

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 21, 2009****Order Number: GETEC-C1-09-269****Test Report Number: GETEC-E3-09-163****Test Site: Gumi College EMC Center****FCC Registration Number: (100749, 443957)****FCC ID.: BEJ55LE8500UA****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	: 55LE8500-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 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,**

Hyoungh 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

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- **FCC ID.** BEJ55LE8500UA
- **EUT Type** LED LCD TV/Monitor
- **Model Name** 55LE8500-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 15 ~ 16, 2009
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-09-163
- **Dates of Issue** December 21, 2009



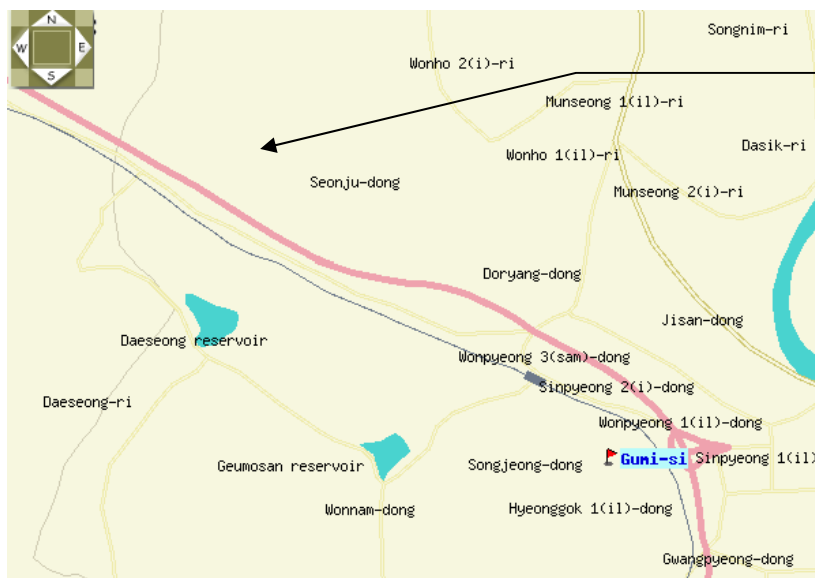
2. Introduction

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. LED LCD TV/Monitor (Model Name: 55LE8500-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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Gyeongbuk 730-711, Korea.
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Fig 1. The map above shows the Gumi College in vicinity area.



3. Product Information

3.1 Description of EUT

The Equipment under Test (EUT) is the **LG Electronics Inc. LED LCD TV/Monitor (Model Name: 55LE8500-UA) FCC ID.: BEJ55LE8500UA**

MODELS		47LE8500 (47LE8500-UA)	55LE8500 (55LE8500-UA)
Dimensions (Width x Height x Depth)	With stand	1122.6 x 768.3 x 275.0 mm (44.1 x 30.2 x 10.8 inches)	1292.6 x 874.4 x 311.9 mm (50.8 x 34.4 x 12.2 inches)
	Without stand	1122.6 x 707.3 x 24.5 (max 39.7) mm (44.1 x 27.8 x 0.9 (max 1.5) inches)	1292.6 x 802.9 x 24.5 (max 39.7) mm (50.8 x 31.6 x 0.9 (max 1.5) inches)
Weight	With stand	31.6 kg (69.6 lbs)	43.8 kg (96.5 lbs)
	Without stand	26.9 kg (59.3 lbs)	35.8 kg (78.9 lbs)
Power requirement		AC120V ~ 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	INNATOR Co., Ltd.	XM2-128	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
AV input cable	Connected to the EUT and DVD Player	3.0 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
Antenna cable	Connected to the EUT and TV signal generator	10.0 m shielded
Headset cable	Connected to the EUT	2.75 m shielded
LAN cable	Connected to the EUT and Network	10.0 m unshielded
Wireless control cable	Connected to the EUT and Wireless Ready Dongle	0.25 m shielded
RS-232C (Service only) cable	Connected to the EUT and PC	1.8 m shielded
Component input 3 cable	Connected to the EUT and DVD player	2.1 m shielded
AV input 2 cable	Connected to the EUT and DVD player	2.24 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), 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 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

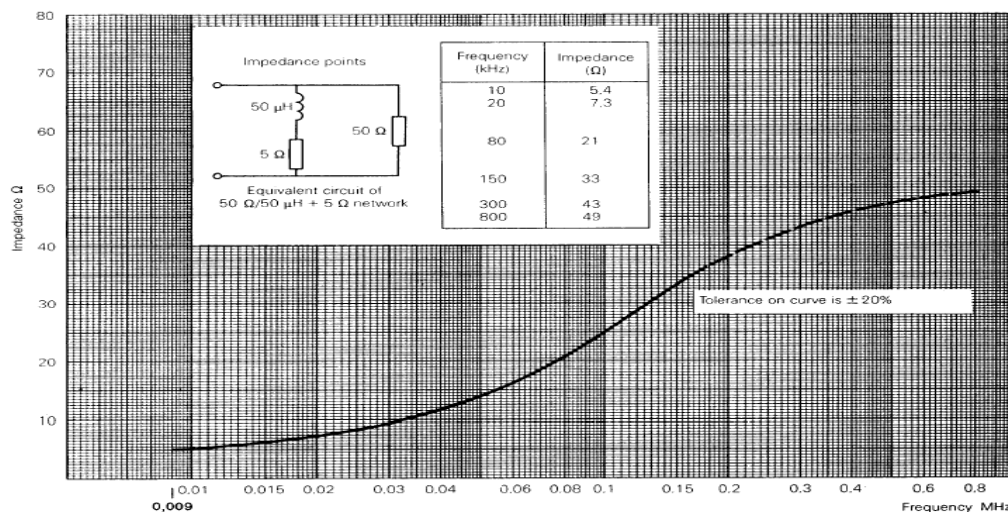


Fig 2. Impedance of LISN



4.3 Radiated Emission

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

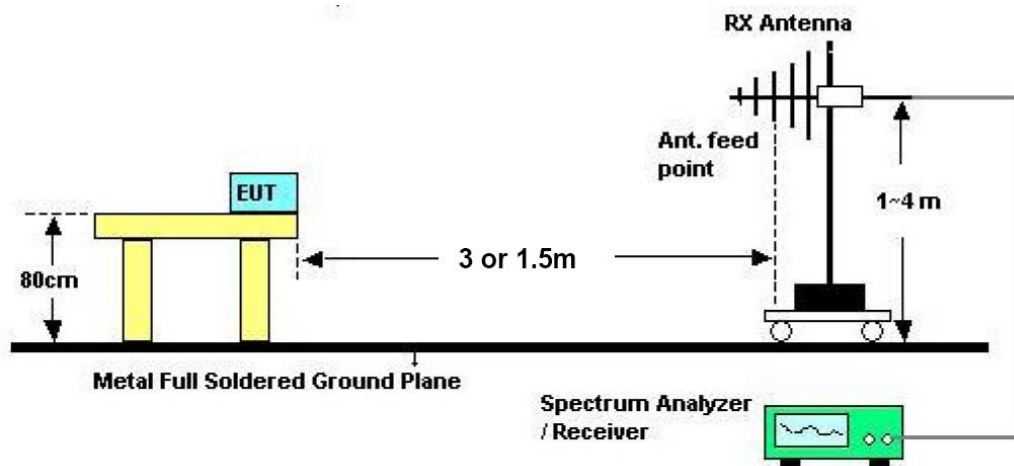


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 23 °C
Relative Humidity : 39 % 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. 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	ISN	24568	10. 16. 2010

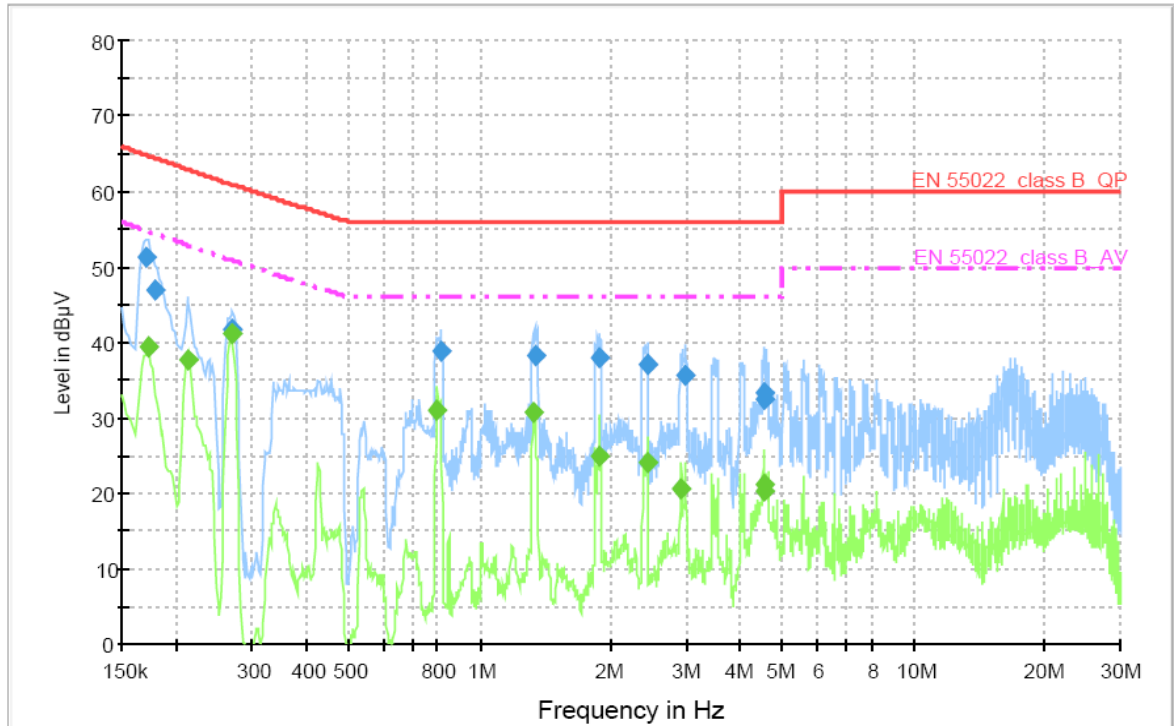
5.6 Test data for Conducted Emission

- . Test Date : December 15, 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
0.170000	51.3	1000.000	9.000	GND	L1	10.0	13.6	64.9	
0.178000	46.9	1000.000	9.000	GND	L1	10.0	17.6	64.5	
0.270000	41.8	1000.000	9.000	GND	L1	10.0	19.1	60.9	
0.812000	38.9	1000.000	9.000	GND	L1	10.0	17.1	56.0	
1.338000	38.3	1000.000	9.000	GND	L1	10.1	17.7	56.0	
1.892000	38.1	1000.000	9.000	GND	L1	10.1	17.9	56.0	
2.438000	37.2	1000.000	9.000	GND	L1	10.1	18.8	56.0	
2.980000	35.5	1000.000	9.000	GND	L1	10.1	20.5	56.0	
4.516000	33.3	1000.000	9.000	GND	L1	10.2	22.7	56.0	
4.526000	32.5	1000.000	9.000	GND	L1	10.2	23.5	56.0	

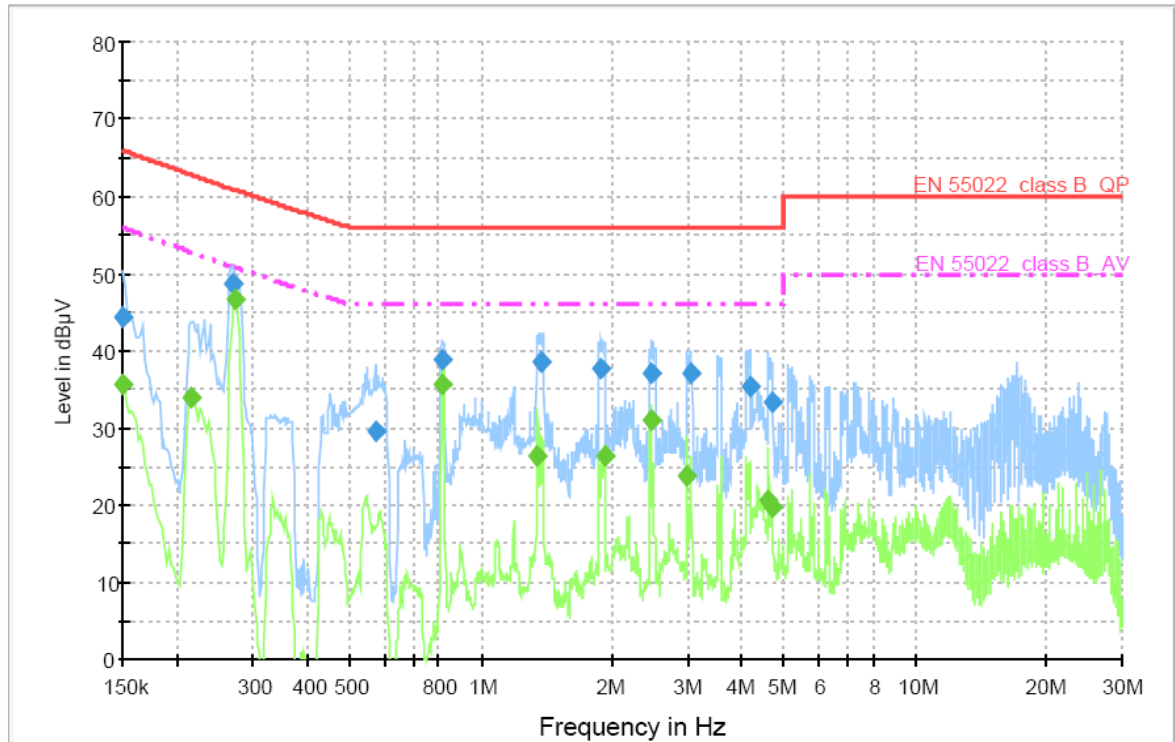
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.172000	39.5	1000.000	9.000	GND	L1	10.0	15.3	54.8	
0.212000	37.8	1000.000	9.000	GND	L1	10.0	15.1	52.9	
0.268000	41.1	1000.000	9.000	GND	L1	10.0	9.8	50.9	
0.800000	30.9	1000.000	9.000	GND	L1	10.0	15.1	46.0	
1.328000	30.7	1000.000	9.000	GND	L1	10.1	15.3	46.0	
1.892000	24.9	1000.000	9.000	GND	L1	10.1	21.1	46.0	
2.434000	24.0	1000.000	9.000	GND	L1	10.1	22.0	46.0	
2.924000	20.5	1000.000	9.000	GND	L1	10.1	25.5	46.0	
4.510000	21.3	1000.000	9.000	GND	L1	10.2	24.7	46.0	
4.542000	20.4	1000.000	9.000	GND	L1	10.2	25.6	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	44.5	1000.000	9.000	GND	N	10.0	21.5	66.0	
0.268000	48.6	1000.000	9.000	GND	N	10.0	12.4	61.0	
0.572000	29.7	1000.000	9.000	GND	N	10.0	26.3	56.0	
0.816000	39.0	1000.000	9.000	GND	N	10.0	17.0	56.0	
1.380000	38.7	1000.000	9.000	GND	N	10.1	17.3	56.0	
1.898000	37.7	1000.000	9.000	GND	N	10.1	18.3	56.0	
2.478000	37.2	1000.000	9.000	GND	N	10.1	18.8	56.0	
3.030000	37.1	1000.000	9.000	GND	N	10.1	18.9	56.0	
4.174000	35.3	1000.000	9.000	GND	N	10.2	20.7	56.0	
4.710000	33.3	1000.000	9.000	GND	N	10.2	22.7	56.0	

Final Measurement Detector 2

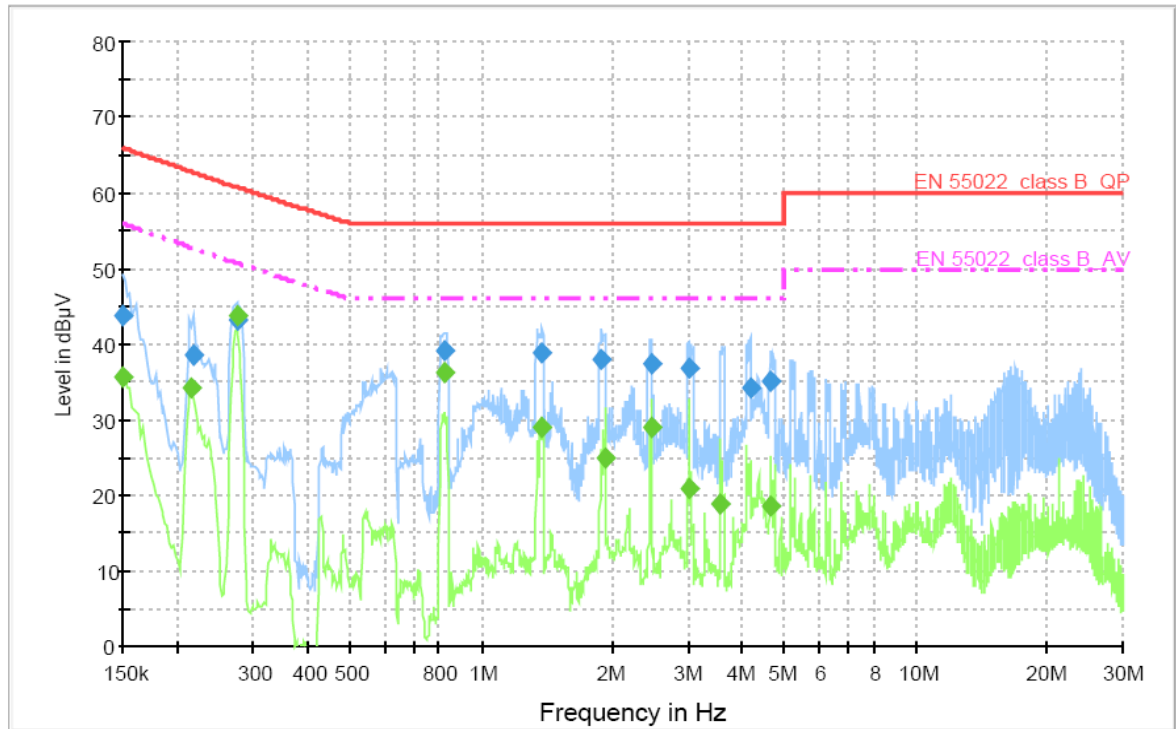
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	35.8	1000.000	9.000	GND	N	10.0	20.2	56.0	
0.216000	34.0	1000.000	9.000	GND	N	10.0	18.8	52.8	
0.272000	46.7	1000.000	9.000	GND	N	10.0	4.1	50.8	
0.818000	35.5	1000.000	9.000	GND	N	10.0	10.5	46.0	
1.350000	26.3	1000.000	9.000	GND	N	10.1	19.7	46.0	
1.926000	26.4	1000.000	9.000	GND	N	10.1	19.6	46.0	
2.460000	31.1	1000.000	9.000	GND	N	10.1	14.9	46.0	
2.980000	23.8	1000.000	9.000	GND	N	10.1	22.2	46.0	
4.604000	20.5	1000.000	9.000	GND	N	10.2	25.5	46.0	
4.710000	19.6	1000.000	9.000	GND	N	10.2	26.4	46.0	

< 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
0.150000	43.9	1000.000	9.000	GND	L1	10.0	22.1	66.0	
0.218000	38.7	1000.000	9.000	GND	L1	10.0	24.0	62.7	
0.274000	43.1	1000.000	9.000	GND	L1	10.0	17.7	60.8	
0.828000	39.2	1000.000	9.000	GND	L1	10.0	16.8	56.0	
1.376000	38.8	1000.000	9.000	GND	L1	10.1	17.2	56.0	
1.898000	37.9	1000.000	9.000	GND	L1	10.1	18.1	56.0	
2.468000	37.3	1000.000	9.000	GND	L1	10.1	18.7	56.0	
2.994000	36.7	1000.000	9.000	GND	L1	10.1	19.3	56.0	
4.150000	34.3	1000.000	9.000	GND	L1	10.2	21.7	56.0	
4.616000	35.0	1000.000	9.000	GND	L1	10.2	21.0	56.0	

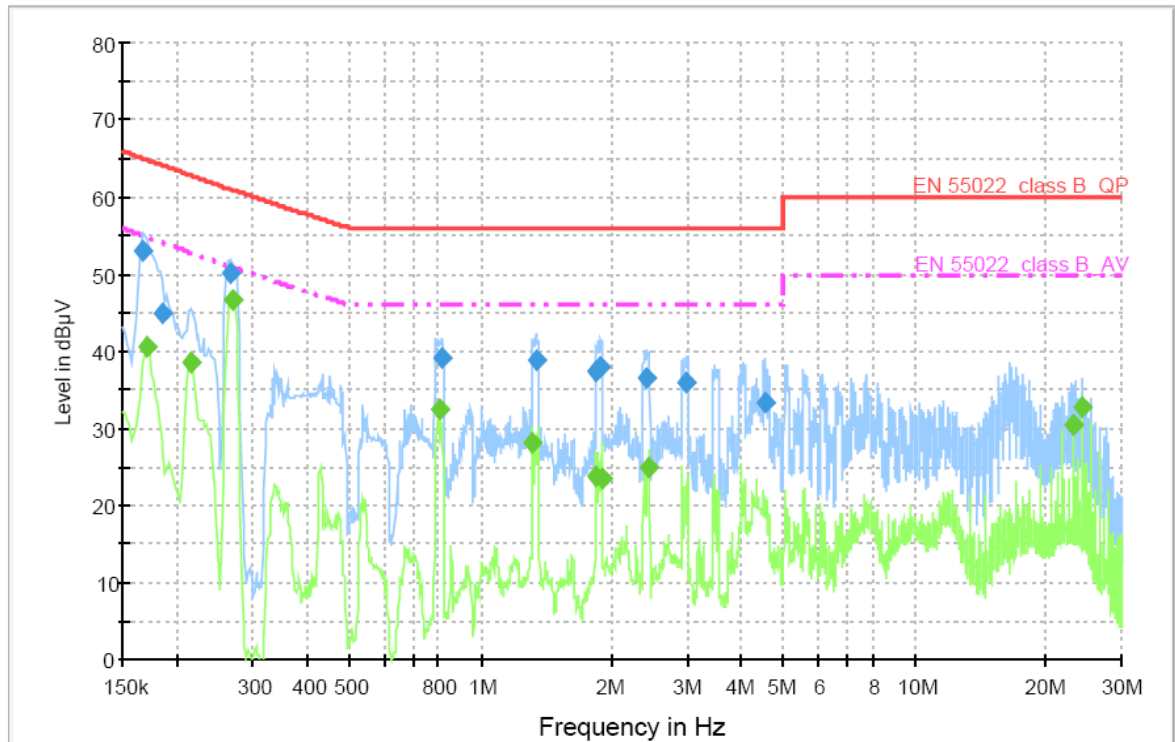
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	35.7	1000.000	9.000	GND	L1	10.0	20.3	56.0	
0.216000	34.1	1000.000	9.000	GND	L1	10.0	18.7	52.8	
0.274000	43.8	1000.000	9.000	GND	L1	10.0	7.0	50.8	
0.824000	36.1	1000.000	9.000	GND	L1	10.0	9.9	46.0	
1.384000	28.9	1000.000	9.000	GND	L1	10.1	17.1	46.0	
1.928000	25.0	1000.000	9.000	GND	L1	10.1	21.0	46.0	
2.466000	29.0	1000.000	9.000	GND	L1	10.1	17.0	46.0	
3.010000	20.8	1000.000	9.000	GND	L1	10.1	25.2	46.0	
3.546000	18.9	1000.000	9.000	GND	L1	10.1	27.1	46.0	
4.626000	18.5	1000.000	9.000	GND	L1	10.2	27.5	46.0	

< 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
0.166000	53.0	1000.000	9.000	GND	N	10.0	12.1	65.1	
0.184000	45.0	1000.000	9.000	GND	N	10.0	19.2	64.2	
0.266000	50.2	1000.000	9.000	GND	N	10.0	10.8	61.0	
0.818000	39.1	1000.000	9.000	GND	N	10.0	16.9	56.0	
1.338000	38.8	1000.000	9.000	GND	N	10.1	17.2	56.0	
1.854000	37.3	1000.000	9.000	GND	N	10.1	18.7	56.0	
1.898000	38.1	1000.000	9.000	GND	N	10.1	17.9	56.0	
2.410000	36.6	1000.000	9.000	GND	N	10.1	19.4	56.0	
2.972000	35.8	1000.000	9.000	GND	N	10.1	20.2	56.0	
4.528000	33.4	1000.000	9.000	GND	N	10.2	22.6	56.0	

Final Measurement Detector 2

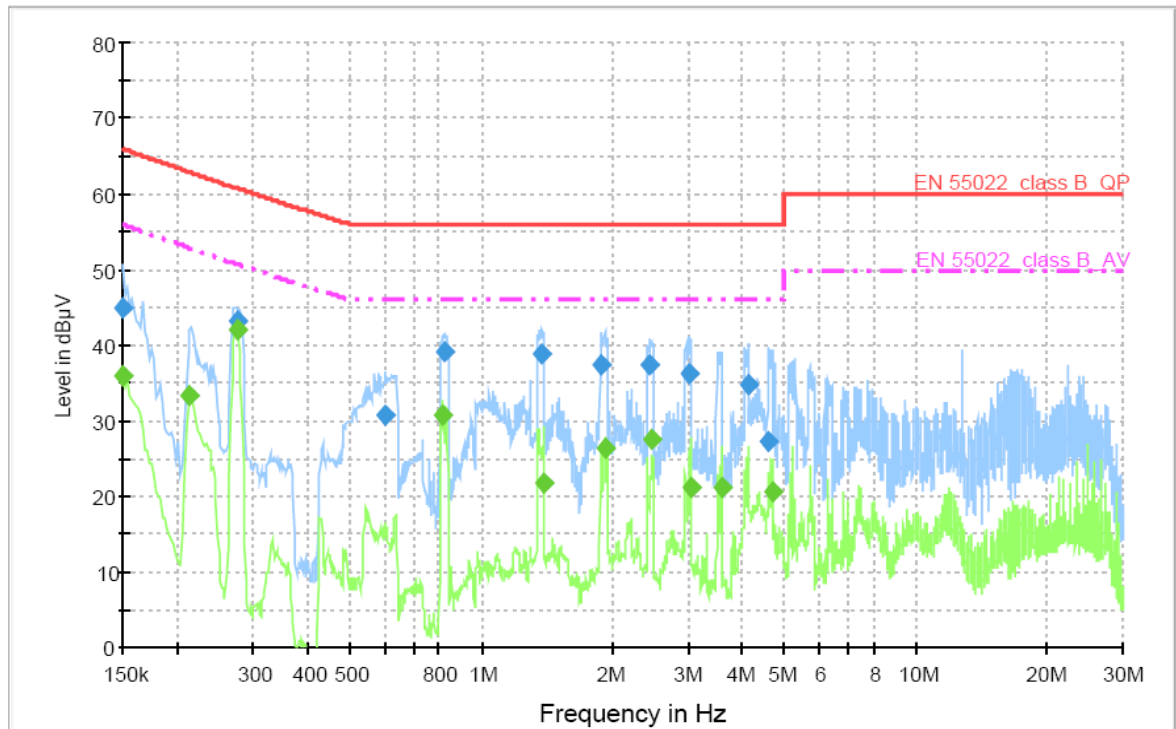
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.170000	40.5	1000.000	9.000	GND	N	10.0	14.5	54.9	
0.216000	38.6	1000.000	9.000	GND	N	10.0	14.2	52.8	
0.268000	46.7	1000.000	9.000	GND	N	10.0	4.2	50.9	
0.802000	32.5	1000.000	9.000	GND	N	10.0	13.5	46.0	
1.320000	28.0	1000.000	9.000	GND	N	10.1	18.0	46.0	
1.844000	23.8	1000.000	9.000	GND	N	10.1	22.2	46.0	
1.902000	23.6	1000.000	9.000	GND	N	10.1	22.4	46.0	
2.448000	24.9	1000.000	9.000	GND	N	10.1	21.1	46.0	
23.160000	30.5	1000.000	9.000	GND	N	10.8	19.5	50.0	
24.378000	32.7	1000.000	9.000	GND	N	10.8	17.3	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
0.150000	45.0	1000.000	9.000	GND	L1	10.0	21.0	66.0	
0.274000	43.3	1000.000	9.000	GND	L1	10.0	17.5	60.8	
0.602000	30.7	1000.000	9.000	GND	L1	10.0	25.3	56.0	
0.820000	39.2	1000.000	9.000	GND	L1	10.0	16.8	56.0	
1.384000	38.8	1000.000	9.000	GND	L1	10.1	17.2	56.0	
1.888000	37.3	1000.000	9.000	GND	L1	10.1	18.7	56.0	
2.446000	37.4	1000.000	9.000	GND	L1	10.1	18.6	56.0	
3.026000	36.3	1000.000	9.000	GND	L1	10.1	19.7	56.0	
4.110000	34.8	1000.000	9.000	GND	L1	10.2	21.2	56.0	
4.594000	27.2	1000.000	9.000	GND	L1	10.2	28.8	56.0	

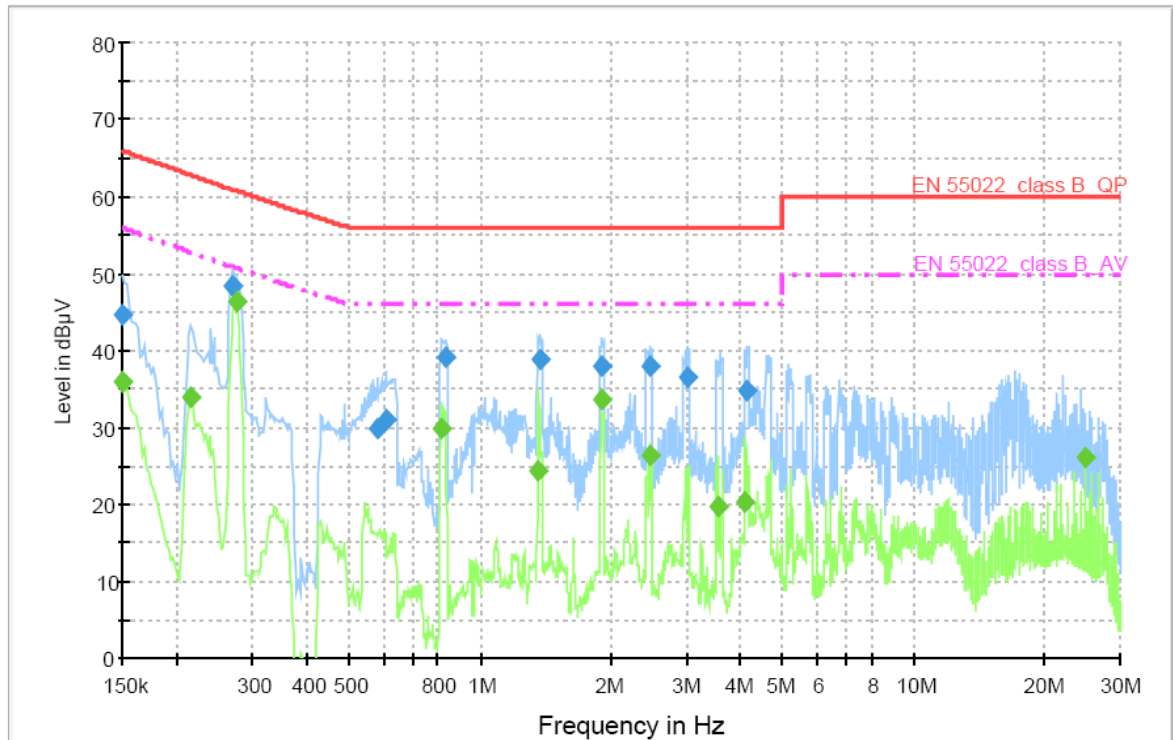
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	36.0	1000.000	9.000	GND	L1	10.0	20.0	56.0	
0.214000	33.2	1000.000	9.000	GND	L1	10.0	19.6	52.8	
0.274000	42.1	1000.000	9.000	GND	L1	10.0	8.7	50.8	
0.812000	30.8	1000.000	9.000	GND	L1	10.0	15.2	46.0	
1.390000	21.7	1000.000	9.000	GND	L1	10.1	24.3	46.0	
1.924000	26.3	1000.000	9.000	GND	L1	10.1	19.7	46.0	
2.476000	27.5	1000.000	9.000	GND	L1	10.1	18.5	46.0	
3.032000	21.3	1000.000	9.000	GND	L1	10.1	24.7	46.0	
3.574000	21.1	1000.000	9.000	GND	L1	10.1	24.9	46.0	
4.670000	20.7	1000.000	9.000	GND	L1	10.2	25.3	46.0	

< 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	44.8	1000.000	9.000	GND	N	10.0	21.2	66.0	
0.270000	48.3	1000.000	9.000	GND	N	10.0	12.6	60.9	
0.580000	30.0	1000.000	9.000	GND	N	10.0	26.0	56.0	
0.610000	30.9	1000.000	9.000	GND	N	10.0	25.1	56.0	
0.834000	39.2	1000.000	9.000	GND	N	10.0	16.8	56.0	
1.372000	38.8	1000.000	9.000	GND	N	10.1	17.2	56.0	
1.906000	38.1	1000.000	9.000	GND	N	10.1	17.9	56.0	
2.470000	37.9	1000.000	9.000	GND	N	10.1	18.1	56.0	
3.012000	36.4	1000.000	9.000	GND	N	10.1	19.6	56.0	
4.104000	34.9	1000.000	9.000	GND	N	10.2	21.1	56.0	

Final Measurement Detector 2

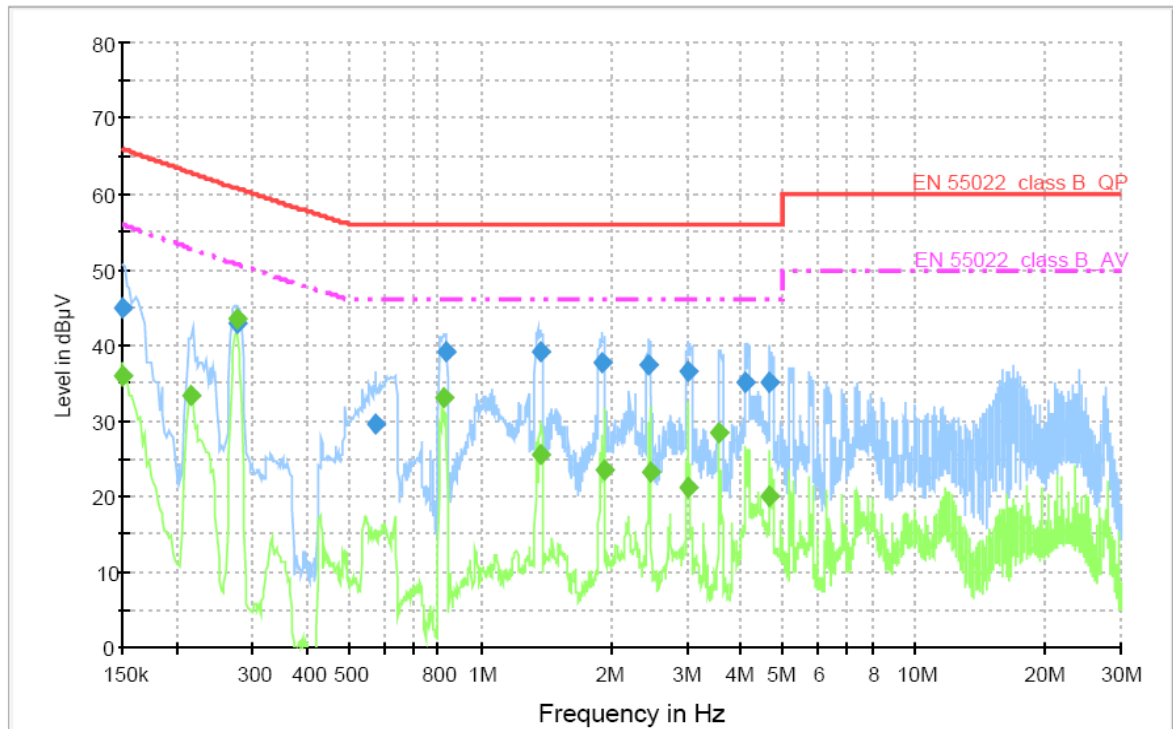
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	36.0	1000.000	9.000	GND	N	10.0	20.0	56.0	
0.216000	33.9	1000.000	9.000	GND	N	10.0	18.9	52.8	
0.274000	46.4	1000.000	9.000	GND	N	10.0	4.4	50.8	
0.814000	29.8	1000.000	9.000	GND	N	10.0	16.2	46.0	
1.366000	24.3	1000.000	9.000	GND	N	10.1	21.7	46.0	
1.920000	33.6	1000.000	9.000	GND	N	10.1	12.4	46.0	
2.482000	26.4	1000.000	9.000	GND	N	10.1	19.6	46.0	
3.528000	19.6	1000.000	9.000	GND	N	10.2	26.4	46.0	
4.096000	20.4	1000.000	9.000	GND	N	10.2	25.6	46.0	
24.998000	26.2	1000.000	9.000	GND	N	10.8	23.8	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
0.150000	44.9	1000.000	9.000	GND	L1	10.0	21.1	66.0	
0.276000	43.0	1000.000	9.000	GND	L1	10.0	17.7	60.7	
0.574000	29.5	1000.000	9.000	GND	L1	10.0	26.5	56.0	
0.832000	39.1	1000.000	9.000	GND	L1	10.0	16.9	56.0	
1.382000	39.0	1000.000	9.000	GND	L1	10.1	17.0	56.0	
1.902000	37.8	1000.000	9.000	GND	L1	10.1	18.2	56.0	
2.438000	37.4	1000.000	9.000	GND	L1	10.1	18.6	56.0	
3.016000	36.4	1000.000	9.000	GND	L1	10.1	19.6	56.0	
4.094000	35.0	1000.000	9.000	GND	L1	10.2	21.0	56.0	
4.636000	35.0	1000.000	9.000	GND	L1	10.2	21.0	56.0	

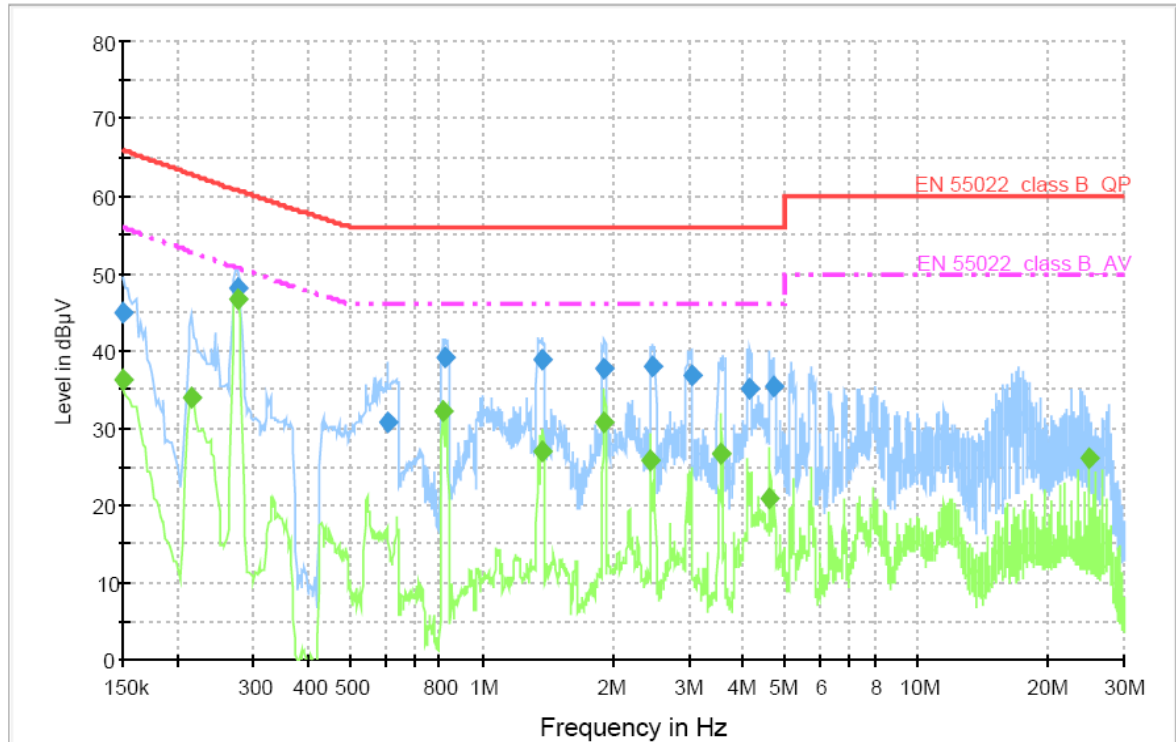
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	35.9	1000.000	9.000	GND	L1	10.0	20.1	56.0	
0.216000	33.3	1000.000	9.000	GND	L1	10.0	19.5	52.8	
0.274000	43.5	1000.000	9.000	GND	L1	10.0	7.3	50.8	
0.826000	32.9	1000.000	9.000	GND	L1	10.0	13.1	46.0	
1.382000	25.6	1000.000	9.000	GND	L1	10.1	20.4	46.0	
1.928000	23.6	1000.000	9.000	GND	L1	10.1	22.4	46.0	
2.470000	23.2	1000.000	9.000	GND	L1	10.1	22.8	46.0	
3.010000	21.3	1000.000	9.000	GND	L1	10.1	24.7	46.0	
3.554000	28.5	1000.000	9.000	GND	L1	10.1	17.5	46.0	
4.640000	19.9	1000.000	9.000	GND	L1	10.2	26.1	46.0	

< 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	45.1	1000.000	9.000	GND	N	10.0	20.9	66.0	
0.274000	48.1	1000.000	9.000	GND	N	10.0	12.7	60.8	
0.610000	30.7	1000.000	9.000	GND	N	10.0	25.3	56.0	
0.820000	39.2	1000.000	9.000	GND	N	10.0	16.8	56.0	
1.382000	38.8	1000.000	9.000	GND	N	10.1	17.2	56.0	
1.908000	37.7	1000.000	9.000	GND	N	10.1	18.3	56.0	
2.468000	37.9	1000.000	9.000	GND	N	10.1	18.1	56.0	
3.046000	36.9	1000.000	9.000	GND	N	10.1	19.1	56.0	
4.124000	35.1	1000.000	9.000	GND	N	10.2	20.9	56.0	
4.706000	35.4	1000.000	9.000	GND	N	10.2	20.6	56.0	

Final Measurement Detector 2

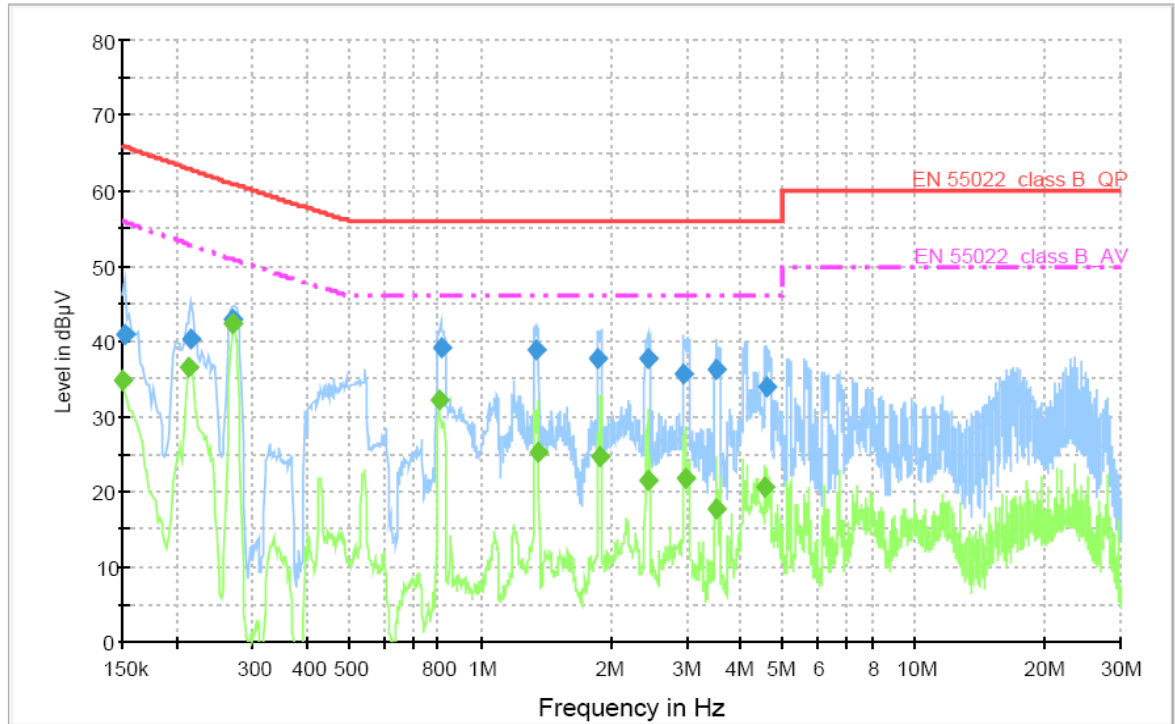
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	36.1	1000.000	9.000	GND	N	10.0	19.9	56.0	
0.216000	33.9	1000.000	9.000	GND	N	10.0	18.9	52.8	
0.274000	46.6	1000.000	9.000	GND	N	10.0	4.2	50.8	
0.814000	32.2	1000.000	9.000	GND	N	10.0	13.8	46.0	
1.384000	27.0	1000.000	9.000	GND	N	10.1	19.0	46.0	
1.918000	30.7	1000.000	9.000	GND	N	10.1	15.3	46.0	
2.444000	25.9	1000.000	9.000	GND	N	10.1	20.1	46.0	
3.560000	26.6	1000.000	9.000	GND	N	10.2	19.4	46.0	
4.606000	20.9	1000.000	9.000	GND	N	10.2	25.1	46.0	
24.998000	26.0	1000.000	9.000	GND	N	10.8	24.0	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
0.152000	40.9	1000.000	9.000	GND	L1	10.0	25.0	65.9	
0.216000	40.2	1000.000	9.000	GND	L1	10.0	22.6	62.8	
0.270000	42.9	1000.000	9.000	GND	L1	10.0	18.0	60.9	
0.816000	39.2	1000.000	9.000	GND	L1	10.0	16.8	56.0	
1.352000	38.9	1000.000	9.000	GND	L1	10.1	17.1	56.0	
1.874000	37.8	1000.000	9.000	GND	L1	10.1	18.2	56.0	
2.450000	37.6	1000.000	9.000	GND	L1	10.1	18.4	56.0	
2.956000	35.6	1000.000	9.000	GND	L1	10.1	20.4	56.0	
3.508000	36.1	1000.000	9.000	GND	L1	10.1	19.9	56.0	
4.556000	33.9	1000.000	9.000	GND	L1	10.2	22.1	56.0	

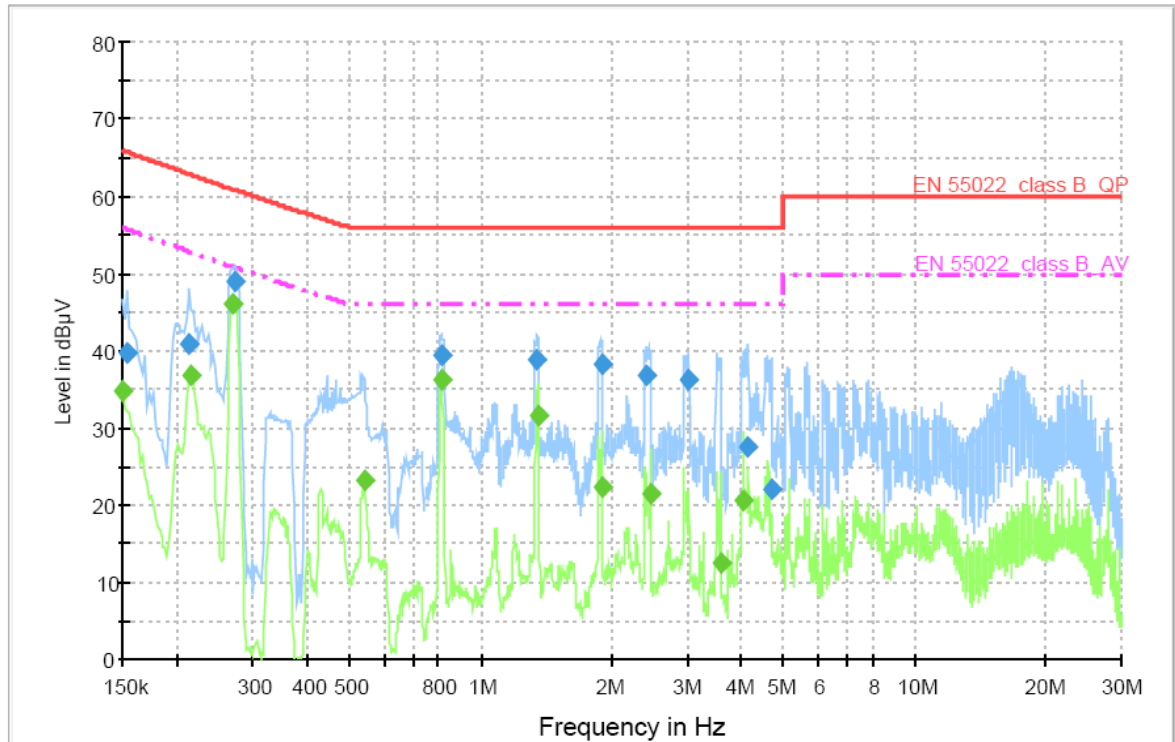
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	34.7	1000.000	9.000	GND	L1	10.0	21.3	56.0	
0.214000	36.6	1000.000	9.000	GND	L1	10.0	16.2	52.8	
0.270000	42.4	1000.000	9.000	GND	L1	10.0	8.5	50.9	
0.804000	32.0	1000.000	9.000	GND	L1	10.0	14.0	46.0	
1.360000	25.2	1000.000	9.000	GND	L1	10.1	20.8	46.0	
1.898000	24.6	1000.000	9.000	GND	L1	10.1	21.4	46.0	
2.430000	21.3	1000.000	9.000	GND	L1	10.1	24.7	46.0	
2.962000	21.6	1000.000	9.000	GND	L1	10.1	24.4	46.0	
3.488000	17.8	1000.000	9.000	GND	L1	10.1	28.2	46.0	
4.552000	20.7	1000.000	9.000	GND	L1	10.2	25.3	46.0	

< 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
0.154000	39.8	1000.000	9.000	GND	N	10.0	26.0	65.8	
0.214000	41.0	1000.000	9.000	GND	N	10.0	21.9	62.9	
0.272000	49.0	1000.000	9.000	GND	N	10.0	11.9	60.9	
0.812000	39.3	1000.000	9.000	GND	N	10.0	16.7	56.0	
1.352000	38.9	1000.000	9.000	GND	N	10.1	17.1	56.0	
1.904000	38.3	1000.000	9.000	GND	N	10.1	17.7	56.0	
2.410000	36.8	1000.000	9.000	GND	N	10.1	19.2	56.0	
3.026000	36.3	1000.000	9.000	GND	N	10.1	19.7	56.0	
4.132000	27.6	1000.000	9.000	GND	N	10.2	28.4	56.0	
4.702000	21.9	1000.000	9.000	GND	N	10.2	34.1	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	34.9	1000.000	9.000	GND	N	10.0	21.1	56.0	
0.216000	36.8	1000.000	9.000	GND	N	10.0	16.0	52.8	
0.270000	46.2	1000.000	9.000	GND	N	10.0	4.7	50.9	
0.542000	23.3	1000.000	9.000	GND	N	10.0	22.7	46.0	
0.810000	36.3	1000.000	9.000	GND	N	10.0	9.7	46.0	
1.356000	31.7	1000.000	9.000	GND	N	10.1	14.3	46.0	
1.906000	22.4	1000.000	9.000	GND	N	10.1	23.6	46.0	
2.462000	21.4	1000.000	9.000	GND	N	10.1	24.6	46.0	
3.580000	12.5	1000.000	9.000	GND	N	10.2	33.5	46.0	
4.044000	20.6	1000.000	9.000	GND	N	10.2	25.4	46.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 21 °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. 11. 2010
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3099	07. 21. 2011
■ - BBHA9120D	Schwarzbeck	Horn ANT	597	12. 18. 2010
■ - 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

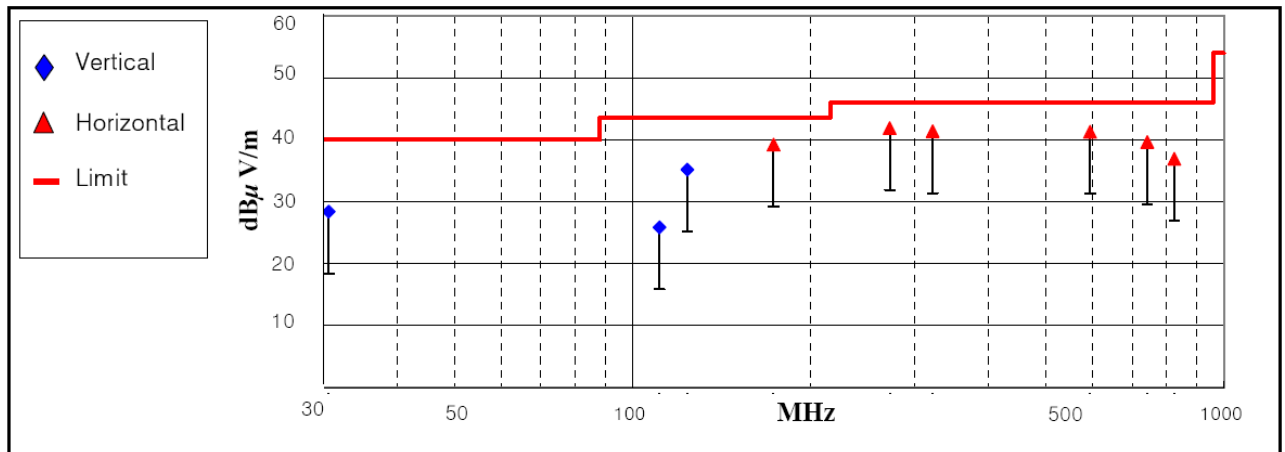
6.6 Test data for Radiated Emission

- Test Date : December 15, 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 (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)	(°)
30.65	14.57	11.94	1.90	28.41	40.00	11.59	V	100	180
111.05	12.13	10.52	3.21	25.86	43.50	17.64	V	103	343
123.78	20.17	11.63	3.38	35.18	43.50	8.32	V	100	179
173.29	23.17	12.11	3.94	39.22	43.50	4.28	H	163	240
272.27	24.32	12.33	5.25	41.90	46.00	4.10	H	100	155
321.78	21.36	13.79	6.23	41.38	46.00	4.62	H	110	270
594.05	13.79	20.13	7.38	41.30	46.00	4.70	H	219	180
742.50	8.82	22.56	8.26	39.64	46.00	6.36	H	100	265
824.80	4.78	23.43	8.73	36.94	46.00	9.06	H	107	209

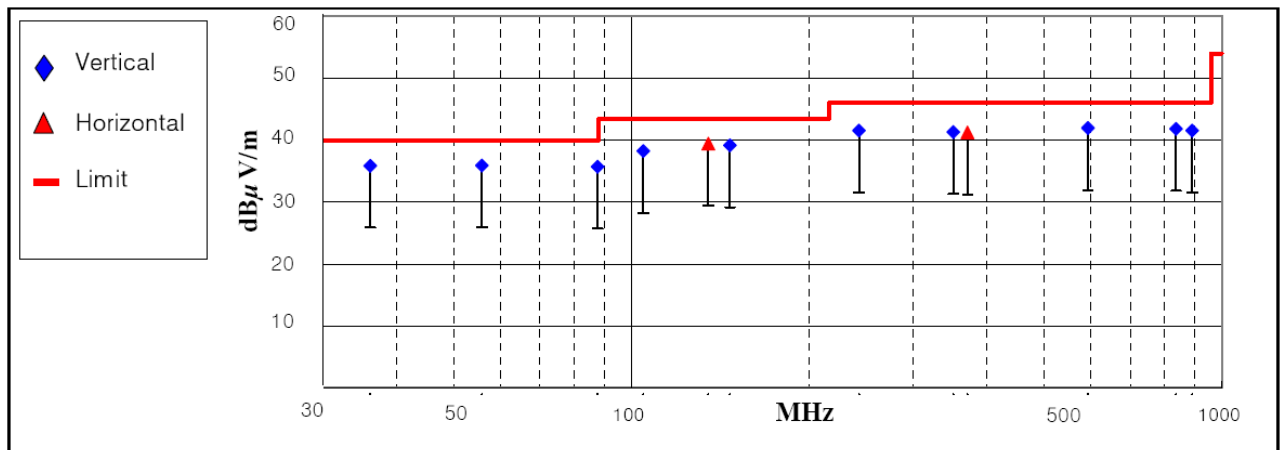


< Fig 14. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ 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)	(°)
36.12	22.00	11.87	2.01	35.88	40.00	4.12	V	100	180
55.85	21.27	12.22	2.42	35.91	40.00	4.09	V	100	350
87.67	24.62	8.21	2.91	35.74	40.00	4.26	V	100	349
104.76	25.22	9.91	3.13	38.26	43.50	5.24	V	100	23
135.00	23.57	12.36	3.51	39.44	43.50	4.06	H	214	307
146.95	22.78	12.74	3.66	39.18	43.50	4.32	V	100	308
243.00	25.45	11.24	4.86	41.55	46.00	4.45	V	209	294
370.91	19.19	14.89	7.14	41.22	46.00	4.78	H	100	6
351.00	19.85	14.48	7.01	41.34	46.00	4.66	V	185	299
593.45	14.50	20.11	7.38	41.99	46.00	4.01	V	108	260
837.00	9.49	23.55	8.80	41.84	46.00	4.16	V	132	258
891.00	8.36	24.11	9.11	41.58	46.00	4.42	V	215	255

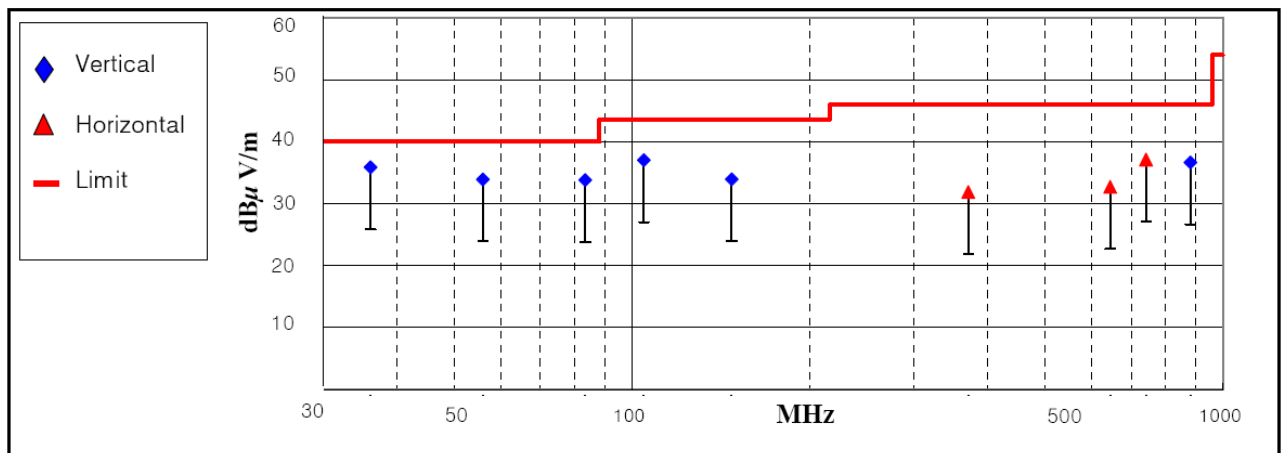


< Fig 15. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ 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)	(°)
36.11	22.00	11.87	2.01	35.88	40.00	4.12	V	100	167
55.93	19.26	12.22	2.43	33.91	40.00	6.09	V	100	323
83.41	22.80	8.11	2.88	33.79	40.00	6.21	V	102	194
104.77	24.00	9.91	3.13	37.04	43.50	6.46	V	100	35
147.48	17.54	12.75	3.66	33.95	43.50	9.55	V	114	340
370.85	9.84	14.89	7.14	31.87	46.00	14.13	H	100	150
644.82	4.04	20.97	7.68	32.69	46.00	13.31	H	100	0
741.36	6.33	22.53	8.25	37.11	46.00	8.89	H	106	172
881.06	3.59	24.01	9.05	36.65	46.00	9.35	V	100	96

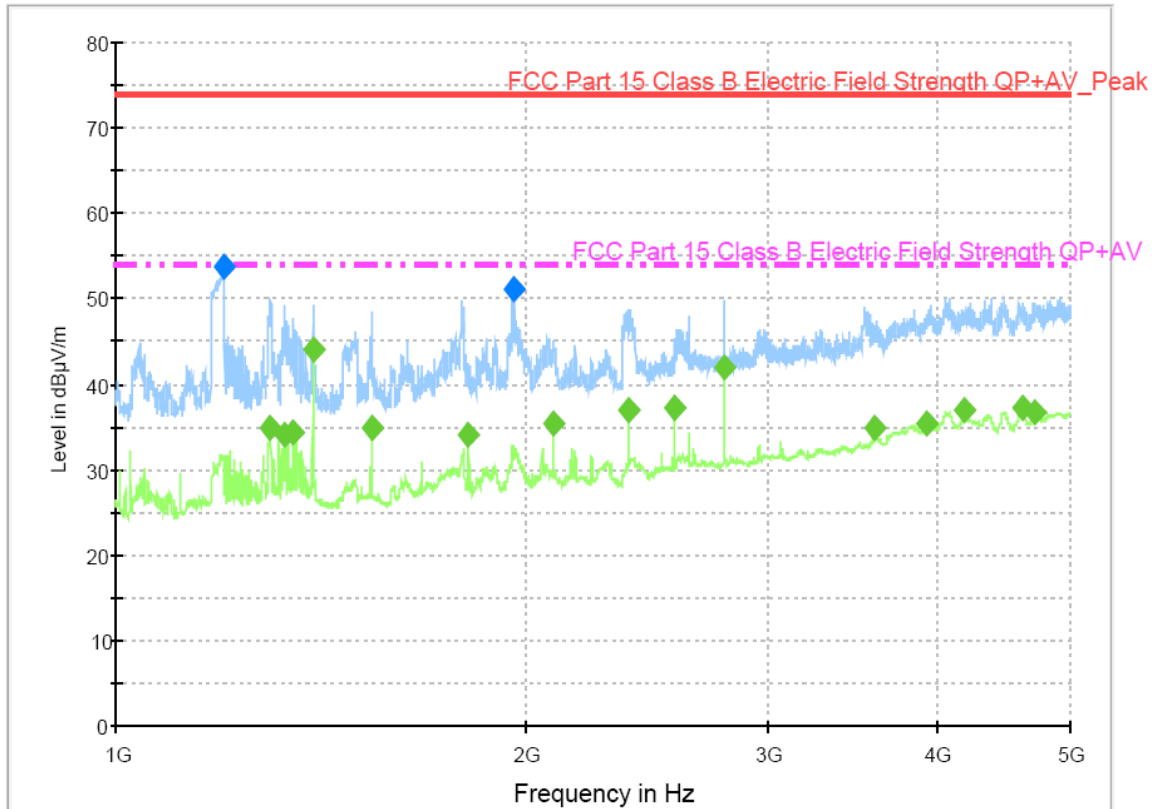


< Fig 16. Radiated emission result (30 MHz ~ 1 000 MHz)>



- ◆ 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
1200.800000	53.9	100.0	V	0.0	-15.9	20.1	74.0	
1959.600000	51.2	100.0	H	90.0	-13.0	21.8	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1298.800000	34.9	100.0	V	180.0	-14.9	19.1	54.0	
1330.000000	34.1	100.0	V	180.0	-14.9	19.9	54.0	
1350.400000	34.3	100.0	V	180.0	-14.8	19.7	54.0	
1395.200000	44.0	100.0	V	180.0	-14.8	10.0	54.0	
1539.200000	34.8	100.0	H	180.0	-14.6	19.2	54.0	
1813.600000	34.1	200.0	V	0.0	-13.8	19.9	54.0	
2092.400000	35.5	200.0	V	180.0	-12.2	18.5	54.0	
2371.600000	36.9	200.0	V	180.0	-10.8	17.1	54.0	
2565.200000	37.2	100.0	H	180.0	-10.0	16.8	54.0	
2790.000000	42.1	100.0	V	180.0	-9.3	11.9	54.0	
3591.200000	35.0	100.0	H	0.0	-6.2	19.0	54.0	
3926.400000	35.5	200.0	H	270.0	-3.7	18.5	54.0	
4186.000000	37.0	100.0	V	180.0	-3.3	17.0	54.0	
4608.000000	37.3	200.0	V	180.0	-3.2	16.7	54.0	
4712.800000	36.8	100.0	V	270.0	-3.0	17.2	54.0	

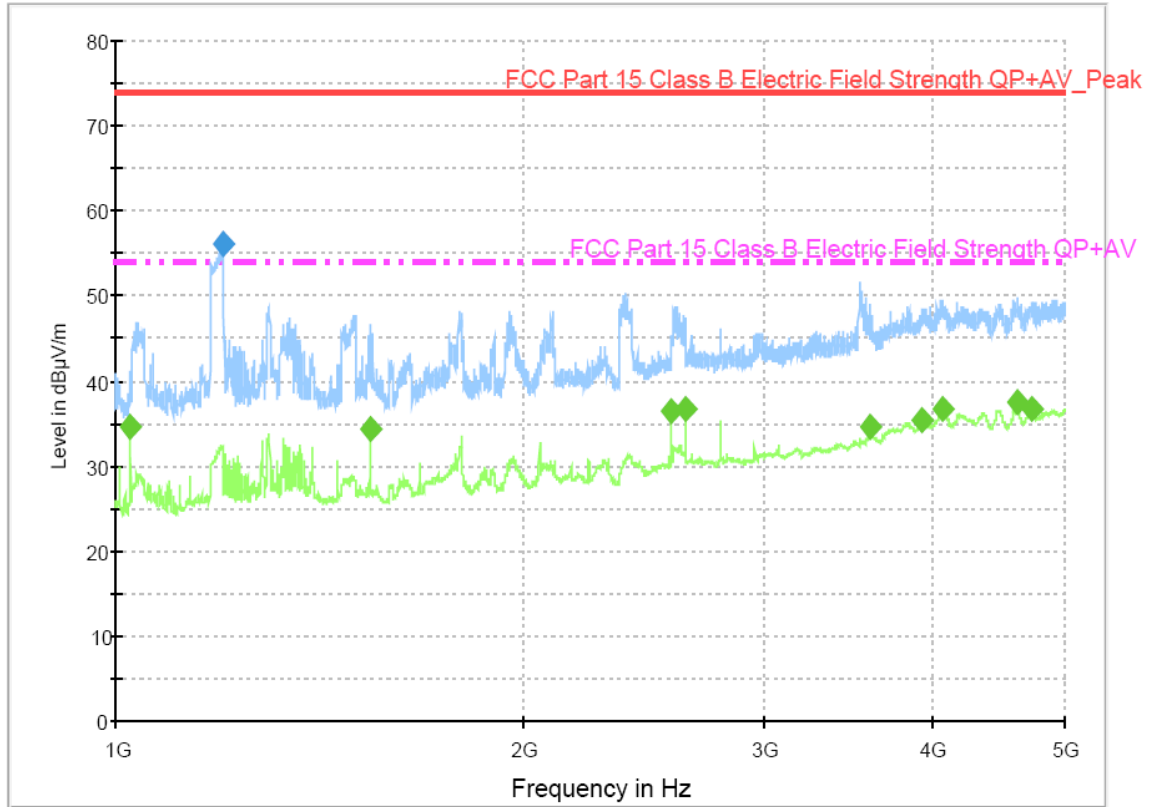
< Fig 17. Radiated emission result (1 000 MHz ~ 5 000 MHz)>



◆ Operating Condition: 1 920 * 1 080 / 60 Hz (HDMI/DVI: Digital mode)

Detector mode: Peak detector mode / Average detector mode

FCC_ESIB_Preamp_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
1200.400000	56.1	100.0	V	0.0	-15.9	17.9	74.0	

Final Result 2

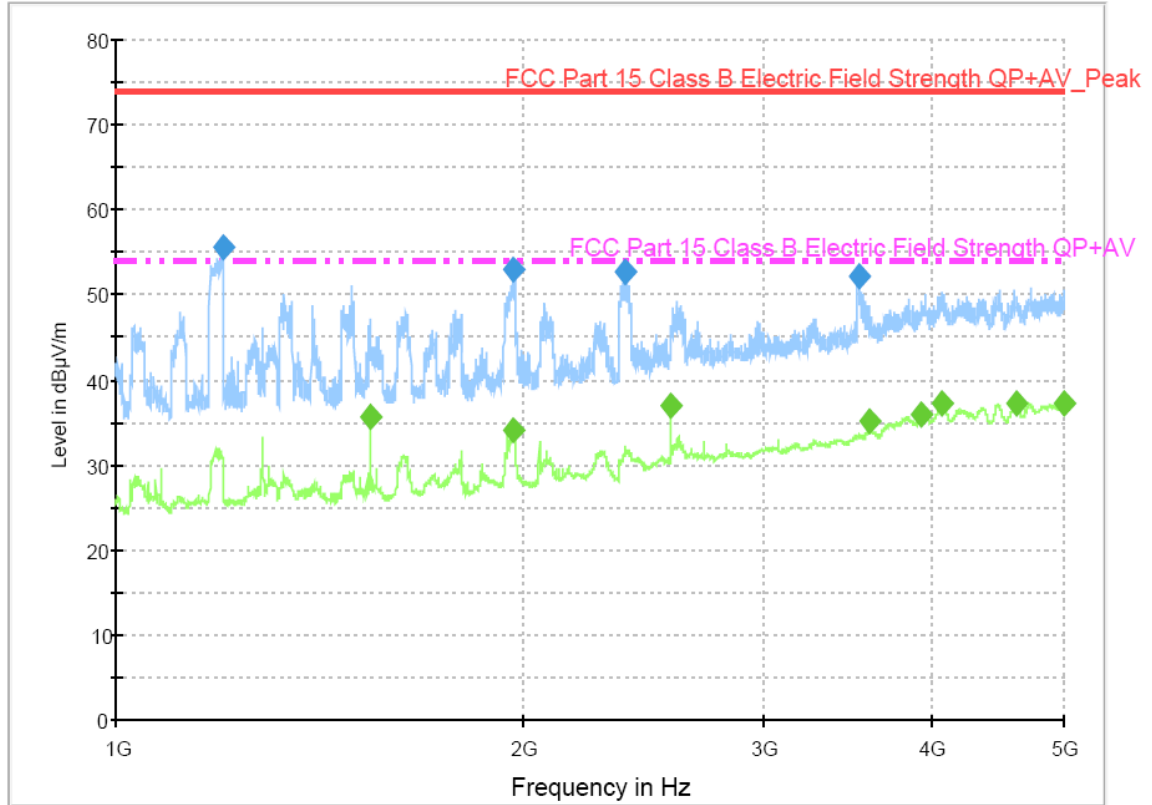
Frequency (MHz)	Average-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
1026.000000	34.7	100.0	V	180.0	-16.5	19.3	54.0	
1539.200000	34.5	100.0	H	180.0	-14.6	19.5	54.0	
2565.200000	36.6	100.0	H	180.0	-10.0	17.4	54.0	
2628.000000	36.7	100.0	H	180.0	-9.8	17.3	54.0	
3591.200000	34.7	100.0	H	0.0	-6.2	19.3	54.0	
3921.200000	35.4	100.0	V	0.0	-3.8	18.6	54.0	
4066.000000	36.8	100.0	V	0.0	-3.2	17.2	54.0	
4608.000000	37.6	100.0	V	180.0	-3.2	16.4	54.0	
4718.400000	36.8	100.0	V	180.0	-3.0	17.2	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

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
1198.400000	55.5	100.0	V	0.0	-15.9	18.5	74.0	
1960.800000	53.0	200.0	H	90.0	-13.0	21.0	74.0	
2373.200000	52.6	200.0	H	90.0	-10.8	21.4	74.0	
3526.800000	52.2	100.0	H	90.0	-6.6	21.8	74.0	

Final Result 2

Frequency (MHz)	Average-MaxHold (dBμV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
1539.200000	35.5	100.0	H	180.0	-14.6	18.5	54.0	
1961.200000	34.1	200.0	H	90.0	-13.0	19.9	54.0	
2565.200000	37.1	200.0	V	0.0	-10.0	16.9	54.0	
3591.200000	35.2	100.0	H	0.0	-6.2	18.8	54.0	
3925.600000	36.0	100.0	V	180.0	-3.7	18.0	54.0	
4066.400000	37.2	100.0	V	0.0	-3.2	16.8	54.0	
4608.000000	37.3	200.0	V	180.0	-3.2	16.7	54.0	
4999.200000	37.3	100.0	V	0.0	-2.4	16.7	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. LED LCD TV/Monitor (Model Name: 55LE8500-UA)** was complies with §15.107 and 15.109 of the FCC Rules.