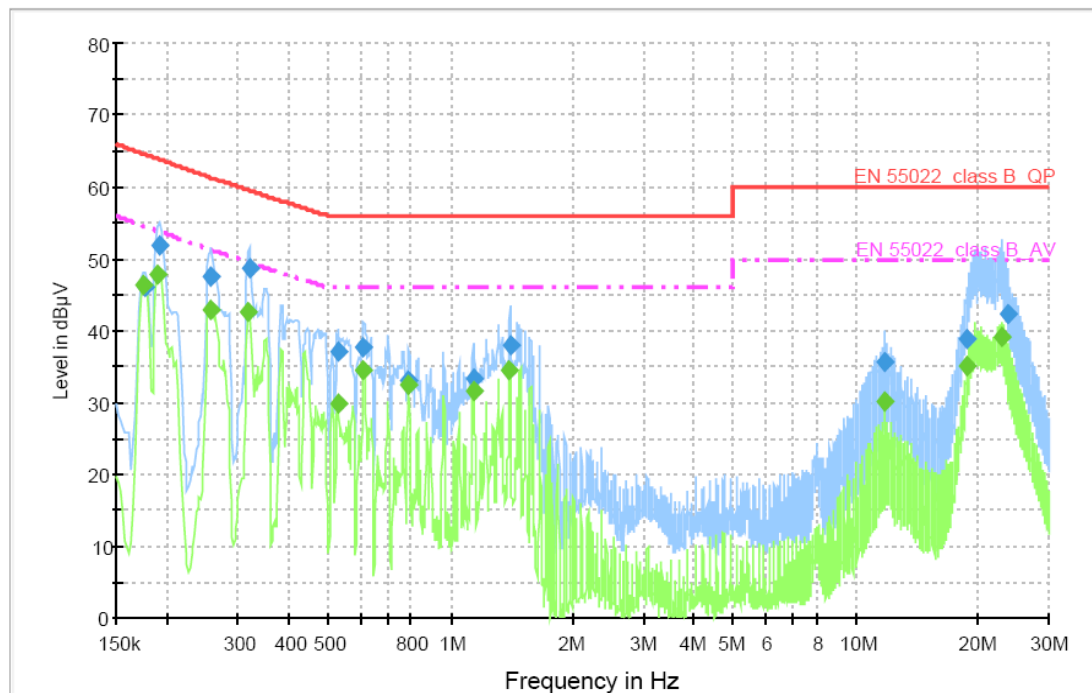
Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.176000	37.2	1000.000	9.000	GND	L1	10.0	17.4	54.6	
0.192000	45.7	1000.000	9.000	GND	L1	10.0	8.1	53.8	
0.254000	43.0	1000.000	9.000	GND	L1	10.0	8.4	51.4	
0.348000	39.1	1000.000	9.000	GND	L1	10.0	9.7	48.8	
0.438000	36.7	1000.000	9.000	GND	L1	10.0	10.3	47.0	
0.614000	34.2	1000.000	9.000	GND	L1	10.0	11.8	46.0	
0.788000	32.0	1000.000	9.000	GND	L1	10.0	14.0	46.0	
1.136000	30.5	1000.000	9.000	GND	L1	10.0	15.5	46.0	
1.402000	34.1	1000.000	9.000	GND	L1	10.1	11.9	46.0	
1.574000	31.6	1000.000	9.000	GND	L1	10.1	14.4	46.0	
11.610000	26.5	1000.000	9.000	GND	L1	10.4	23.5	50.0	
22.968000	40.8	1000.000	9.000	GND	L1	10.9	9.2	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
0.176000	46.2	1000.000	9.000	GND	N	10.0	18.4	64.6	
0.192000	51.8	1000.000	9.000	GND	N	10.0	12.0	63.8	
0.258000	47.5	1000.000	9.000	GND	N	10.0	13.8	61.3	
0.320000	48.7	1000.000	9.000	GND	N	10.0	10.9	59.5	
0.528000	37.0	1000.000	9.000	GND	N	10.0	19.0	56.0	
0.612000	37.7	1000.000	9.000	GND	N	10.0	18.3	56.0	
0.790000	33.0	1000.000	9.000	GND	N	10.0	23.0	56.0	
1.138000	33.3	1000.000	9.000	GND	N	10.1	22.7	56.0	
1.402000	38.1	1000.000	9.000	GND	N	10.1	17.9	56.0	
11.800000	35.6	1000.000	9.000	GND	N	10.4	24.4	60.0	
18.778000	38.8	1000.000	9.000	GND	N	10.6	21.2	60.0	
23.858000	42.2	1000.000	9.000	GND	N	10.8	17.8	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.174000	46.3	1000.000	9.000	GND	N	10.0	8.4	54.7	
0.190000	47.7	1000.000	9.000	GND	N	10.0	6.2	53.9	
0.256000	42.9	1000.000	9.000	GND	N	10.0	8.4	51.3	
0.318000	42.5	1000.000	9.000	GND	N	10.0	7.0	49.5	
0.528000	29.8	1000.000	9.000	GND	N	10.0	16.2	46.0	
0.612000	34.5	1000.000	9.000	GND	N	10.0	11.5	46.0	
0.788000	32.3	1000.000	9.000	GND	N	10.0	13.7	46.0	
1.138000	31.6	1000.000	9.000	GND	N	10.1	14.4	46.0	
1.400000	34.6	1000.000	9.000	GND	N	10.1	11.4	46.0	
11.800000	30.2	1000.000	9.000	GND	N	10.4	19.8	50.0	
18.790000	35.0	1000.000	9.000	GND	N	10.6	15.0	50.0	
22.834000	39.1	1000.000	9.000	GND	N	10.8	10.9	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 22 °C
Relative Humidity : 46 % R.H.

6.2 Test Set-up

A preliminary and final measurement was at 3 m anechoic chamber.

The EUT was placed on a non-conductive turntable approximately 0.8 m above the ground plane.

The turntable with EUT was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels.

This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

6.3 Measurement Uncertainty

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

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

Test Items	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 3.54 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.49 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.85 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.76 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 10 m, Vertical)	± 3.21 dB	Confidence levels of 95 % (k=2)
Radiated emission (30 MHz ~ 300 MHz, 10 m, Horizontal)	± 3.32 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Vertical)	± 3.77 dB	Confidence levels of 95 % (k=2)
Radiated emission (300 MHz ~ 1 000 MHz, 10 m, Horizontal)	± 3.84 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
■ - ESI	Rohde & Schwarz	EMI test receiver	830482/010	12. 14. 2009
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3193	12. 11. 2009
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 26. 2009
■ - MCU066	maturo GmbH	MCU066	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

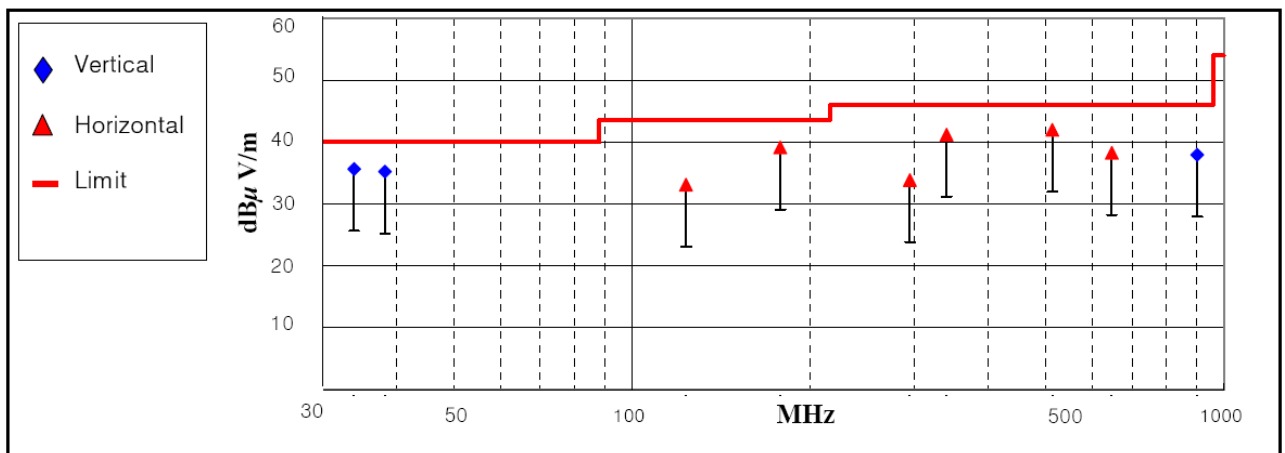
6.6 Test data for Radiated Emission

- Test Date : December 9, 2009
- Resolution Bandwidth : 120 kHz/1 MHz
- Frequency Range : 30 MHz ~ 5 000 MHz
- Measurement Distance : 3 m
- Note : The highest frequency of the internal source of the EUT is between 500 MHz and 1 000 MHz (667 MHz). The measurement was made up to 5 000 MHz



- ◆ Operating Condition: 1 920 * 1 080 / 60 Hz (RGB: Analog mode)
Detector mode: Quasi- peak detector mode

Frequency (MHz)	Measurement Level				Limit (dB μ V/m)	Margin (dB)	Positioning System		
	Reading	Antenna	Cable	Test Result			Pol.	Height	Angle
	Value(dB μ V)	Factor(dB/m)	Loss(dB)	(dB μ V/m)			(H/V)	(cm)	(°)
33.96	22.79	10.91	1.96	35.66	40.00	4.34	V	100	101
38.26	21.92	11.28	2.05	35.25	40.00	4.75	V	124	180
123.47	18.33	11.43	3.38	33.14	43.50	10.36	H	185	175
178.21	24.02	11.12	3.98	39.12	43.50	4.38	H	224	100
294.96	15.72	12.57	5.56	33.85	46.00	12.15	H	197	312
340.15	20.88	13.59	6.73	41.20	46.00	4.80	H	258	145
513.01	17.89	17.03	7.04	41.96	46.00	4.04	H	247	20
646.88	11.09	19.47	7.69	38.25	46.00	7.75	H	200	175
902.13	6.33	22.44	9.18	37.95	46.00	8.05	V	150	55

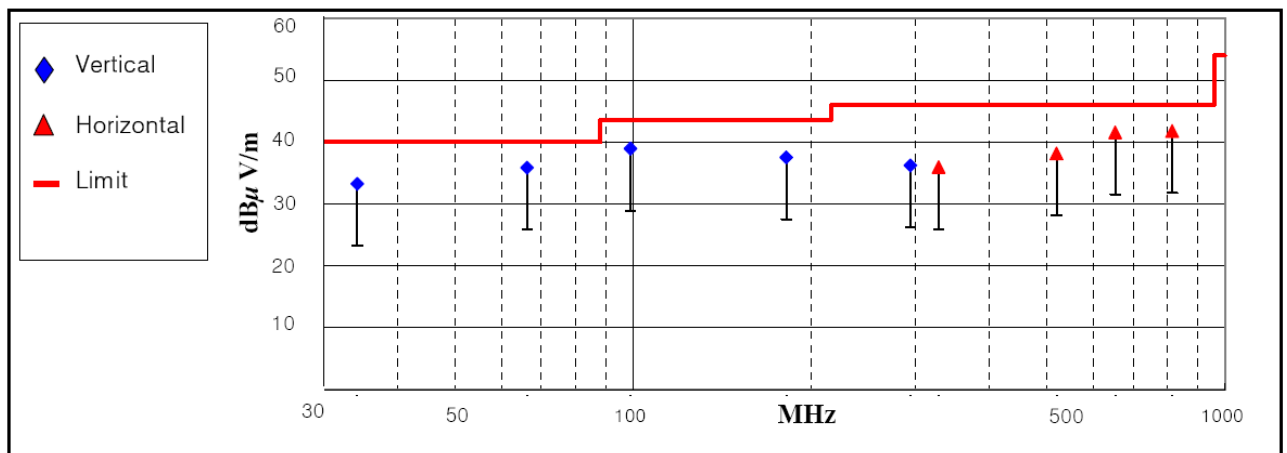


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital 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)	(°)
34.20	20.39	10.90	1.97	33.26	40.00	6.74	V	175	158
66.25	22.92	10.32	2.61	35.85	40.00	4.15	V	100	320
99.01	26.97	8.93	3.05	38.95	43.50	4.55	V	165	18
181.52	22.65	10.85	4.02	37.52	43.50	5.98	V	150	100
294.36	18.12	12.55	5.55	36.22	46.00	9.78	V	120	80
328.45	16.22	13.34	6.41	35.97	46.00	10.04	H	300	90
519.63	13.90	17.19	7.06	38.15	46.00	7.85	H	248	174
652.38	14.35	19.51	7.72	41.58	46.00	4.42	H	195	225
814.62	11.35	21.78	8.67	41.80	46.00	4.20	H	200	170

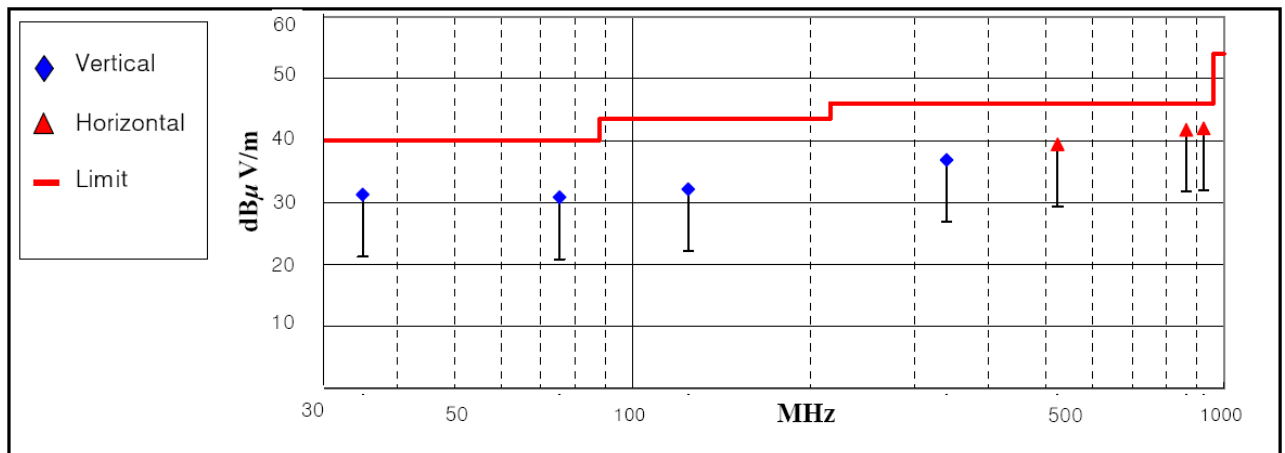


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ 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)	(°)
34.96	18.43	10.88	1.98	31.29	40.00	8.71	V	100	270
75.33	19.41	8.68	2.76	30.85	40.00	9.15	V	124	240
124.26	17.26	11.49	3.39	32.14	43.50	11.36	V	185	145
339.95	16.57	13.58	6.73	36.88	46.00	9.12	V	164	100
523.75	15.05	17.29	7.07	39.41	46.00	6.59	H	200	90
864.25	10.54	22.26	8.95	41.75	46.00	4.25	H	247	25
924.15	9.82	22.80	9.33	41.95	46.00	4.05	H	301	59

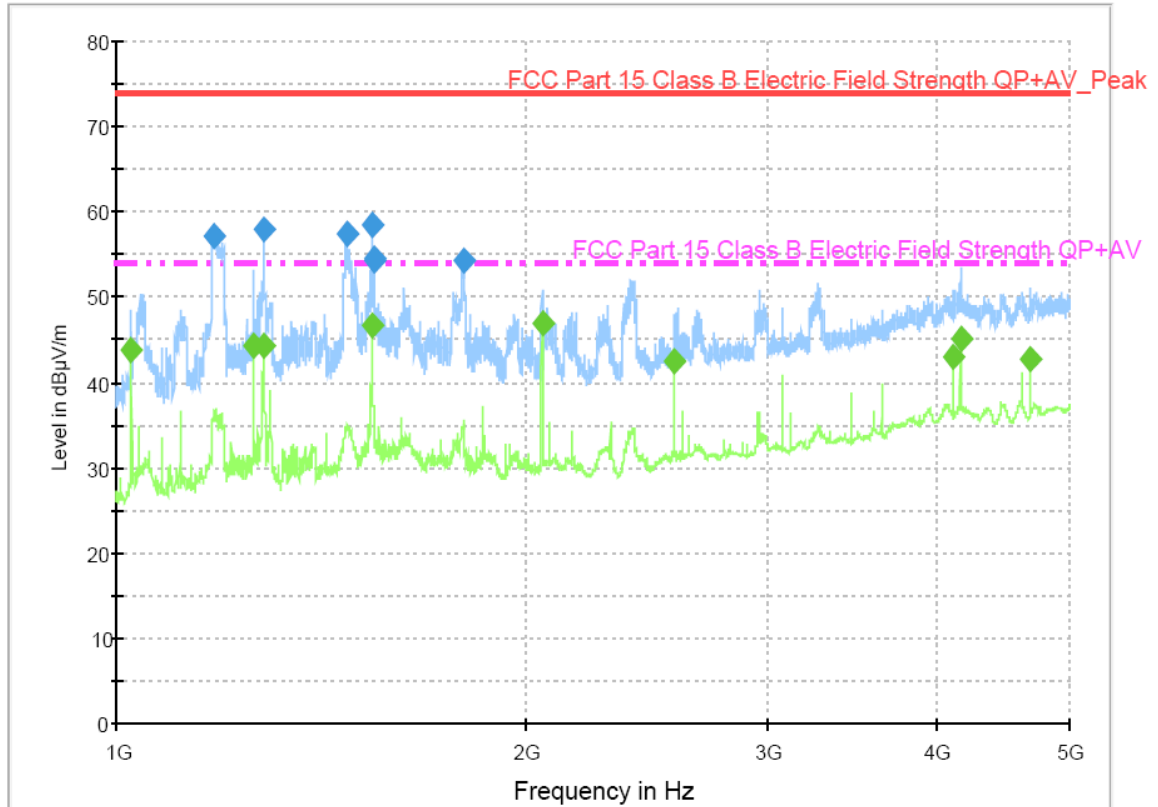


< Fig 16. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ Operating Condition: 1 920 * 1 080 / 60 Hz (RGB: Analog mode)
Detector mode: Peak detector mode / Average detector mode

FCC_ESIB_Preamplifier_RE with Scans



Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1178.800000	57.1	150.0	H	180.0	-15.3	16.9	74.0	
1282.400000	58.0	150.0	V	180.0	-14.6	16.0	74.0	
1475.600000	57.3	100.0	V	180.0	-14.5	16.7	74.0	
1539.200000	58.4	150.0	H	180.0	-14.2	15.6	74.0	
1544.800000	54.2	150.0	H	180.0	-14.1	19.8	74.0	
1547.600000	54.7	150.0	H	180.0	-14.1	19.3	74.0	
1798.000000	54.2	100.0	V	180.0	-13.1	19.8	74.0	

Final Result 2

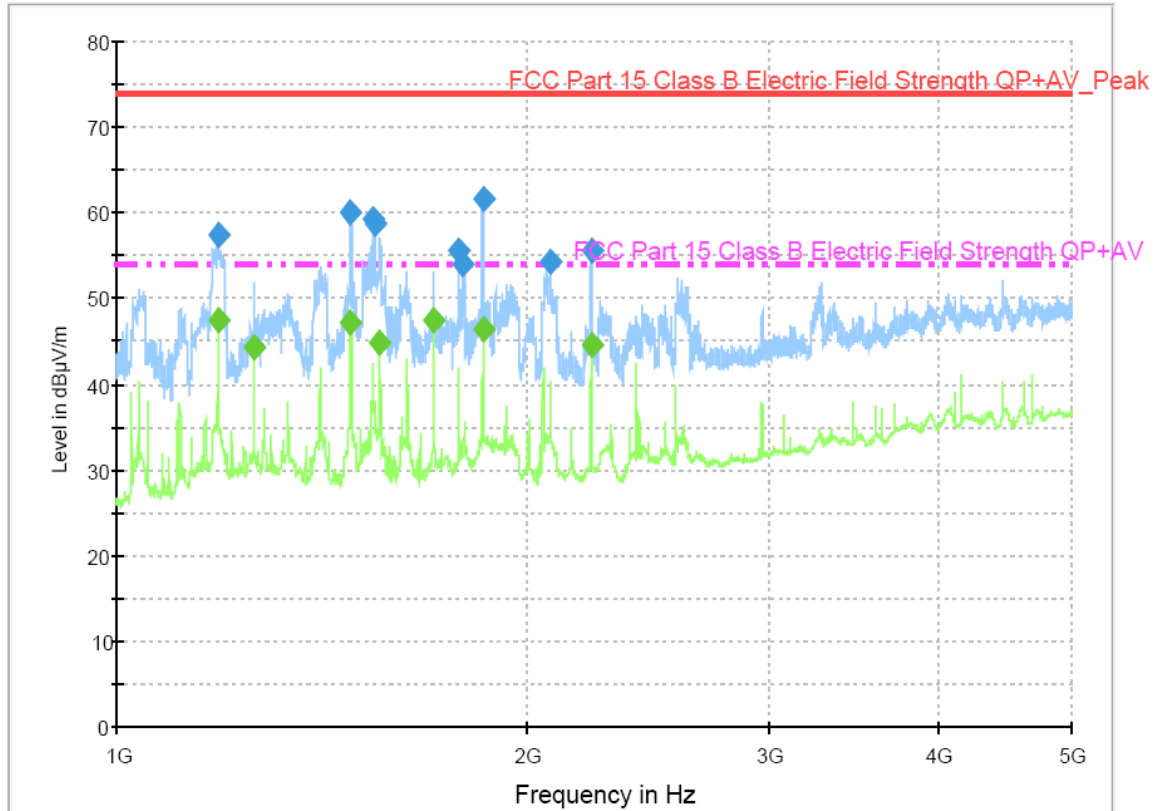
Frequency (MHz)	Average-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1026.000000	43.9	150.0	V	180.0	-16.0	10.1	54.0	
1262.400000	44.4	200.0	V	180.0	-14.8	9.6	54.0	
1282.400000	44.3	150.0	V	180.0	-14.6	9.7	54.0	
1539.200000	46.6	150.0	H	180.0	-14.2	7.4	54.0	
2052.000000	46.8	150.0	H	180.0	-12.3	7.2	54.0	
2565.200000	42.4	150.0	H	180.0	-10.1	11.6	54.0	
4104.000000	43.1	150.0	V	180.0	-3.2	10.9	54.0	
4158.400000	45.1	150.0	V	180.0	-3.3	8.9	54.0	
4678.000000	42.8	150.0	V	180.0	-3.1	11.2	54.0	

< Fig 17. Radiated emission result (1 000 MHz ~ 5 000 MHz)>



- ◆ Operating Condition: 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital mode)
Detector mode: Peak detector mode / Average detector mode

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Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1186.400000	57.4	150.0	H	180.0	-15.3	16.6	74.0	
1483.200000	60.1	100.0	V	180.0	-14.5	13.9	74.0	
1540.800000	59.2	150.0	H	180.0	-14.1	14.8	74.0	
1546.000000	58.8	150.0	H	180.0	-14.1	15.2	74.0	
1781.200000	55.7	150.0	V	180.0	-13.2	18.3	74.0	
1794.800000	54.1	100.0	V	180.0	-13.1	19.9	74.0	
1854.000000	61.6	100.0	V	180.0	-13.1	12.4	74.0	
2077.200000	54.4	100.0	V	180.0	-12.2	19.6	74.0	
2224.800000	55.6	150.0	V	180.0	-11.6	18.4	74.0	

Final Result 2

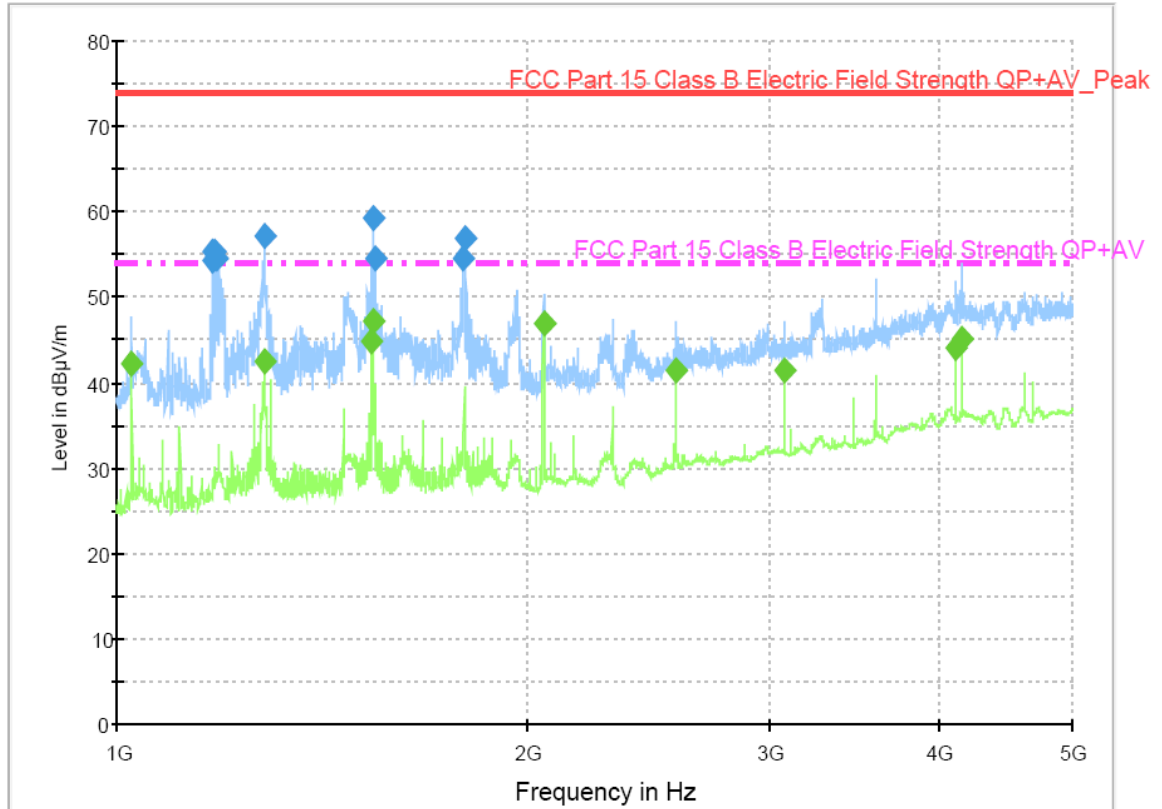
Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1186.800000	47.5	200.0	V	270.0	-15.3	6.5	54.0	
1261.200000	44.3	200.0	V	270.0	-14.8	9.7	54.0	
1483.600000	47.1	100.0	V	180.0	-14.5	5.9	54.0	
1558.000000	45.0	100.0	V	180.0	-14.0	9.0	54.0	
1706.400000	47.5	200.0	V	180.0	-13.6	6.5	54.0	
1854.000000	46.3	100.0	V	180.0	-13.1	7.7	54.0	
2224.800000	44.7	150.0	V	180.0	-11.6	9.3	54.0	

< Fig 18. Radiated emission result (1 000 MHz ~ 5 000 MHz)>



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

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Final Result 1

Frequency (MHz)	MaxPeak-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1174.800000	54.4	150.0	H	180.0	-15.3	19.6	74.0	
1176.000000	55.5	150.0	H	180.0	-15.3	18.5	74.0	
1177.600000	55.5	150.0	H	180.0	-15.3	18.5	74.0	
1185.200000	54.4	150.0	H	180.0	-15.3	19.6	74.0	
1282.400000	57.2	150.0	V	180.0	-14.6	16.8	74.0	
1539.200000	59.4	150.0	H	180.0	-14.2	14.6	74.0	
1547.200000	54.7	150.0	H	180.0	-14.1	19.3	74.0	
1790.800000	54.6	100.0	V	180.0	-13.1	19.4	74.0	
1796.800000	57.0	100.0	V	180.0	-13.1	17.0	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1026.000000	42.3	200.0	V	180.0	-16.0	11.7	54.0	
1282.400000	42.6	150.0	H	180.0	-14.6	11.4	54.0	
1535.200000	44.8	150.0	H	180.0	-14.2	9.2	54.0	
1539.200000	47.1	200.0	H	180.0	-14.2	6.9	54.0	
2052.000000	46.9	150.0	H	180.0	-12.3	7.1	54.0	
2565.200000	41.6	150.0	H	270.0	-10.1	12.4	54.0	
3078.000000	41.5	100.0	H	180.0	-8.1	12.5	54.0	
4104.000000	44.2	150.0	V	180.0	-3.2	9.8	54.0	
4154.000000	45.1	150.0	V	180.0	-3.3	8.9	54.0	

< Fig 19. Radiated emission result (1 000 MHz ~ 5 000 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 TV/Monitor (Model Name: 55LD650-UA)** was complies with §15.107 and 15.109 of the FCC Rules.