



FCC EVALUATION REPORT FOR CERTIFICATION

Applicant: LG Electronics Inc.

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

Pyeongteak-si, Gyeonggi-do, Korea.

Attn: Mr. Do-Hyung Kim, Chief research engineer

Date of Issue: August 1, 2011

Order Number: GETEC-C1-11-182

Test Report Number: GETEC-E3-11-083

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID. : BEJ37LK450UH

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	: 37LK450-UH
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,

Hyoung-Seop Kim, Senior Engineer
GUMI College EMC center

Tae-Sig Park, General Manager
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. Do-Hyung Kim, Chief research engineer

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- **FCC ID.** BEJ37LK450UH
- **EUT Type** LCD TV/Monitor
- **Model Name** 37LK450-UH
- **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** July 27 ~ 28, 2011
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-11-083
- **Dates of Issue** August 1, 2011



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: 37LK450-UH)**

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: 37LK450-UH)**
FCC ID.: BEJ37LK450UH

MODELS		32LK450 (32LK450-UB)	37LK450 (37LK450-UB)
		32LK450 (32LK450-UH)	37LK450 (37LK450-UH)
Dimensions (W x H x D)	With stand	795.0 mm x 568.0 mm x 207.0 mm (31.2 inch x 22.3 inch x 8.1 inch)	913.0 mm x 639.0 mm x 265.0 mm (35.9 inch x 25.1 inch x 10.4 inch)
	Without stand	795.0 mm x 504.0 mm x 73.5 mm (31.2 inch x 19.8 inch x 2.8 inch)	913.0 mm x 571.0 mm x 77.4 mm (35.9 inch x 22.4 inch x 3.0 inch)
Weight	With stand	9.6 kg (21.1 lbs)	12.8 kg (28.2 lbs)
	Without stand	8.5 kg (18.7 lbs)	11.1 kg (24.4 lbs)
Current Value / Power consumption		1.2 A / 120 W	1.6 A / 160 W
Power requirement		AC100 - 240 V ~ 50/60 Hz	
Television System		NTSC-M, ATSC, 64 & 256 QAM	
Program Coverage		VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135	
External Antenna Impedance		75 Ω	
Environment condition	Operating Temperature	0 - 40 °C	
	Operating Humidity	Less than 80 %	
	Storage Temperature	-20 - 60 °C	
	Storage Humidity	Less than 85 %	

- Maximum Frequency Range : 667 MHz

EUT Type: LCD TV/Monitor

FCC ID.: BEJ37LK450UH



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
USB mouse	Great Pleasure Electronics Co., Ltd.	GP-M3100UE	S/N: 14036766 FCC ID.: DoC
DVD player	LG Electronics Inc.	LC-954	S/N: 3850R-Z674K FCC ID.: Verification
USB memory stick	SAMSUNG	SUM-PSB4	S/N: TBBB202478F FCC ID.: DoC
TV signal generator	FLUKE	54200M01	S/N: 831011 FCC ID.: Verification
Headset	PHILIPS	SBC HL140	S/N: None. FCC ID.: N/A

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.	-	-	S/N: - FCC ID.: -



3.2.3 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the EUT	1.80 m unshielded
RGB(Analog) cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
HDMI/DVI(Digital) cable	Connected to the EUT and PC	2.00 m shielded
RS-232C (Control & service) cable	Connected to the EUT and PC	1.80 m shielded
Audio(RGB/DVI) in cable	Connected to the EUT and PC	1.50 m shielded
AV cable	Connected to the EUT and DVD player	3.00 m shielded
Component cable	Connected to the EUT and DVD player	3.00 m shielded
Headset cable	Connected to the EUT and headset	1.20 m shielded
Antenna cable	Connected to the EUT and TV signal generator	10.00 m shielded with two ferrite cores

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
- . Continuous playback of 1 kHz audio file with winamp player
- . USB memory stick was connected to the USB port

- Alternate panel and power board

Case #1, Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

Case #2, Panel: T370HW03 (AU Optronis) / Power board: LGP37-11P (LG Electronics Inc.)

“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 : 53 % R.H.

5.2 Test Set-up

The conducted emission measurements were performed in the shielded room.

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

AMN is bonded on horizontal reference ground plane.

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

5.3 Measurement Uncertainty

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

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

Test Items	Uncertainty	Remark
Conducted emission (9 kHz ~ 150 kHz)	± 2.71 dB	Confidence levels of 95 % ($k = 2$)
Conducted emission (150 kHz ~ 30 MHz)	± 3.34 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. 2011
■ - ESH3-Z5	Rohde & Schwarz	LISN	838979/020	12. 10. 2011
■ - ESH2-Z5	Rohde & Schwarz	LISN	829991/009	12. 10. 2011
□ - ISN T8	TESEQ. GmbH	ISN	24568	11. 09. 2011

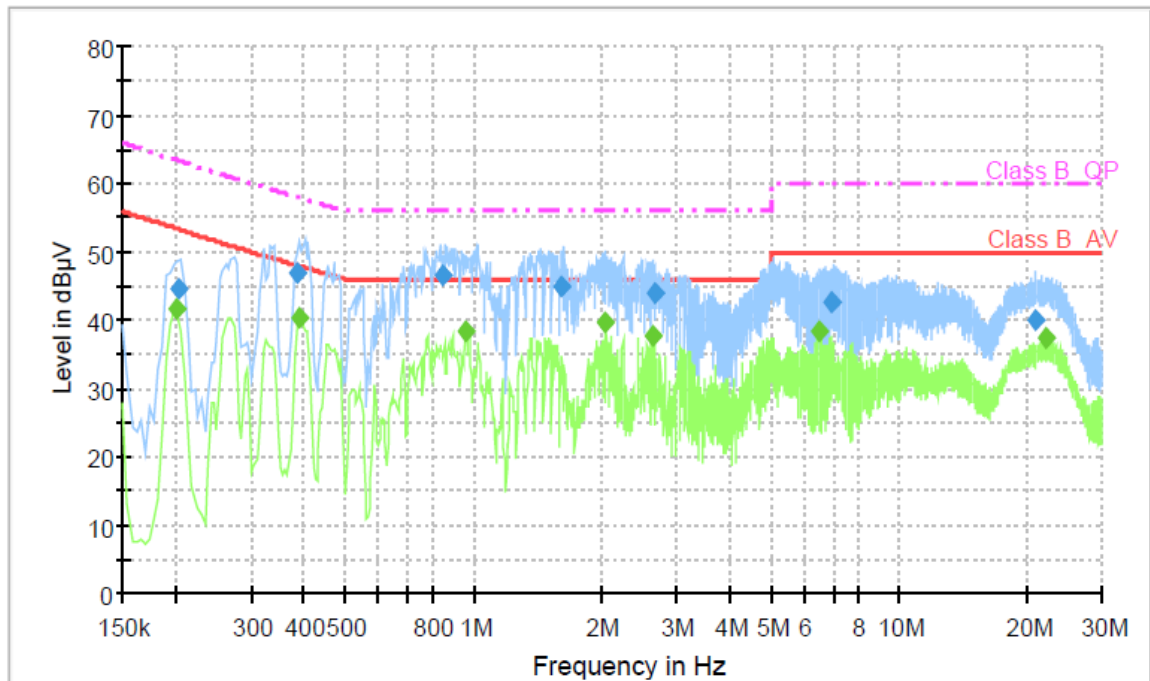
5.6 Test data for Conducted Emission

- Test Date : July 27, 2011
- Resolution Bandwidth : 9 kHz
- Frequency Range : 0.15 MHz ~ 30 MHz



- ◆ Operating condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

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
0.204000	44.5	1000.000	9.000	GND	L1	10.1	18.8	63.3	
0.384000	46.8	1000.000	9.000	GND	L1	10.1	11.3	58.1	
0.848000	46.7	1000.000	9.000	GND	L1	10.1	9.3	56.0	
1.604000	44.8	1000.000	9.000	GND	L1	10.1	11.2	56.0	
2.680000	44.0	1000.000	9.000	GND	L1	10.2	12.0	56.0	
6.984000	42.5	1000.000	9.000	GND	L1	10.4	17.5	60.0	
20.940000	40.1	1000.000	9.000	GND	L1	11.2	19.9	60.0	

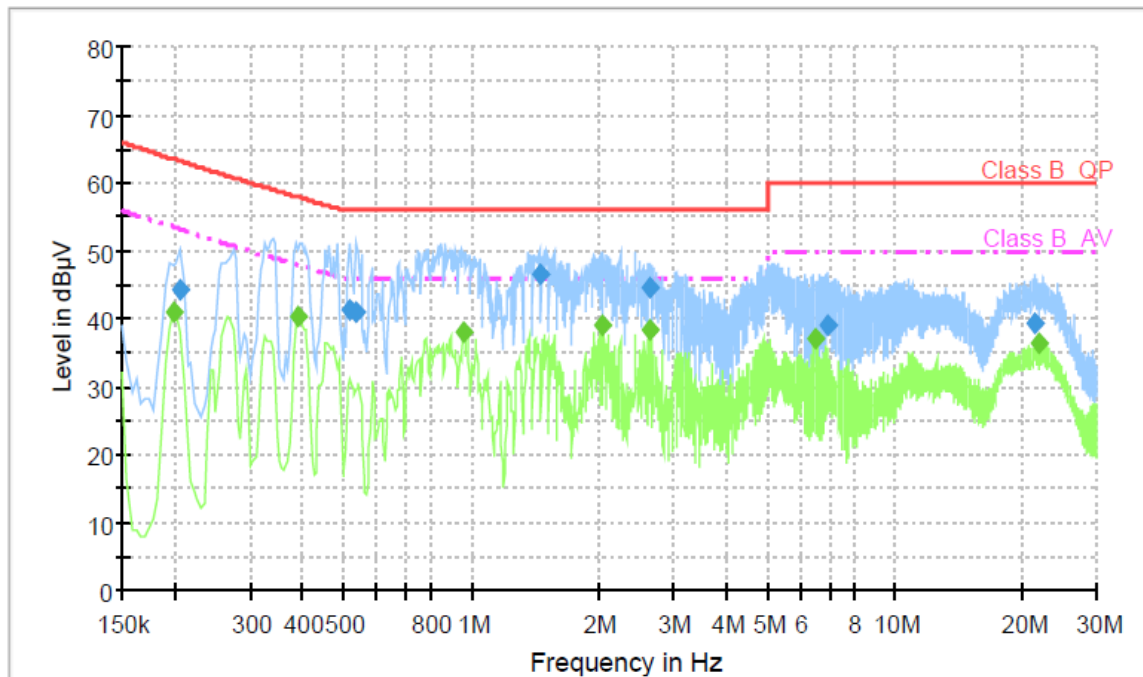
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.200000	41.6	1000.000	9.000	GND	L1	10.1	14.0	55.6	
0.392000	40.4	1000.000	9.000	GND	L1	10.1	8.0	48.4	
0.960000	38.4	1000.000	9.000	GND	L1	10.1	7.6	46.0	
2.048000	39.5	1000.000	9.000	GND	L1	10.2	6.5	46.0	
2.636000	37.9	1000.000	9.000	GND	L1	10.2	8.2	46.0	
6.472000	38.3	1000.000	9.000	GND	L1	10.4	11.7	50.0	
22.200000	37.4	1000.000	9.000	GND	L1	11.1	12.6	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
0.206000	44.3	1000.000	9.000	GND	N	10.1	18.9	63.2	
0.518000	41.4	1000.000	9.000	GND	N	10.1	14.6	56.0	
0.534000	41.0	1000.000	9.000	GND	N	10.1	15.0	56.0	
1.450000	46.5	1000.000	9.000	GND	N	10.1	9.5	56.0	
2.634000	44.6	1000.000	9.000	GND	N	10.2	11.4	56.0	
6.954000	39.0	1000.000	9.000	GND	N	10.4	21.0	60.0	
21.474000	39.3	1000.000	9.000	GND	N	10.9	20.7	60.0	

Final Measurement Detector 2

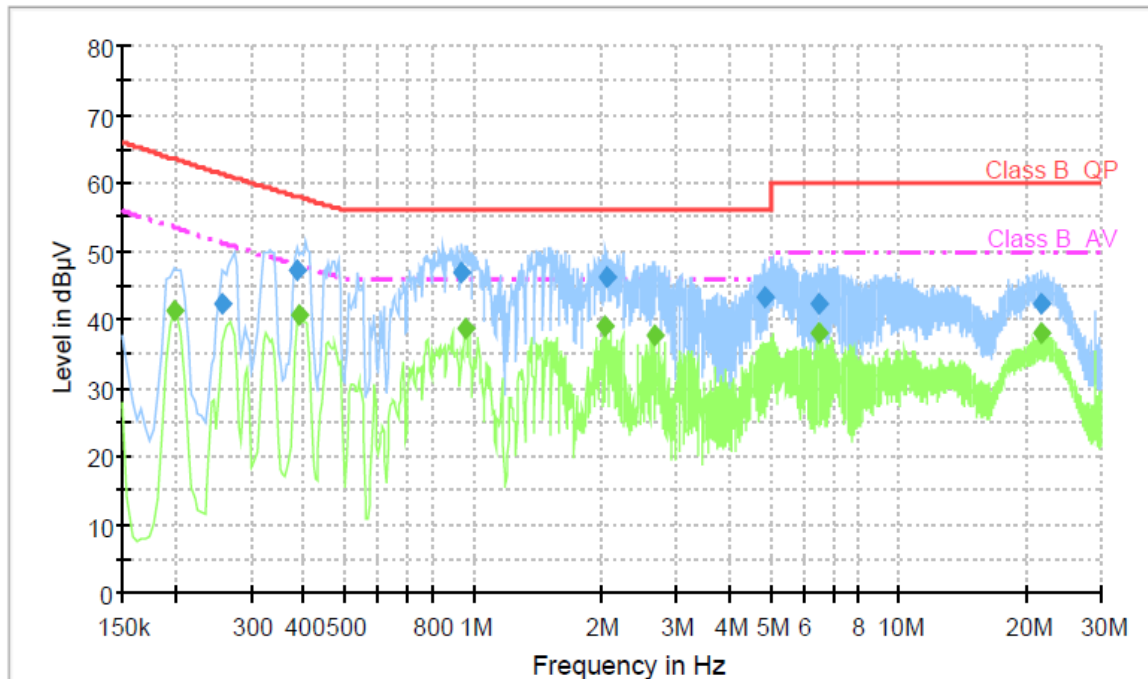
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	41.1	1000.000	9.000	GND	N	10.1	12.4	53.5	
0.390000	40.4	1000.000	9.000	GND	N	10.1	7.5	47.9	
0.958000	38.1	1000.000	9.000	GND	N	10.1	7.9	46.0	
2.046000	39.1	1000.000	9.000	GND	N	10.2	6.9	46.0	
2.634000	38.2	1000.000	9.000	GND	N	10.2	7.8	46.0	
6.470000	37.0	1000.000	9.000	GND	N	10.4	13.0	50.0	
21.842000	36.5	1000.000	9.000	GND	N	10.8	13.5	50.0	

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



- ◆ Operating condition: 1 024 × 768 / 60 Hz (RGB: Analog)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

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
0.256000	42.2	1000.000	9.000	GND	L1	10.1	19.2	61.4	
0.384000	47.1	1000.000	9.000	GND	L1	10.1	11.0	58.1	
0.936000	47.0	1000.000	9.000	GND	L1	10.1	9.0	56.0	
2.052000	46.2	1000.000	9.000	GND	L1	10.2	9.8	56.0	
4.872000	43.4	1000.000	9.000	GND	L1	10.3	12.6	56.0	
6.468000	42.4	1000.000	9.000	GND	L1	10.4	17.6	60.0	
21.668000	42.3	1000.000	9.000	GND	L1	11.1	17.7	60.0	

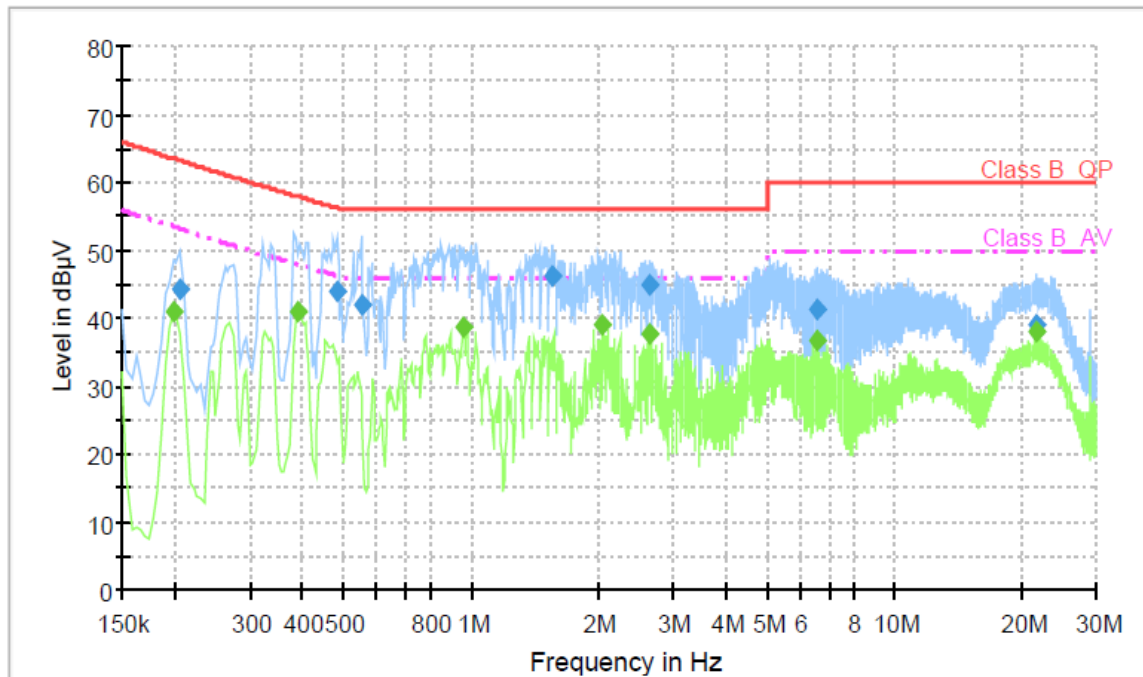
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	41.3	1000.000	9.000	GND	L1	10.1	12.2	53.5	
0.392000	40.8	1000.000	9.000	GND	L1	10.1	7.1	47.9	
0.960000	38.6	1000.000	9.000	GND	L1	10.1	7.4	46.0	
2.048000	39.1	1000.000	9.000	GND	L1	10.2	6.9	46.0	
2.676000	37.7	1000.000	9.000	GND	L1	10.2	8.3	46.0	
6.532000	37.9	1000.000	9.000	GND	L1	10.4	12.1	50.0	
21.664000	38.1	1000.000	9.000	GND	L1	11.1	11.9	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
0.206000	44.2	1000.000	9.000	GND	N	10.1	19.0	63.2	
0.482000	43.8	1000.000	9.000	GND	N	10.1	12.5	56.3	
0.550000	41.9	1000.000	9.000	GND	N	10.1	14.1	56.0	
1.550000	46.4	1000.000	9.000	GND	N	10.1	9.6	56.0	
2.634000	45.0	1000.000	9.000	GND	N	10.2	11.0	56.0	
6.586000	41.2	1000.000	9.000	GND	N	10.4	18.8	60.0	
21.678000	38.9	1000.000	9.000	GND	N	10.8	21.1	60.0	

Final Measurement Detector 2

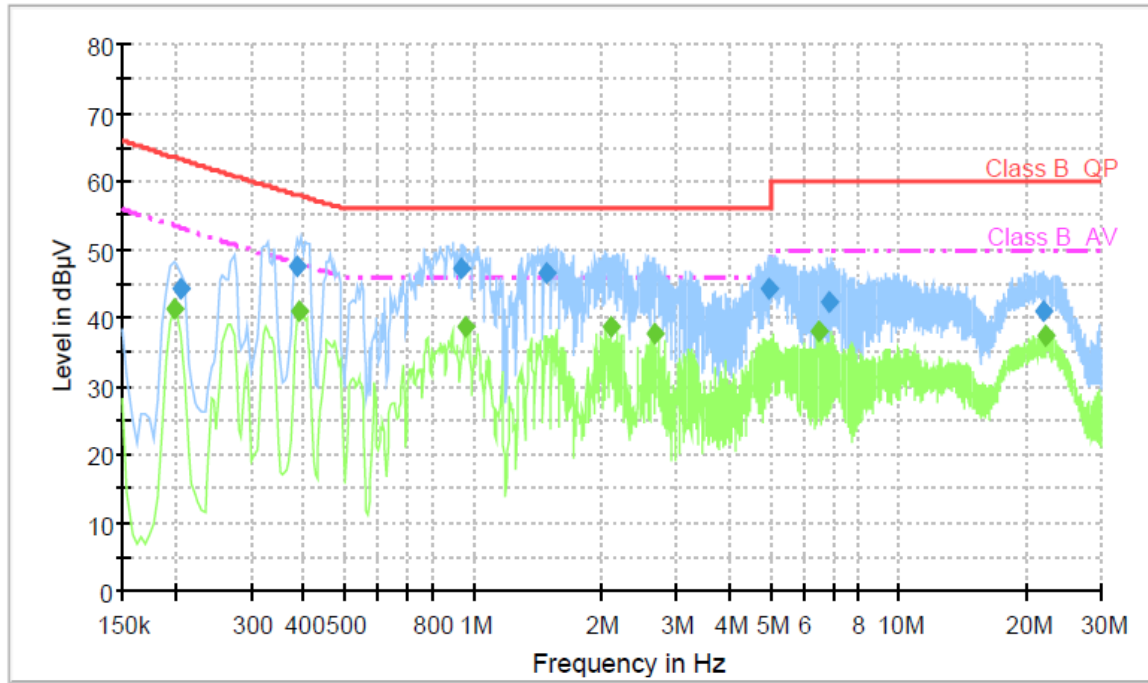
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	40.9	1000.000	9.000	GND	N	10.1	12.6	53.5	
0.390000	40.9	1000.000	9.000	GND	N	10.1	7.0	47.9	
0.958000	38.6	1000.000	9.000	GND	N	10.1	7.4	46.0	
2.046000	38.9	1000.000	9.000	GND	N	10.2	7.1	46.0	
2.634000	37.7	1000.000	9.000	GND	N	10.2	8.3	46.0	
6.534000	36.8	1000.000	9.000	GND	N	10.4	13.2	50.0	
21.666000	37.9	1000.000	9.000	GND	N	10.8	12.1	50.0	

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



- ◆ Operating condition: 640 × 480 / 60 Hz (RGB: Analog)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

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
0.206000	44.2	1000.000	9.000	GND	L1	10.1	19.0	63.2	
0.388000	47.4	1000.000	9.000	GND	L1	10.1	10.6	58.0	
0.936000	47.1	1000.000	9.000	GND	L1	10.1	8.9	56.0	
1.488000	46.7	1000.000	9.000	GND	L1	10.1	9.3	56.0	
4.976000	44.2	1000.000	9.000	GND	L1	10.3	11.8	56.0	
6.856000	42.3	1000.000	9.000	GND	L1	10.4	17.7	60.0	
21.960000	41.0	1000.000	9.000	GND	L1	11.1	19.0	60.0	

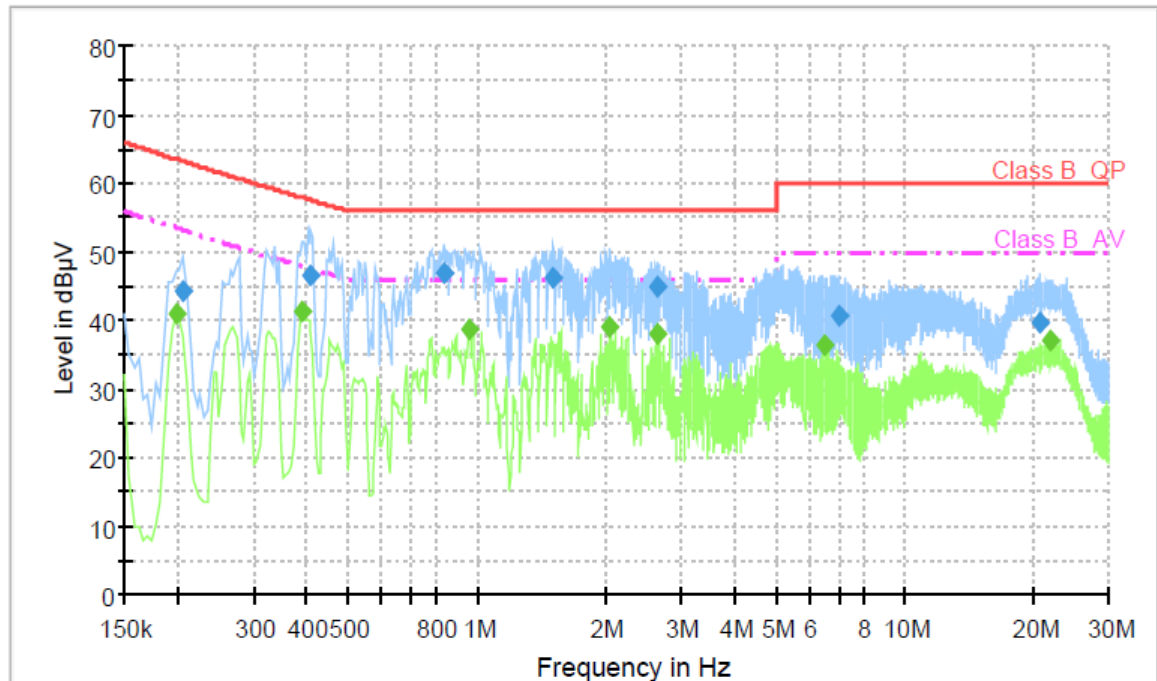
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	41.2	1000.000	9.000	GND	L1	10.1	12.3	53.5	
0.392000	41.1	1000.000	9.000	GND	L1	10.1	6.8	47.9	
0.960000	38.8	1000.000	9.000	GND	L1	10.1	7.2	46.0	
2.112000	38.6	1000.000	9.000	GND	L1	10.2	7.4	46.0	
2.676000	37.8	1000.000	9.000	GND	L1	10.2	8.2	46.0	
6.532000	38.0	1000.000	9.000	GND	L1	10.4	12.0	50.0	
22.020000	37.5	1000.000	9.000	GND	L1	11.1	12.5	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
0.206000	44.2	1000.000	9.000	GND	N	10.1	19.0	63.2	
0.410000	46.6	1000.000	9.000	GND	N	10.1	10.9	57.5	
0.834000	46.8	1000.000	9.000	GND	N	10.1	9.2	56.0	
1.510000	46.4	1000.000	9.000	GND	N	10.1	9.6	56.0	
2.634000	44.9	1000.000	9.000	GND	N	10.2	11.1	56.0	
7.046000	40.6	1000.000	9.000	GND	N	10.4	19.4	60.0	
20.802000	39.8	1000.000	9.000	GND	N	10.9	20.2	60.0	

Final Measurement Detector 2

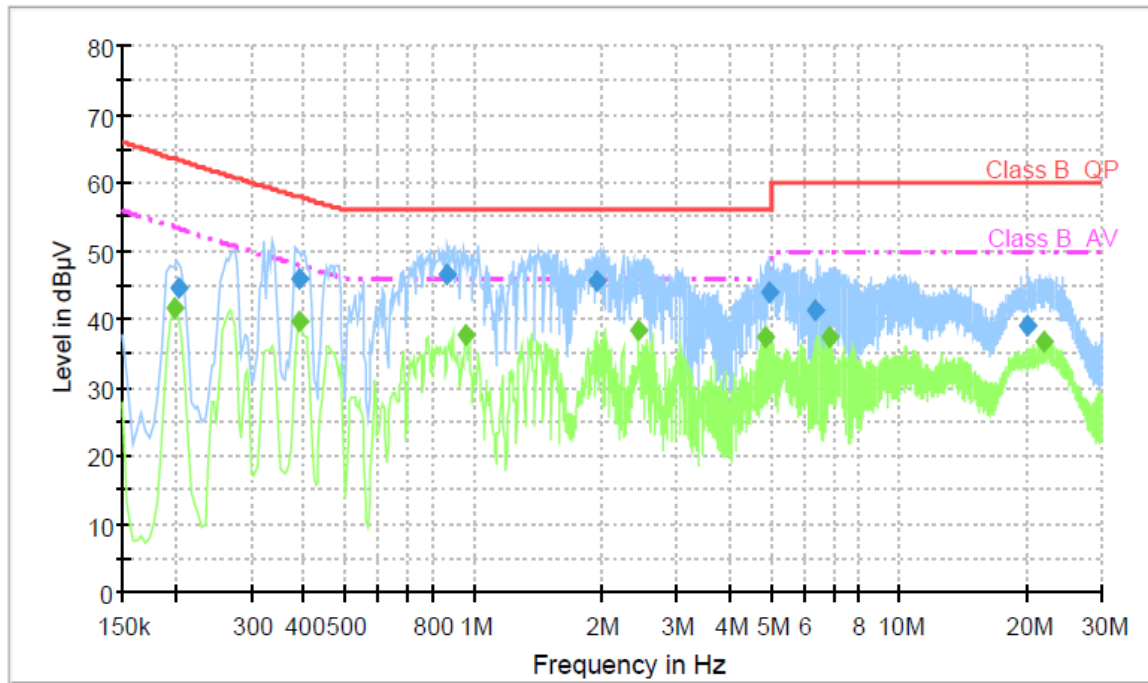
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	40.9	1000.000	9.000	GND	N	10.1	12.6	53.5	
0.390000	41.2	1000.000	9.000	GND	N	10.1	6.7	47.9	
0.958000	38.8	1000.000	9.000	GND	N	10.1	7.2	46.0	
2.046000	39.1	1000.000	9.000	GND	N	10.2	6.9	46.0	
2.634000	38.0	1000.000	9.000	GND	N	10.2	8.0	46.0	
6.466000	36.3	1000.000	9.000	GND	N	10.4	13.7	50.0	
21.894000	37.0	1000.000	9.000	GND	N	10.8	13.0	50.0	

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



- ◆ Operating condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

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
0.204000	44.5	1000.000	9.000	GND	L1	10.1	18.8	63.3	
0.392000	45.9	1000.000	9.000	GND	L1	10.1	12.0	57.9	
0.868000	46.6	1000.000	9.000	GND	L1	10.1	9.4	56.0	
1.956000	45.6	1000.000	9.000	GND	L1	10.1	10.4	56.0	
4.944000	43.9	1000.000	9.000	GND	L1	10.3	12.1	56.0	
6.344000	41.4	1000.000	9.000	GND	L1	10.4	18.6	60.0	
19.916000	39.1	1000.000	9.000	GND	L1	11.2	20.9	60.0	

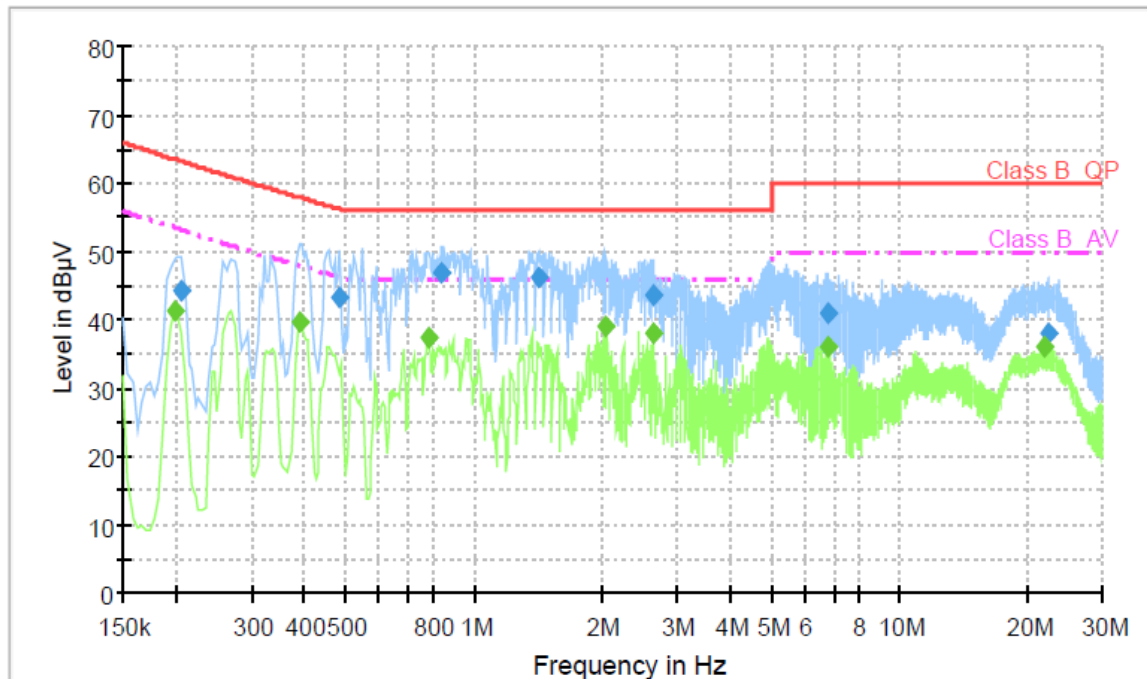
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	41.6	1000.000	9.000	GND	L1	10.1	11.9	53.5	
0.392000	39.5	1000.000	9.000	GND	L1	10.1	8.4	47.9	
0.960000	37.6	1000.000	9.000	GND	L1	10.1	8.4	46.0	
2.440000	38.4	1000.000	9.000	GND	L1	10.2	7.6	46.0	
4.876000	37.3	1000.000	9.000	GND	L1	10.3	8.7	46.0	
6.860000	37.5	1000.000	9.000	GND	L1	10.4	12.5	50.0	
21.844000	36.9	1000.000	9.000	GND	L1	11.1	13.1	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
0.206000	44.4	1000.000	9.000	GND	N	10.1	18.8	63.2	
0.482000	43.3	1000.000	9.000	GND	N	10.1	13.0	56.3	
0.842000	46.7	1000.000	9.000	GND	N	10.1	9.3	56.0	
1.430000	46.2	1000.000	9.000	GND	N	10.1	9.8	56.0	
2.634000	43.7	1000.000	9.000	GND	N	10.2	12.3	56.0	
6.794000	41.0	1000.000	9.000	GND	N	10.4	19.0	60.0	
22.314000	38.0	1000.000	9.000	GND	N	10.8	22.0	60.0	

Final Measurement Detector 2

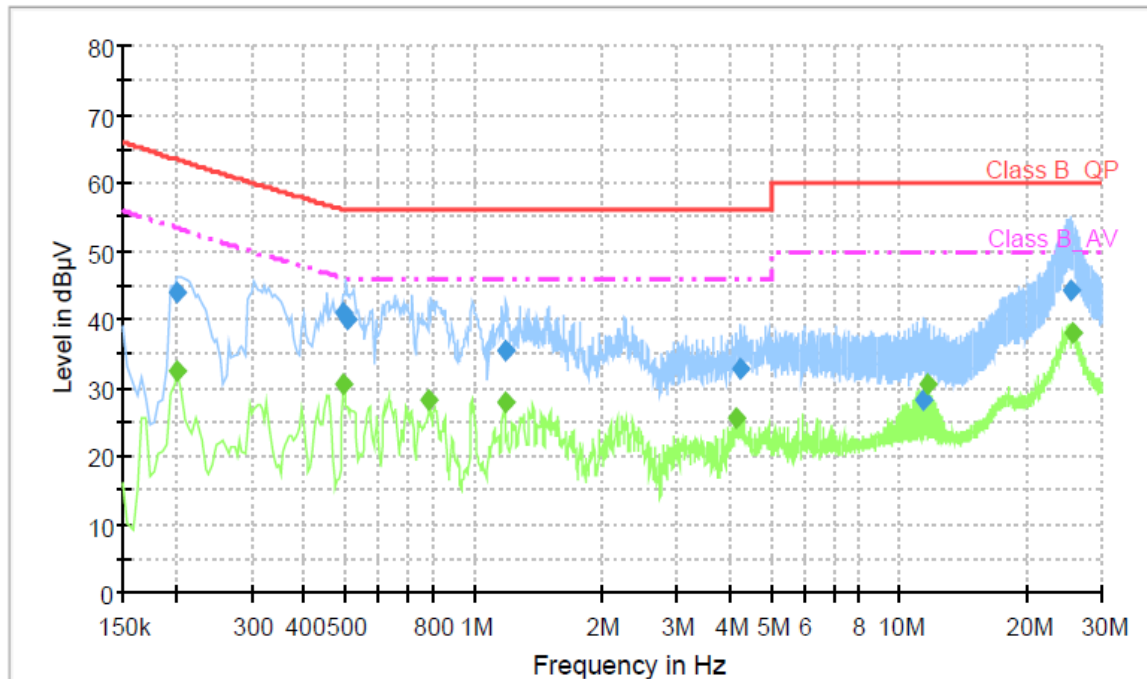
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	41.2	1000.000	9.000	GND	N	10.1	12.3	53.5	
0.390000	39.6	1000.000	9.000	GND	N	10.1	8.3	47.9	
0.782000	37.3	1000.000	9.000	GND	N	10.1	8.7	46.0	
2.046000	39.0	1000.000	9.000	GND	N	10.2	7.0	46.0	
2.634000	38.0	1000.000	9.000	GND	N	10.2	8.0	46.0	
6.794000	36.1	1000.000	9.000	GND	N	10.4	13.9	50.0	
21.846000	36.1	1000.000	9.000	GND	N	10.8	13.9	50.0	

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



- ◆ Operating condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Test case #2, Panel: T370HW03 (AU Optonics) / Power board: LGP37-11P (LG Electronics Inc.)

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
0.200000	44.0	1000.000	9.000	GND	L1	10.1	19.5	63.5	
0.496000	41.1	1000.000	9.000	GND	L1	10.1	15.0	56.1	
0.504000	40.1	1000.000	9.000	GND	L1	10.1	15.9	56.0	
1.184000	35.4	1000.000	9.000	GND	L1	10.1	20.6	56.0	
4.256000	32.8	1000.000	9.000	GND	L1	10.3	23.2	56.0	
11.460000	28.2	1000.000	9.000	GND	L1	10.6	31.8	60.0	
25.396000	44.2	1000.000	9.000	GND	L1	11.1	15.8	60.0	

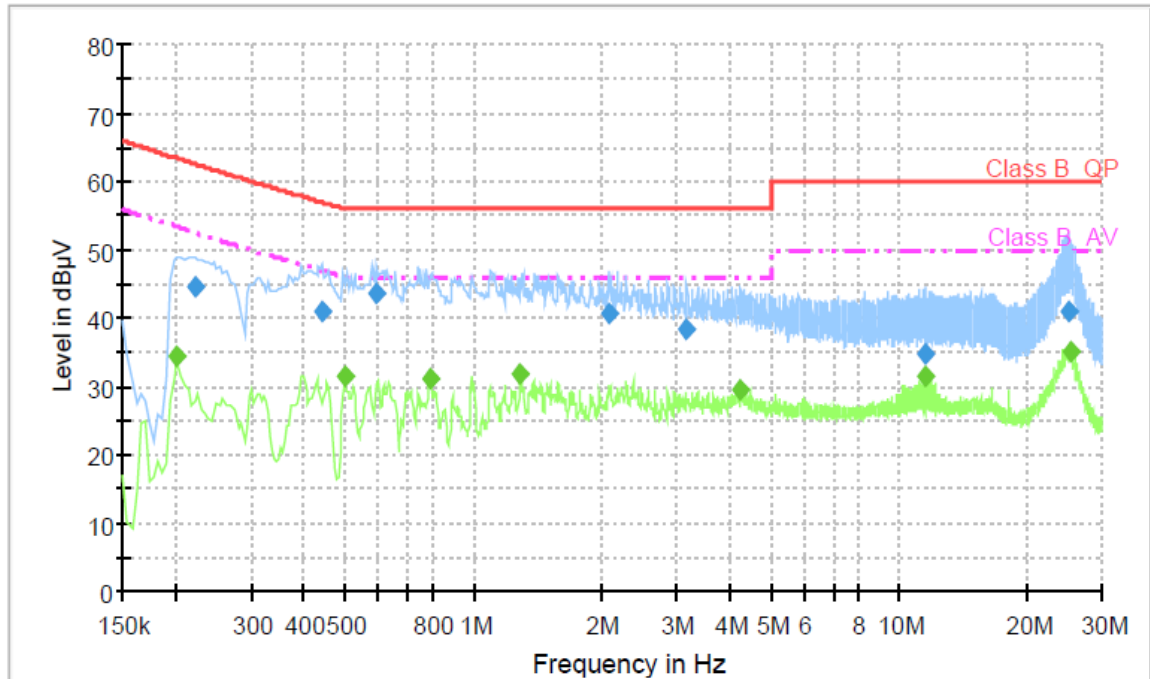
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.200000	32.5	1000.000	9.000	GND	L1	10.1	20.9	53.4	
0.496000	30.3	1000.000	9.000	GND	L1	10.1	15.8	46.1	
0.788000	28.4	1000.000	9.000	GND	L1	10.1	17.6	46.0	
1.184000	27.8	1000.000	9.000	GND	L1	10.1	18.2	46.0	
4.152000	25.6	1000.000	9.000	GND	L1	10.3	20.4	46.0	
11.712000	30.5	1000.000	9.000	GND	L1	10.6	19.5	50.0	
25.504000	38.0	1000.000	9.000	GND	L1	11.1	12.0	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
0.222000	44.6	1000.000	9.000	GND	N	10.1	18.0	62.6	
0.442000	41.1	1000.000	9.000	GND	N	10.1	15.9	57.0	
0.594000	43.7	1000.000	9.000	GND	N	10.1	12.3	56.0	
2.078000	40.7	1000.000	9.000	GND	N	10.2	15.3	56.0	
3.178000	38.4	1000.000	9.000	GND	N	10.2	17.6	56.0	
11.574000	34.7	1000.000	9.000	GND	N	10.6	25.3	60.0	
25.038000	41.1	1000.000	9.000	GND	N	10.7	18.9	60.0	

Final Measurement Detector 2

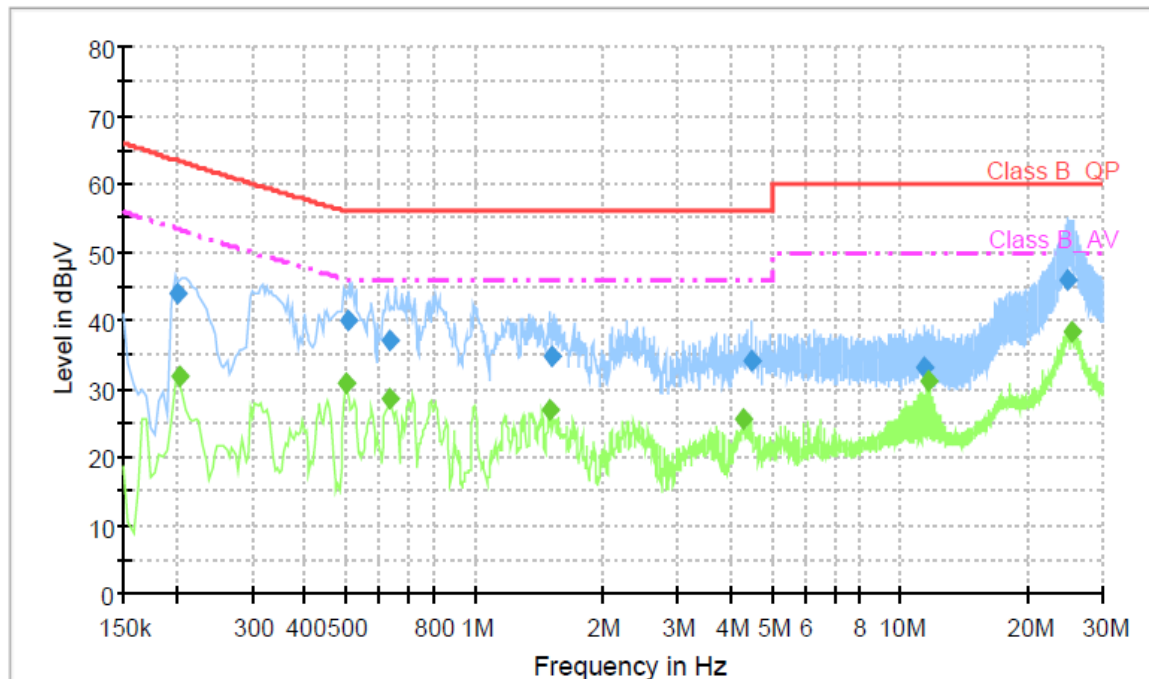
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	34.6	1000.000	9.000	GND	N	10.1	18.7	53.3	
0.498000	31.6	1000.000	9.000	GND	N	10.1	14.4	46.0	
0.790000	31.3	1000.000	9.000	GND	N	10.1	14.7	46.0	
1.290000	31.9	1000.000	9.000	GND	N	10.1	14.1	46.0	
4.258000	29.6	1000.000	9.000	GND	N	10.3	16.4	46.0	
11.578000	31.6	1000.000	9.000	GND	N	10.6	18.4	50.0	
25.242000	35.0	1000.000	9.000	GND	N	10.7	15.0	50.0	

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



- ◆ Operating condition: 1 024 × 768 / 60 Hz (RGB: Analog)
Test case #2, Panel: T370HW03 (AU Optonics) / Power board: LGP37-11P (LG Electronics Inc.)

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
0.200000	44.0	1000.000	9.000	GND	L1	10.1	19.5	63.5	
0.508000	40.0	1000.000	9.000	GND	L1	10.1	16.0	56.0	
0.636000	37.1	1000.000	9.000	GND	L1	10.1	18.9	56.0	
1.516000	34.6	1000.000	9.000	GND	L1	10.1	21.4	56.0	
4.476000	34.1	1000.000	9.000	GND	L1	10.3	21.9	56.0	
11.436000	33.0	1000.000	9.000	GND	L1	10.6	27.0	60.0	
24.860000	46.0	1000.000	9.000	GND	L1	11.1	14.0	60.0	

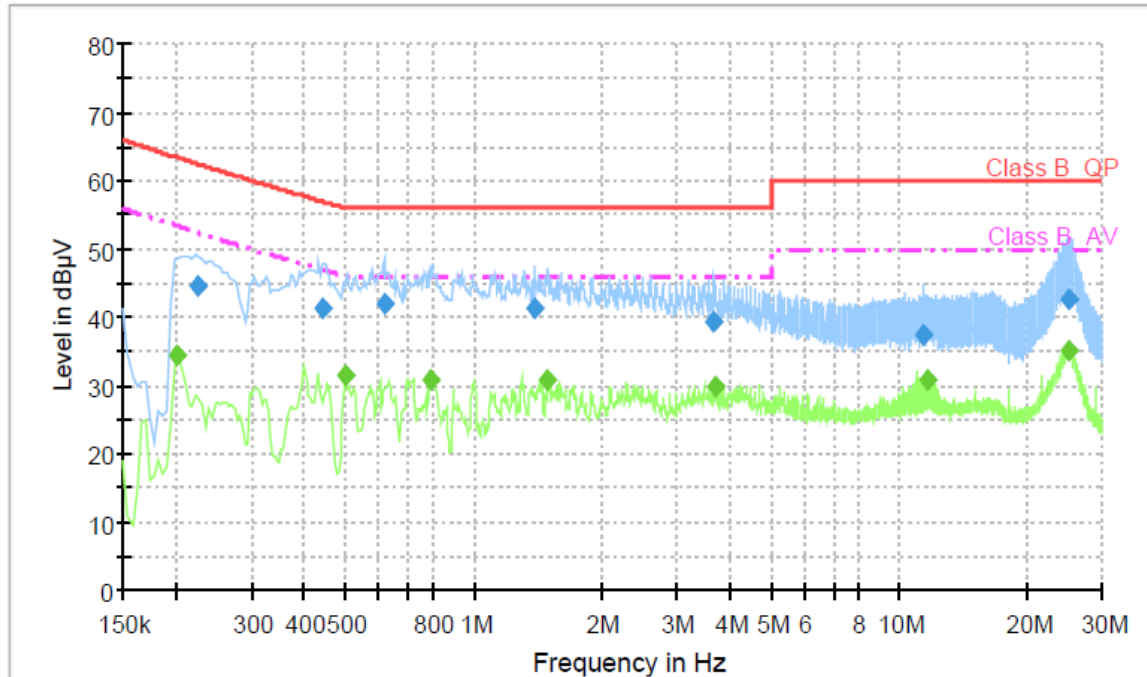
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.204000	31.7	1000.000	9.000	GND	L1	10.1	21.6	53.3	
0.500000	30.7	1000.000	9.000	GND	L1	10.1	15.3	46.0	
0.632000	28.7	1000.000	9.000	GND	L1	10.1	17.3	46.0	
1.512000	27.0	1000.000	9.000	GND	L1	10.1	19.0	46.0	
4.280000	25.6	1000.000	9.000	GND	L1	10.3	20.4	46.0	
11.712000	31.2	1000.000	9.000	GND	L1	10.6	18.8	50.0	
25.368000	38.3	1000.000	9.000	GND	L1	11.1	11.7	50.0	

< Fig 14. 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
0.226000	44.5	1000.000	9.000	GND	N	10.1	17.9	62.4	
0.442000	41.2	1000.000	9.000	GND	N	10.1	15.8	57.0	
0.618000	41.9	1000.000	9.000	GND	N	10.1	14.1	56.0	
1.394000	41.4	1000.000	9.000	GND	N	10.1	14.6	56.0	
3.678000	39.2	1000.000	9.000	GND	N	10.3	16.8	56.0	
11.438000	37.3	1000.000	9.000	GND	N	10.6	22.7	60.0	
25.162000	42.7	1000.000	9.000	GND	N	10.7	17.3	60.0	

Final Measurement Detector 2

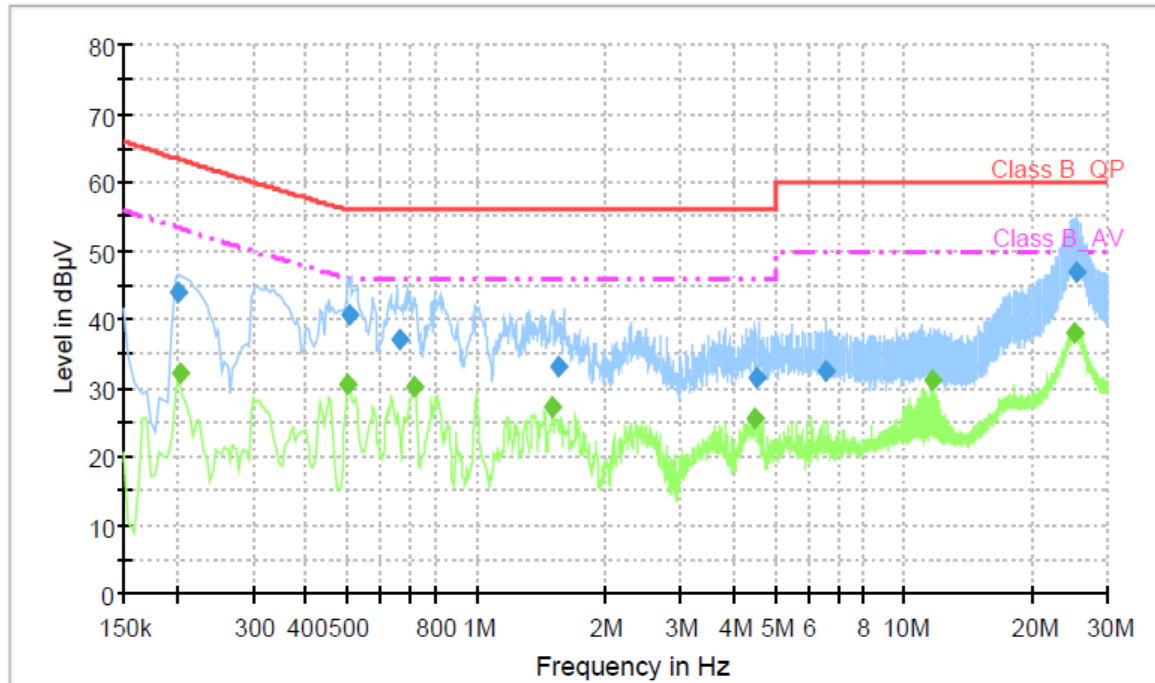
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	34.5	1000.000	9.000	GND	N	10.1	18.8	53.3	
0.498000	31.4	1000.000	9.000	GND	N	10.1	14.6	46.0	
0.794000	30.8	1000.000	9.000	GND	N	10.1	15.2	46.0	
1.494000	30.7	1000.000	9.000	GND	N	10.1	15.3	46.0	
3.690000	29.8	1000.000	9.000	GND	N	10.3	16.2	46.0	
11.710000	30.8	1000.000	9.000	GND	N	10.6	19.2	50.0	
25.058000	35.2	1000.000	9.000	GND	N	10.7	14.8	50.0	

< Fig 15. Conducted emission result (Neutral line) >



- ◆ Operating condition: 640 × 480 / 60 Hz (RGB: Analog)
Test case #2, Panel: T370HW03 (AU Optonics) / Power board: LGP37-11P (LG Electronics Inc.)

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
0.200000	44.0	1000.000	9.000	GND	L1	10.1	19.5	63.5	
0.504000	40.7	1000.000	9.000	GND	L1	10.1	15.3	56.0	
0.660000	37.1	1000.000	9.000	GND	L1	10.1	18.9	56.0	
1.560000	33.0	1000.000	9.000	GND	L1	10.1	23.0	56.0	
4.544000	31.5	1000.000	9.000	GND	L1	10.3	24.5	56.0	
6.596000	32.6	1000.000	9.000	GND	L1	10.4	27.4	60.0	
25.248000	46.8	1000.000	9.000	GND	L1	11.1	13.2	60.0	

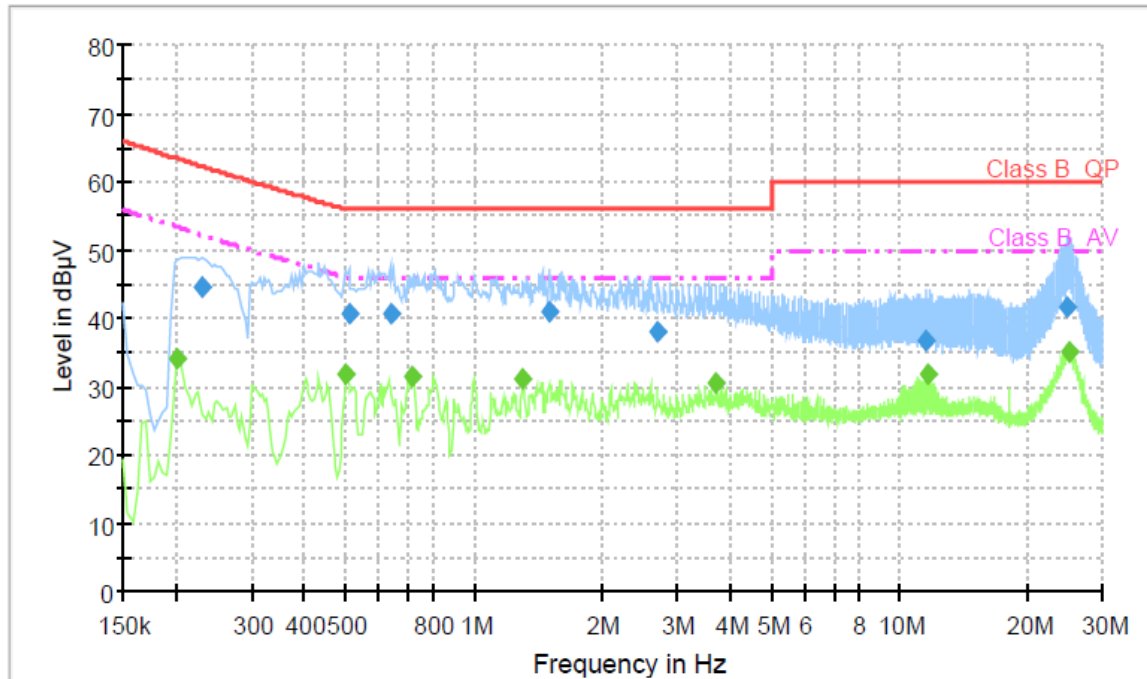
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.204000	32.0	1000.000	9.000	GND	L1	10.1	21.3	53.3	
0.500000	30.4	1000.000	9.000	GND	L1	10.1	15.6	46.0	
0.720000	30.1	1000.000	9.000	GND	L1	10.1	15.9	46.0	
1.512000	27.1	1000.000	9.000	GND	L1	10.1	18.9	46.0	
4.480000	25.5	1000.000	9.000	GND	L1	10.3	20.5	46.0	
11.712000	31.3	1000.000	9.000	GND	L1	10.6	18.7	50.0	
25.036000	38.1	1000.000	9.000	GND	L1	11.1	11.9	50.0	

< Fig 16. 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
0.230000	44.4	1000.000	9.000	GND	N	10.1	17.9	62.3	
0.510000	40.7	1000.000	9.000	GND	N	10.1	15.3	56.0	
0.638000	40.6	1000.000	9.000	GND	N	10.1	15.4	56.0	
1.502000	40.9	1000.000	9.000	GND	N	10.1	15.1	56.0	
2.714000	37.9	1000.000	9.000	GND	N	10.2	18.1	56.0	
11.578000	36.9	1000.000	9.000	GND	N	10.6	23.1	60.0	
24.770000	41.7	1000.000	9.000	GND	N	10.7	18.3	60.0	

Final Measurement Detector 2

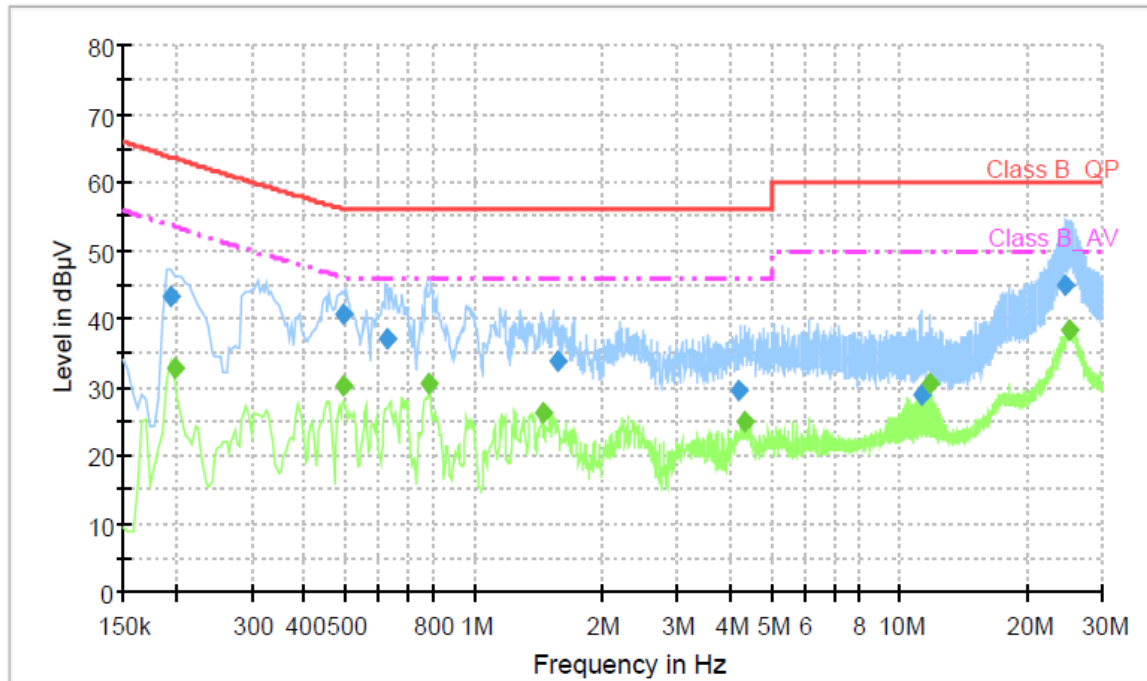
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.202000	34.2	1000.000	9.000	GND	N	10.1	19.1	53.3	
0.502000	31.7	1000.000	9.000	GND	N	10.1	14.3	46.0	
0.718000	31.6	1000.000	9.000	GND	N	10.1	14.4	46.0	
1.302000	31.2	1000.000	9.000	GND	N	10.1	14.8	46.0	
3.698000	30.4	1000.000	9.000	GND	N	10.3	15.6	46.0	
11.646000	31.7	1000.000	9.000	GND	N	10.6	18.3	50.0	
25.082000	35.1	1000.000	9.000	GND	N	10.7	14.9	50.0	

< Fig 17. Conducted emission result (Neutral line) >



- ◆ Operating condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #2, Panel: T370HW03 (AU Optonics) / Power board: LGP37-11P (LG Electronics Inc.)

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
0.194000	43.4	1000.000	9.000	GND	L1	10.1	20.3	63.7	
0.496000	40.5	1000.000	9.000	GND	L1	10.1	15.6	56.1	
0.624000	36.9	1000.000	9.000	GND	L1	10.1	19.1	56.0	
1.576000	33.8	1000.000	9.000	GND	L1	10.1	22.2	56.0	
4.196000	29.4	1000.000	9.000	GND	L1	10.3	26.6	56.0	
11.320000	28.8	1000.000	9.000	GND	L1	10.6	31.2	60.0	
24.520000	45.0	1000.000	9.000	GND	L1	11.1	15.0	60.0	

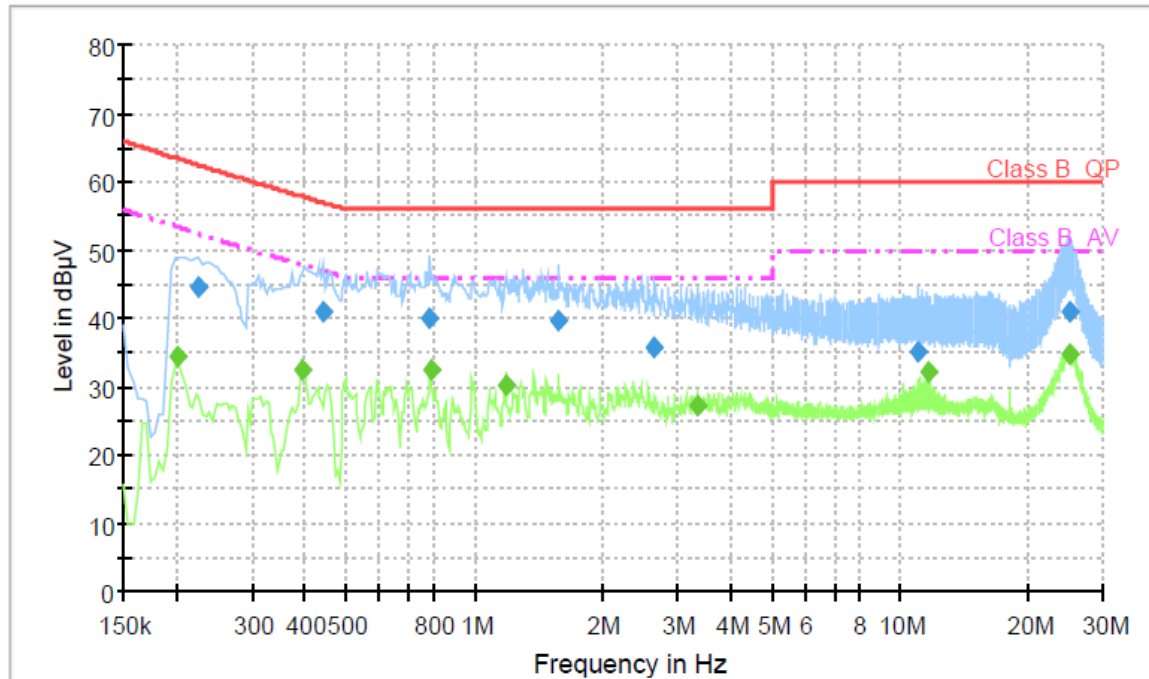
Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	32.8	1000.000	9.000	GND	L1	10.1	20.7	53.5	
0.492000	30.1	1000.000	9.000	GND	L1	10.1	16.0	46.1	
0.788000	30.6	1000.000	9.000	GND	L1	10.1	15.4	46.0	
1.448000	26.3	1000.000	9.000	GND	L1	10.1	19.7	46.0	
4.348000	25.0	1000.000	9.000	GND	L1	10.3	21.0	46.0	
11.780000	30.5	1000.000	9.000	GND	L1	10.6	19.5	50.0	
25.148000	38.4	1000.000	9.000	GND	L1	11.1	11.6	50.0	

< Fig 18. 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
0.226000	44.5	1000.000	9.000	GND	N	10.1	17.9	62.4	
0.442000	41.1	1000.000	9.000	GND	N	10.1	15.9	57.0	
0.786000	40.1	1000.000	9.000	GND	N	10.1	15.9	56.0	
1.578000	39.8	1000.000	9.000	GND	N	10.1	16.2	56.0	
2.654000	35.6	1000.000	9.000	GND	N	10.2	20.4	56.0	
11.030000	35.1	1000.000	9.000	GND	N	10.5	24.9	60.0	
25.178000	40.8	1000.000	9.000	GND	N	10.7	19.2	60.0	

Final Measurement Detector 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	34.5	1000.000	9.000	GND	N	10.1	18.8	53.3	
0.394000	32.3	1000.000	9.000	GND	N	10.1	15.5	47.8	
0.790000	32.4	1000.000	9.000	GND	N	10.1	13.6	46.0	
1.182000	30.0	1000.000	9.000	GND	N	10.1	16.0	46.0	
3.350000	27.2	1000.000	9.000	GND	N	10.2	18.8	46.0	
11.646000	32.0	1000.000	9.000	GND	N	10.6	18.0	50.0	
24.966000	34.8	1000.000	9.000	GND	N	10.7	15.2	50.0	

< Fig 19. Conducted emission result (Neutral line) >



6. Radiated Emission

6.1 Operating Environment

Temperature : 23 °C
Relative Humidity : 45 % R.H.

6.2 Test Set-up

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

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

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

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

6.3 Measurement Uncertainty

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

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

Test Items(Anechoic Chamber)	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 4.38 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 3.50 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.75 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.59 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. 2011
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3193	03. 15. 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	1258942	11. 12. 2011

6.6 Test data for Radiated Emission

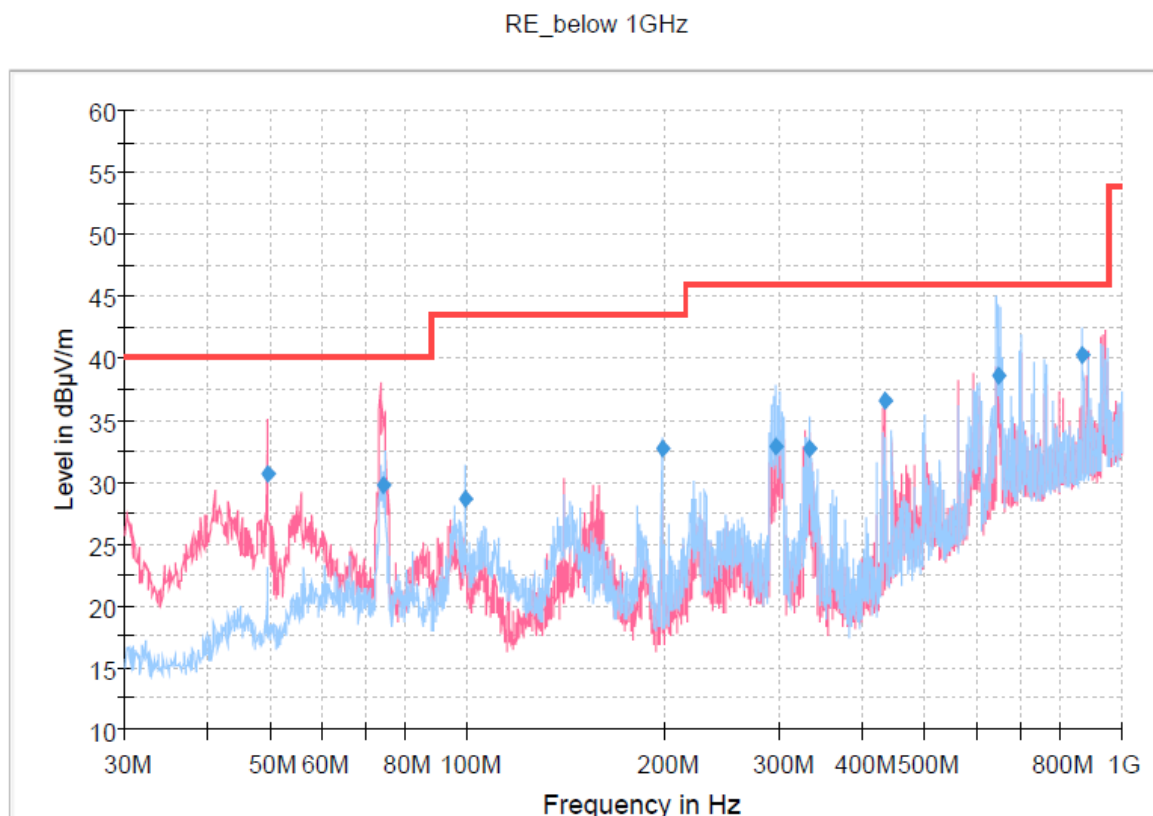
- Test Date : July 27 ~ 28, 2011
- Resolution Bandwidth : 120 kHz/1 MHz
- Frequency Range : 30 MHz ~ 5 000 MHz
- Measurement Distance : 3 m
- Note : The highest frequency of the internal source of the EUT is between 500 MHz and 1 000 MHz (667 MHz). The measurement was made up to 5 000 MHz



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

Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

Red trace: Vertical polarization, Blue trace: Horizontal polarization



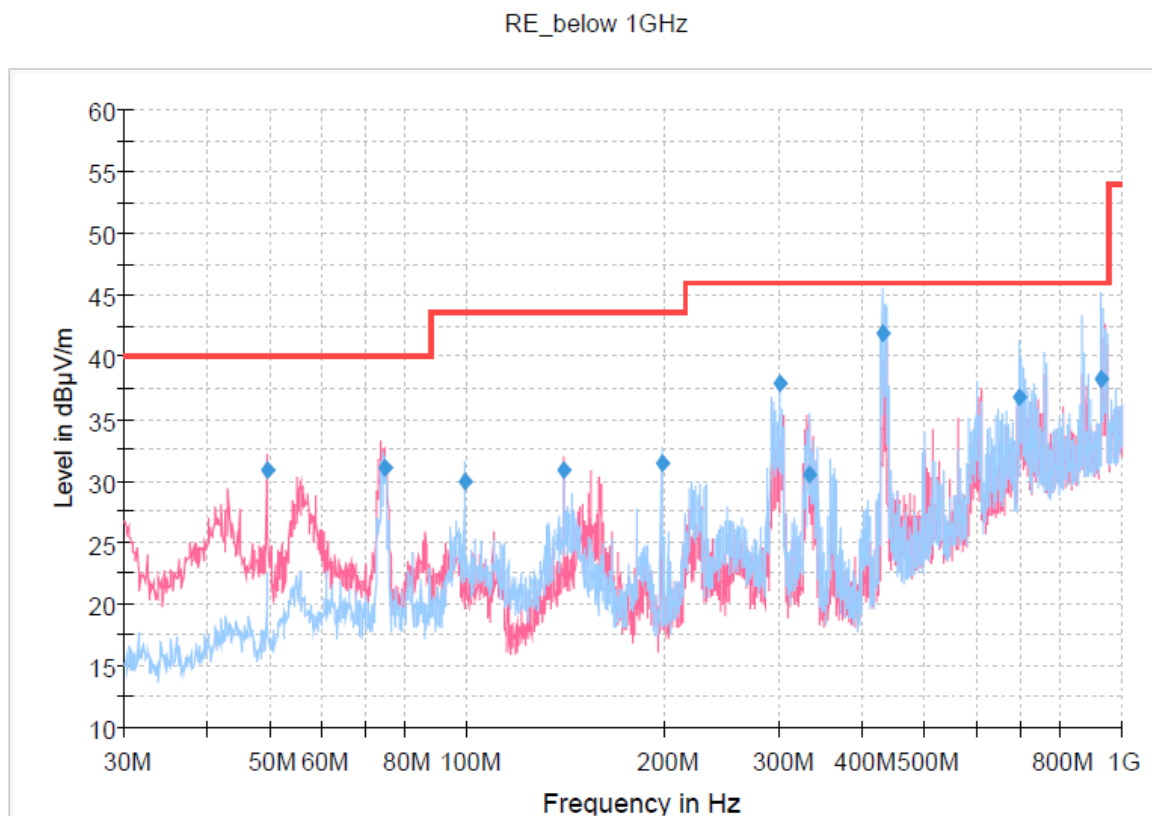
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
49.501250	30.6	500.0	120.000	100.0	V	250.0	13.2	9.40	40.00
74.230000	29.7	500.0	120.000	100.0	V	181.0	10.5	10.30	40.00
99.011250	28.7	500.0	120.000	200.0	H	212.0	11.1	14.80	43.50
197.991250	32.7	500.0	120.000	200.0	H	94.0	11.9	10.80	43.50
296.448750	33.0	500.0	120.000	100.0	H	158.0	16.7	13.00	46.00
333.217500	32.6	500.0	120.000	100.0	H	254.0	17.3	13.40	46.00
433.096250	36.5	500.0	120.000	100.0	V	250.0	19.2	9.50	46.00
645.235000	38.5	500.0	120.000	100.0	H	158.0	25.7	7.50	46.00
872.096250	40.3	500.0	120.000	100.0	H	0.0	29.5	5.70	46.00

< Fig 20. Radiated emission result (30 MHz ~ 1 000 MHz) >



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)
Red trace: Vertical polarization, Blue trace: Horizontal polarization



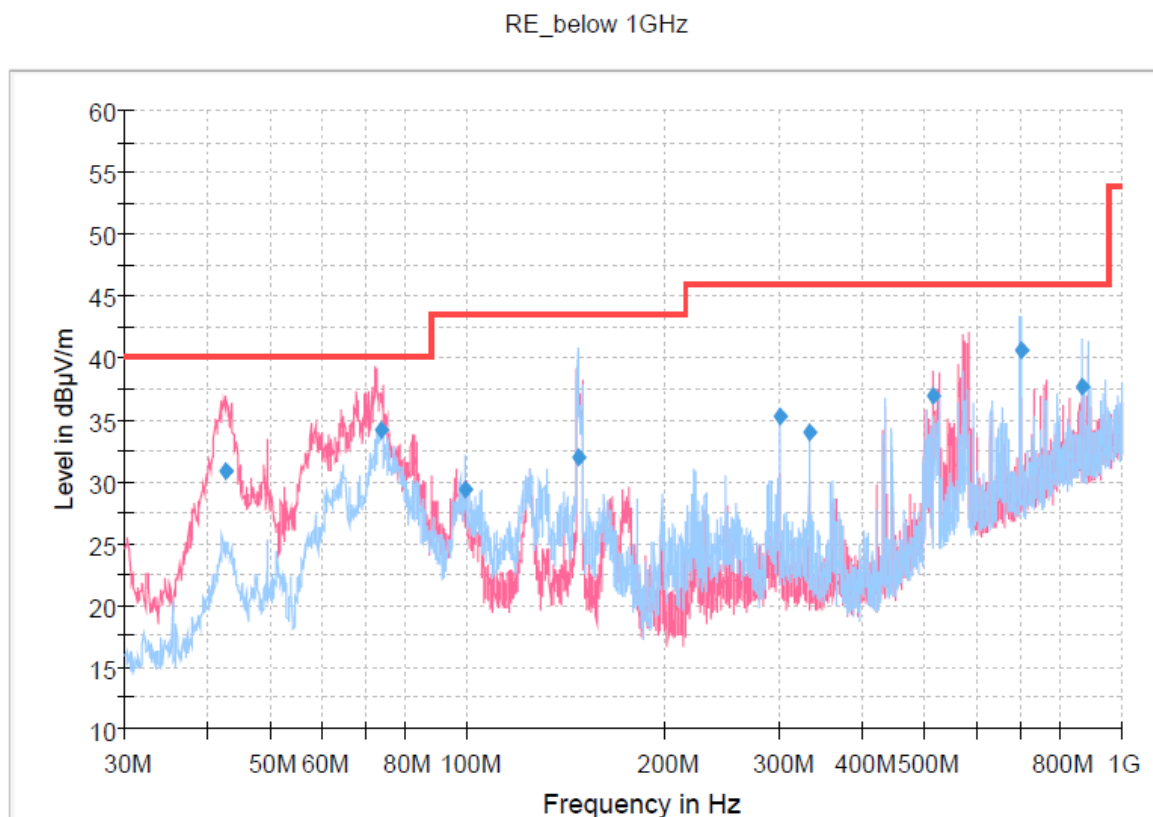
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
49.501250	30.9	500.0	120.000	100.0	V	127.0	13.2	9.10	40.00
75.111250	31.0	500.0	120.000	200.0	V	186.0	10.3	9.00	40.00
99.011250	29.9	500.0	120.000	200.0	H	160.0	11.1	13.60	43.50
140.155000	30.9	500.0	120.000	100.0	V	0.0	14.4	12.60	43.50
197.991250	31.5	500.0	120.000	200.0	H	100.0	11.9	12.00	43.50
300.731250	37.9	500.0	120.000	100.0	H	197.0	16.9	8.10	46.00
333.138750	30.5	500.0	120.000	100.0	H	136.0	17.3	15.50	46.00
430.298750	42.0	500.0	120.000	100.0	H	209.0	19.1	4.00	46.00
697.108750	36.8	500.0	120.000	200.0	H	136.0	26.6	9.20	46.00
930.555000	38.3	500.0	120.000	200.0	H	136.0	30.3	7.70	46.00

< Fig 21. Radiated emission result (30 MHz ~ 1 000 MHz) >



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)
Test case #2: Panel: T370HW03 (AU Optronics) / Power board: LGP37-11P (LG Electronics Inc.)
Red trace: Vertical polarization, Blue trace: Horizontal polarization



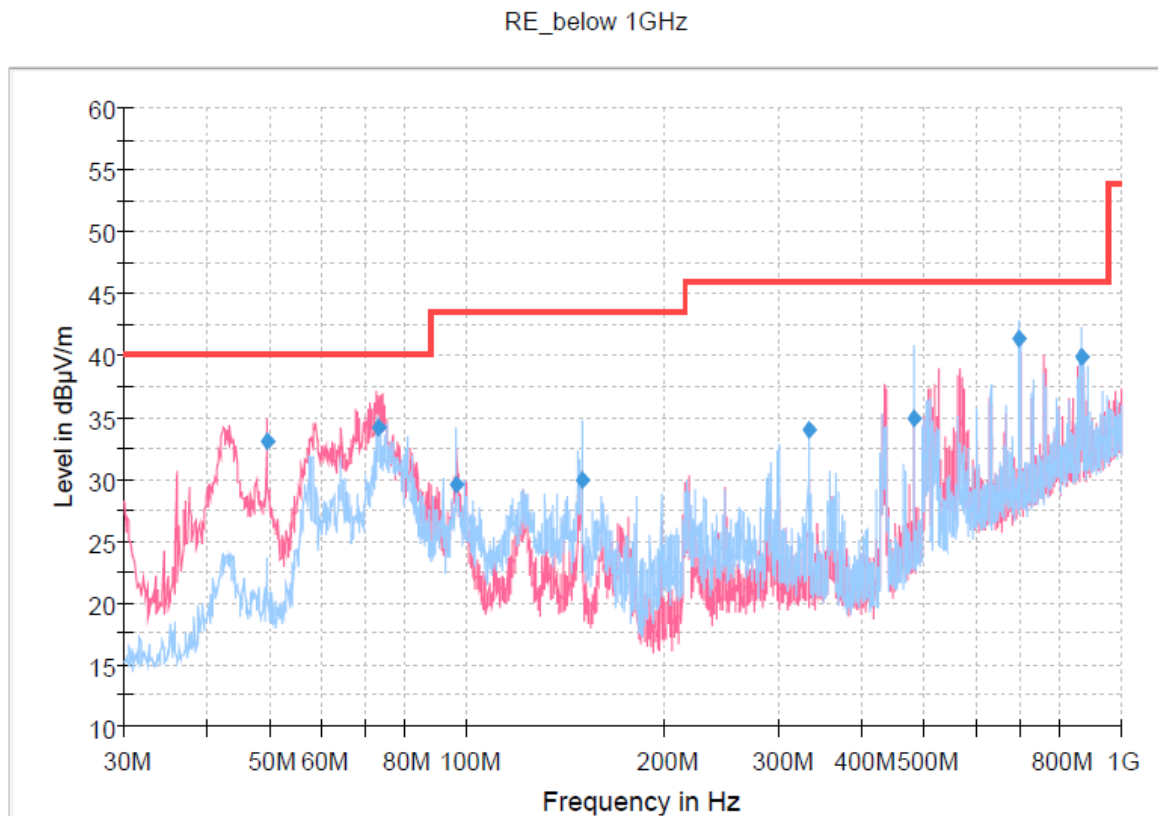
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
42.871250	30.8	500.0	120.000	100.0	V	135.0	12.5	9.20	40.00
73.736250	34.1	500.0	120.000	100.0	V	159.0	10.6	5.90	40.00
99.011250	29.3	500.0	120.000	200.0	H	213.0	11.1	14.20	43.50
147.268750	32.0	500.0	120.000	200.0	H	213.0	14.8	11.50	43.50
300.731250	35.2	500.0	120.000	100.0	H	182.0	16.9	10.80	46.00
331.811250	34.0	500.0	120.000	100.0	H	284.0	17.3	12.00	46.00
515.102500	37.0	500.0	120.000	100.0	V	218.0	22.6	9.00	46.00
700.695000	40.6	500.0	120.000	100.0	H	170.0	26.6	5.40	46.00
871.575000	37.8	500.0	120.000	100.0	H	0.0	29.5	8.20	46.00

< Fig 22. Radiated emission result (30 MHz ~ 1 000 MHz) >



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #2: Panel: T370HW03 (AU Optronics) / Power board: LGP37-11P (LG Electronics Inc.)
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)
49.501250	33.1	500.0	120.000	100.0	V	141.0	13.2	6.90	40.00
73.101250	34.1	500.0	120.000	100.0	V	141.0	10.7	5.90	40.00
96.106250	29.5	500.0	120.000	100.0	V	200.0	10.5	14.00	43.50
150.300000	30.0	500.0	120.000	200.0	H	219.0	15.0	13.50	43.50
333.145000	34.0	500.0	120.000	100.0	H	183.0	17.3	12.00	46.00
480.060000	34.9	500.0	120.000	100.0	H	0.0	21.3	11.10	46.00
696.773750	41.4	500.0	120.000	200.0	H	196.0	26.6	4.60	46.00
871.651250	39.9	500.0	120.000	100.0	H	0.0	29.5	6.10	46.00

< Fig 23. Radiated emission result (30 MHz ~ 1 000 MHz) >

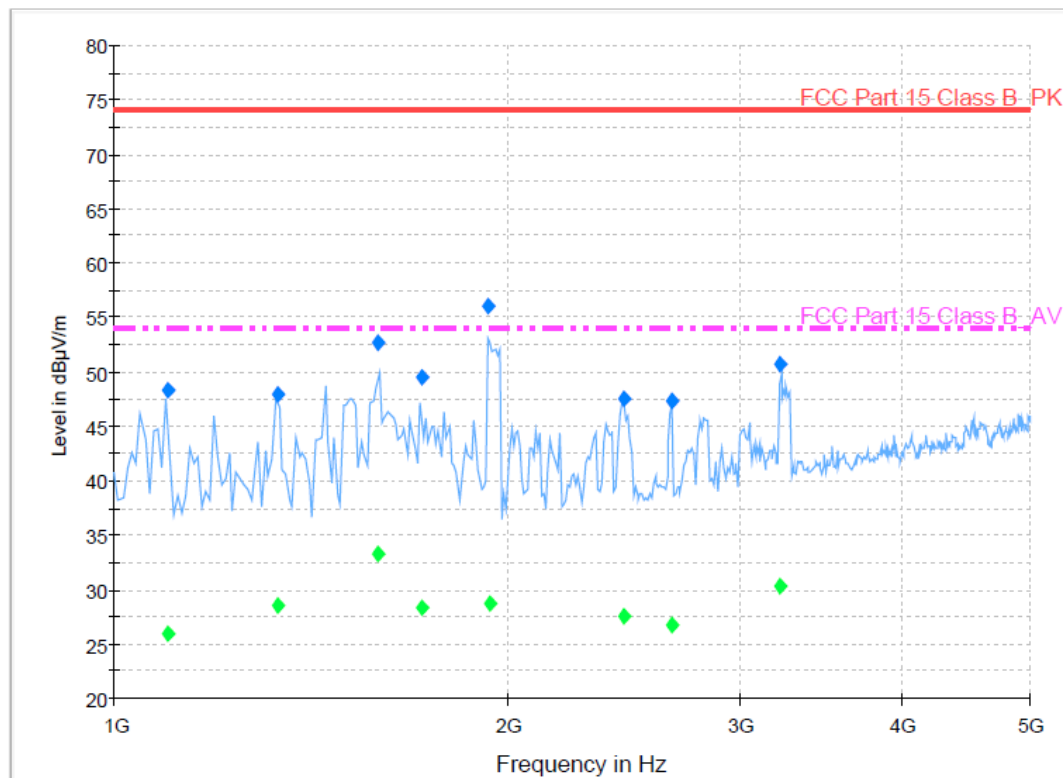


◆ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)

Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)

Green market: Average detector, Blue market: Peak detector

Radiated Emission_above 1 GHz



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)
1099.592385	48.4	1000.0	1000.000	100.0	V	247.0	-14.1	25.6	74.0
1333.657315	47.8	1000.0	1000.000	200.0	H	249.0	-13.4	26.2	74.0
1592.986373	52.6	1000.0	1000.000	150.0	V	209.0	-12.7	21.4	74.0
1717.226854	49.4	1000.0	1000.000	150.0	V	142.0	-12.5	24.6	74.0
1931.259720	56.0	1000.0	1000.000	100.0	V	141.0	-12.0	18.0	74.0
2449.901804	47.6	1000.0	1000.000	100.0	V	193.0	-9.6	26.4	74.0
2662.334669	47.3	1000.0	1000.000	245.0	H	250.0	-8.7	26.7	74.0
3224.656914	50.7	1000.0	1000.000	100.0	H	225.0	-6.5	23.3	74.0

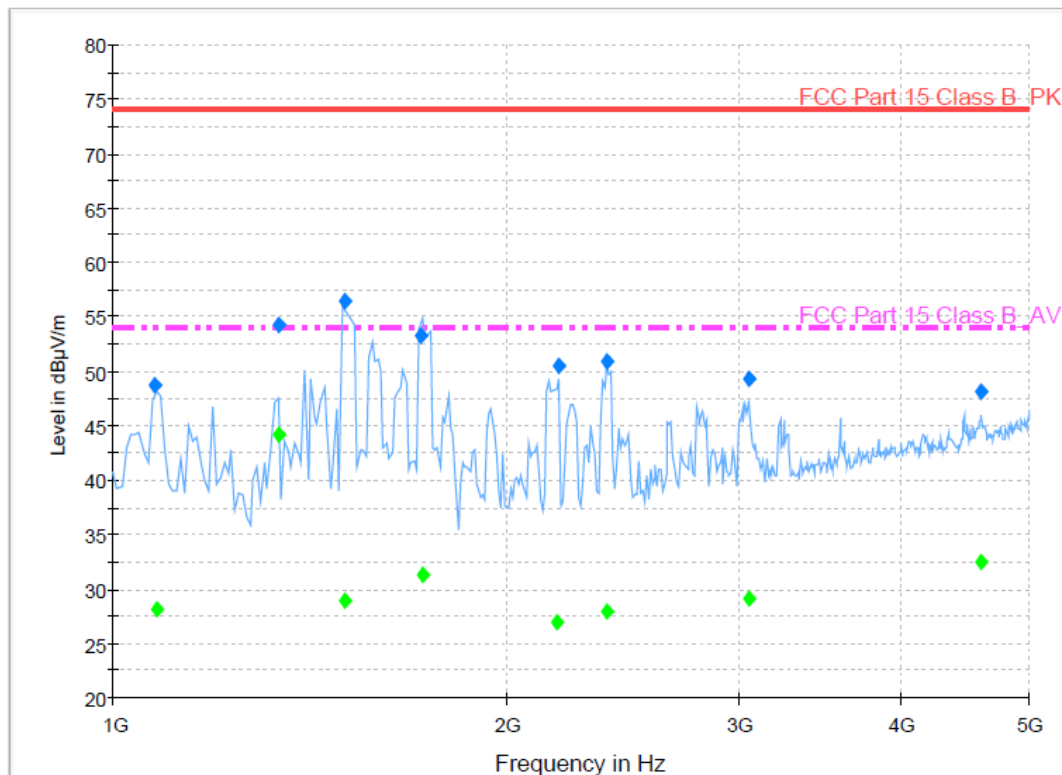
Final Result 2

Frequency (MHz)	CAverage (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1099.992385	25.9	1000.0	1000.000	150.0	V	242.0	-14.1	28.1	54.0
1332.457315	28.5	1000.0	1000.000	200.0	H	254.0	-13.4	25.5	54.0
1592.986373	33.2	1000.0	1000.000	163.0	V	212.0	-12.7	20.8	54.0
1716.426854	28.4	1000.0	1000.000	150.0	V	145.0	-12.5	25.6	54.0
1934.859720	28.8	1000.0	1000.000	100.0	V	151.0	-12.0	25.2	54.0
2450.301804	27.4	1000.0	1000.000	100.0	V	193.0	-9.6	26.6	54.0
2667.134669	26.7	1000.0	1000.000	250.0	H	262.0	-8.7	27.3	54.0
3226.256914	30.2	1000.0	1000.000	100.0	H	227.0	-6.5	23.8	54.0

< Fig 24. Radiated emission result (1 000 MHz ~ 5 000 MHz) >



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #1: Panel: LC370WUE (LG Display) / Power board: LGP37-10LF (LG Electronics Inc.)
Green marker: Average detector, Blue marker: Peak detector
Radiated Emission_above 1 GHz



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)
1075.960321	48.7	1000.0	1000.000	212.0	V	163.0	-14.1	25.3	74.0
1336.473347	54.2	1000.0	1000.000	100.0	V	213.0	-13.4	19.8	74.0
1501.593988	56.4	1000.0	1000.000	100.0	V	148.0	-13.0	17.6	74.0
1719.642886	53.4	1000.0	1000.000	100.0	V	194.0	-12.5	20.6	74.0
2188.172746	50.6	1000.0	1000.000	100.0	V	160.0	-10.8	23.4	74.0
2383.757515	51.0	1000.0	1000.000	200.0	H	146.0	-9.9	23.0	74.0
3054.704208	49.3	1000.0	1000.000	150.0	V	186.0	-7.2	24.7	74.0
4594.598397	48.1	1000.0	1000.000	100.0	V	201.0	-2.1	25.9	74.0

Final Result 2

Frequency (MHz)	CAverage (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1081.560321	28.1	1000.0	1000.000	250.0	V	169.0	-14.1	25.9	54.0
1336.473347	44.1	1000.0	1000.000	150.0	V	224.0	-13.4	9.9	54.0
1501.993988	28.9	1000.0	1000.000	100.0	V	148.0	-13.0	25.1	54.0
1721.242886	31.2	1000.0	1000.000	100.0	V	190.0	-12.5	22.8	54.0
2181.772746	27.0	1000.0	1000.000	100.0	V	165.0	-10.8	27.0	54.0
2383.757515	28.0	1000.0	1000.000	200.0	H	146.0	-9.9	26.0	54.0
3055.504208	29.0	1000.0	1000.000	100.0	V	191.0	-7.2	25.0	54.0
4594.198397	32.5	1000.0	1000.000	100.0	V	207.0	-2.1	21.5	54.0

< Fig 25. Radiated emission result (1 000 MHz ~ 5 000 MHz) >

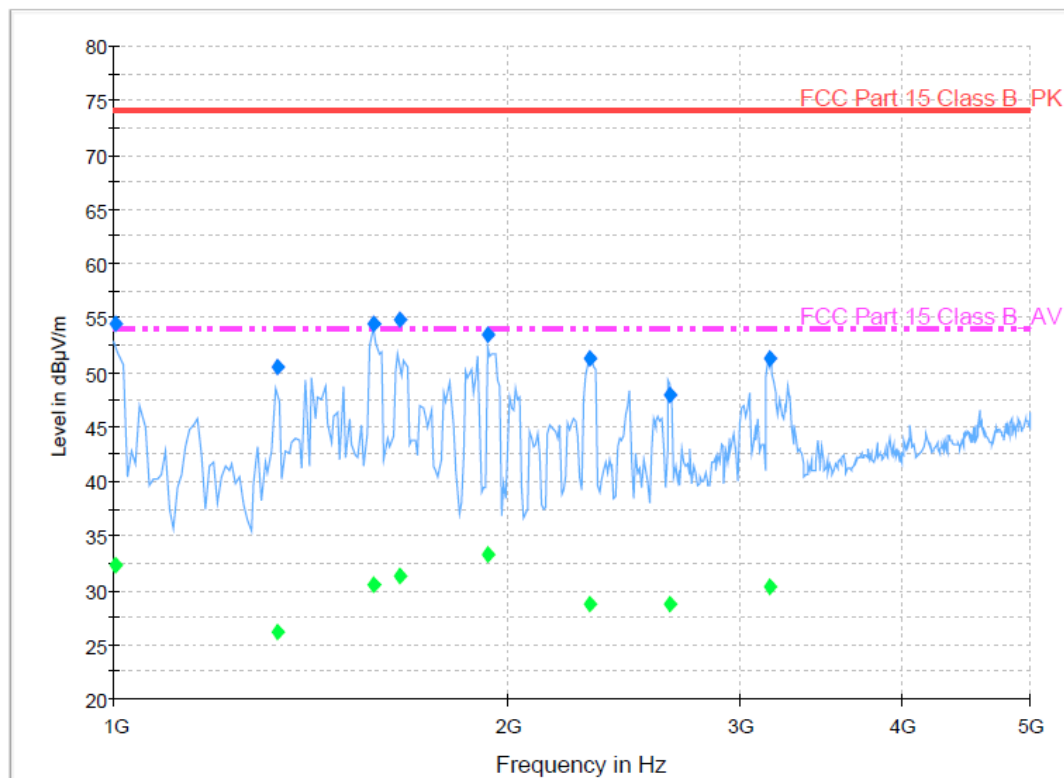


◆ Operating Condition: 1 920 × 1 080 / 60 Hz (RGB: Analog)

Test case #2: Panel: T370HW03 (AU Optronics) / Power board: LGP37-11P (LG Electronics Inc.)

Green market: Average detector, Blue market: Peak detector

Radiated Emission_above 1 GHz



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)
1005.000000	54.4	1000.0	1000.000	196.0	V	158.0	-14.4	19.6	74.0
1333.657315	50.5	1000.0	1000.000	100.0	V	235.0	-13.4	23.5	74.0
1581.354309	54.4	1000.0	1000.000	100.0	V	196.0	-12.7	19.6	74.0
1652.698597	54.8	1000.0	1000.000	113.0	V	163.0	-12.6	19.2	74.0
1930.859720	53.4	1000.0	1000.000	100.0	V	213.0	-12.0	20.6	74.0
2308.013227	51.3	1000.0	1000.000	100.0	V	153.0	-10.2	22.7	74.0
2655.502605	47.9	1000.0	1000.000	100.0	V	59.0	-8.7	26.1	74.0
3170.144689	51.3	1000.0	1000.000	200.0	V	199.0	-6.7	22.7	74.0

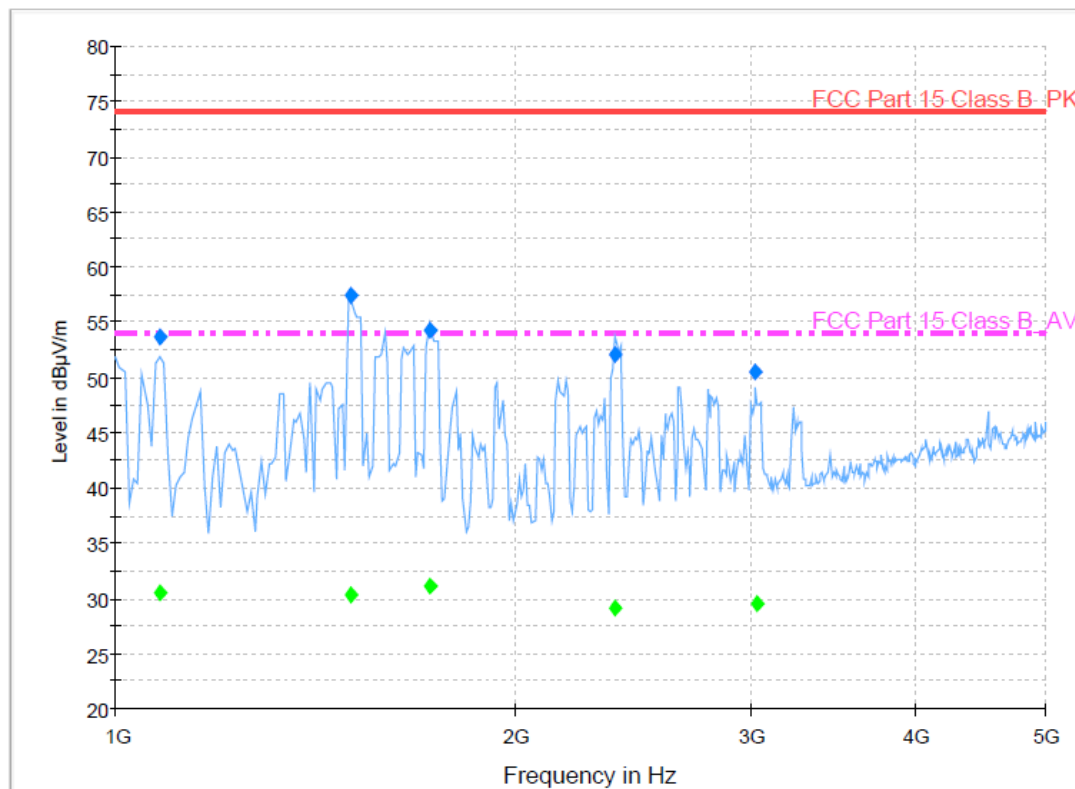
Final Result 2

Frequency (MHz)	CAverage (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1005.000000	32.2	1000.0	1000.000	196.0	V	156.0	-14.4	21.8	54.0
1332.457315	26.1	1000.0	1000.000	113.0	V	235.0	-13.4	27.9	54.0
1579.754309	30.5	1000.0	1000.000	100.0	V	196.0	-12.7	23.5	54.0
1651.498597	31.3	1000.0	1000.000	115.0	V	163.0	-12.6	22.7	54.0
1930.459720	33.3	1000.0	1000.000	150.0	V	218.0	-12.0	20.7	54.0
2310.013227	28.8	1000.0	1000.000	100.0	V	153.0	-10.2	25.2	54.0
2654.702605	28.6	1000.0	1000.000	100.0	V	56.0	-8.7	25.4	54.0
3167.744689	30.2	1000.0	1000.000	228.0	V	203.0	-6.7	23.8	54.0

< Fig 26. Radiated emission result (1 000 MHz ~ 5 000 MHz) >



- ◆ Operating Condition: 1 920 × 1 080 / 60 Hz (HDMI/DVI: Digital)
Test case #2: Panel: T370HW03 (AU Optronics) / Power board: LGP37-11P (LG Electronics Inc.)
Green marker: Average detector, Blue marker: Peak detector
Radiated Emission_above 1 GHz



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)
1081.960321	53.7	1000.0	1000.000	150.0	V	156.0	-14.1	20.3	74.0
1501.993988	57.5	1000.0	1000.000	100.0	V	209.0	-13.0	16.5	74.0
1724.442886	54.2	1000.0	1000.000	100.0	V	173.0	-12.4	19.8	74.0
2374.941483	52.0	1000.0	1000.000	100.0	V	146.0	-9.9	22.0	74.0
3023.856112	50.5	1000.0	1000.000	150.0	V	196.0	-7.3	23.5	74.0

Final Result 2

Frequency (MHz)	CAverage (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1081.560321	30.4	1000.0	1000.000	150.0	V	159.0	-14.1	23.6	54.0
1501.993988	30.3	1000.0	1000.000	100.0	V	209.0	-13.0	23.7	54.0
1723.642886	31.2	1000.0	1000.000	100.0	V	170.0	-12.4	22.8	54.0
2375.741483	29.0	1000.0	1000.000	100.0	V	151.0	-9.9	25.0	54.0
3033.056112	29.5	1000.0	1000.000	150.0	V	201.0	-7.2	24.5	54.0

< Fig 27. 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: 37LK450-UH)** was complies with §15.107 and 15.109 of the FCC Rules.