

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 : October 14, 2010

Order Number: GETEC-C1-10-189

Test Report Number: GETEC-E3-10-098

Test Site: Gumi College EMC Center

FCC Registration Number: (100749, 443957)

FCC ID.: BEJHX350YJE

Applicant: LG Electronics Inc.

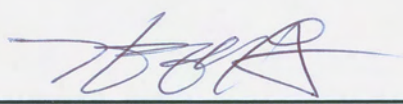
Rule Part(s)	: FCC Part 15 Subpart B
Equipment Class	: Class B computing device peripheral (JBP)
EUT Type	: DLP PROJECTOR
Type of Authority	: Certification
Model Name	: HX350Y-JE
Trade Name	: LG

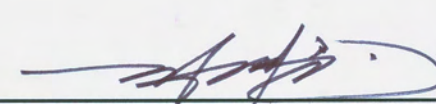
This equipment has been shown to be in compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003 / Canadian standard ICES-003

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.** BEJHX350YJE
- **EUT Type** DLP PROJECTOR
- **Model Name** HX350Y-JE
- **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** October 7 ~ 11, 2010
- **Place of Test** **Gumi College EMC Center** (FCC Registration Number: 100749, 443957)
407, Bugok-dong, Gumi-si, Gyeongbuk, Korea.
- **Test Report Number** GETEC-E3-10-098
- **Dates of Issue** October 14, 2010

EUT Type: DLP PROJECTOR

FCC ID.: BEJHX350YJE



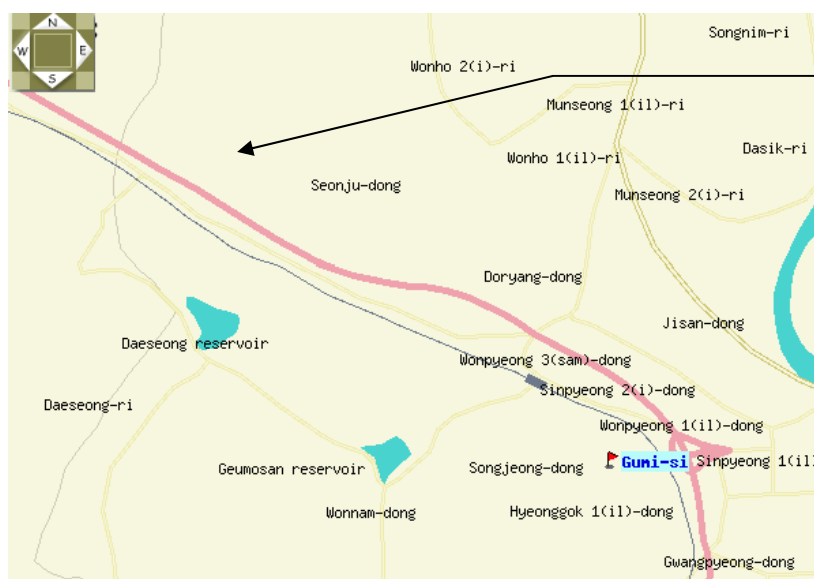
2. Introduction

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. DLP PROJECTOR (Model Name: HX350Y-JE)**

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. DLP PROJECTOR (Model Name: HX350Y-JE)**
FCC ID.: BEJHX350YJE

MODEL	HX350Y (HX350Y-JE)
Resolution	1024 (Horizontal) x 768 (Vertical) pixel
Horizontal / Vertical Ratio	4:3 (horizontal:vertical)
Panel size (mm)	13.97
Projection distance (Screen size)	0.55 m - 2.75 m (50.8 cm - 254.0 cm)
Projection Offset	110 %
Remote control distance	6 m
Video compatibility	NTSC/PAL/PAL-M/PAL-N/PAL-60
AC-DC Adapter	LG, SD-B191A, 19.5 V  , 5.64 A
Audio Output	1W + 1W
Height (mm)	57.5 (without foot), 61.0 (with foot)
Width (mm)	160
Length (mm)	134.5
Weight (g)	790
USB Device	5 V, 0.5 A (max)

-. Maximum Frequency range : 512 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	ATI RV360(9600)	S/N: SN0402017176 FCC ID.: DoC
Key board	COMPAQ	166516-AD6	S/N: B13BBOR391006D FCC ID.: AQ6-23K15
PS2 mouse	LOGITECH	M-S69	S/N: 334684-108 FCC ID.: JNZ211443
Joy stick	MICROSOFT	X05-92626	S/N: 9262600296169 FCC ID.: DoC
DVD player	LG Electronics Inc.	LC-954	S/N: 3850R-Z674K FCC ID.: DoC
Headset	PHILIPS	SBC HL140	S/N: N/A FCC ID.: N/A
Printer	Hewlett Packard	970CXI	S/N: MY9B01F1FG FCC ID.: DoC
USB memory stick	LG Electronics Inc.	UM5 2GB	S/N: 003RLRZN37758 FCC ID.: DoC

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

3.2.2 System configuration

Description	Manufacturer	Model Name	S/N & FCC ID.
Adapter ^{*1)}	Weihai Sunlin Electronics Co., Ltd.	SD-B191A	S/N: RA080000131 FCC ID.: N/A

1) Input ratings: AC (100 – 240) V~, (50 – 60) Hz, 1.8 A / Output ratings: DC 19.5 V, 5.64 A



3.2.3 Used Cable(s)

Cable Name	Condition	Description
Power cable	Connected to the adapter	1.80 m unshielded
Adapter cable	Connected to the EUT and adapter	1.80 m shielded with a ferrite core
RGB(Analog) in cable	Connected to the EUT and PC	1.80 m shielded with two ferrite cores
HDMI/DVI(Digital) in cable	Connected to the EUT and PC	2.00 m shielded
Audio in cable	Connected to the EUT and PC	1.80 m shielded
Video in cable	Connected to the EUT and DVD player	1.50 m shielded
Component in cable	Connected to the EUT and DVD player	1.50 m shielded
Headset cable	Connected to the EUT and headset	1.20 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)
 - . Projection mode
 - Radiated emission: 1 680 × 1 050 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)
 - Conducted emission: 1 680 × 1 050 / 60 Hz (RGB: Analog, HDMI/DVI: Digital)
 - 1 024 × 768 / 60 Hz (RGB: Analog), 640 × 480 / 60 Hz (RGB: Analog)
 - ◆ Operating test pattern
 - . “H” character scrolling mode (Font size: 10)
 - . Black background white character
 - . Brightness and contrast was adjusted as maximum level
 - . Continuous playback of 1 kHz audio file with winamp player
 - . USB memory stick play mode
 - ◆ Operating test pattern
 - . Continuous playback mode with video files

“The verification report for 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

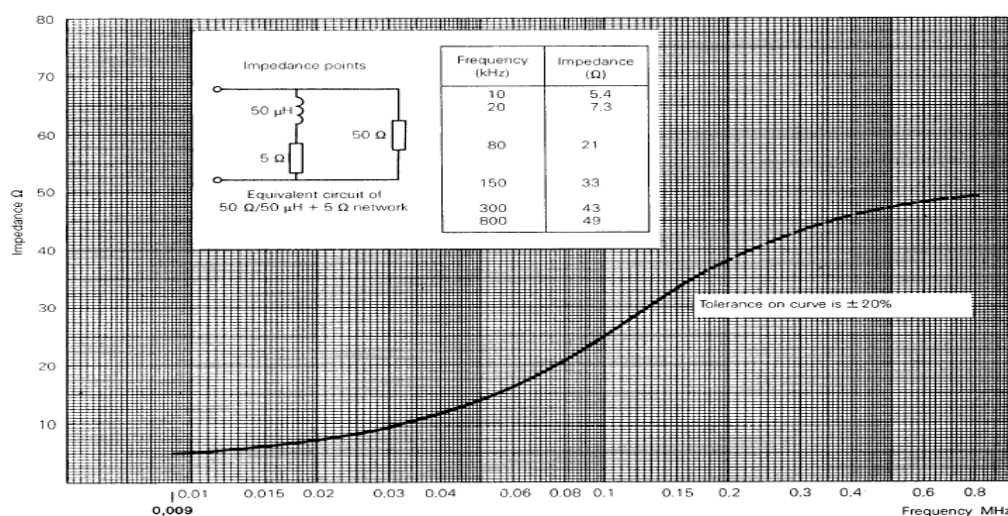


Fig 2. Impedance of LISN



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

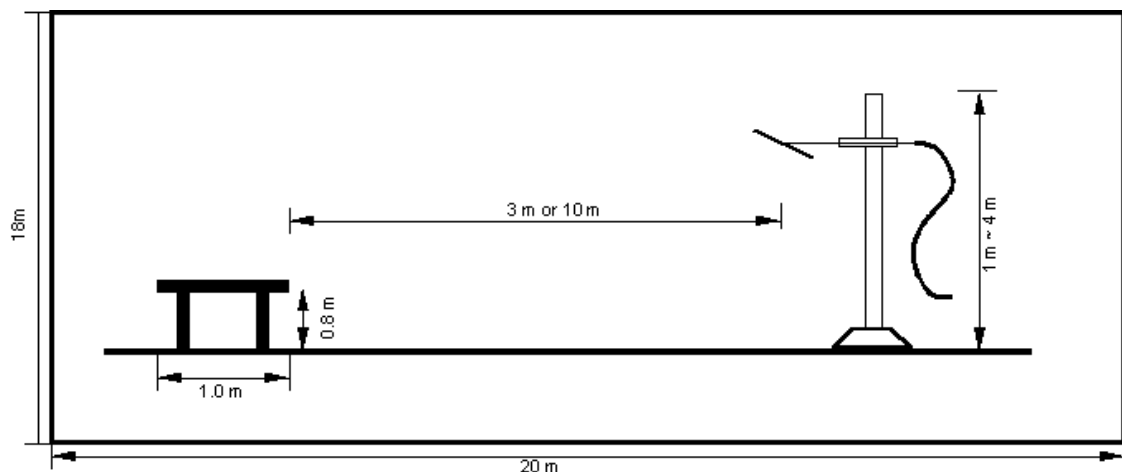


Fig 3. Dimensions of test site.



5. Conducted Emission

5.1 Operating Environment

Temperature : 25 °C
Relative Humidity : 47 % R.H.

5.2 Test Set-up

The conducted emission measurements were performed in the shielded room.

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

AMN is bonded on horizontal reference ground plane.

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

5.3 Measurement Uncertainty

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

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

Test Items	Uncertainty	Remark
Conducted emission (9 kHz ~ 150 kHz)	± 2.69 dB	Confidence levels of 95 % ($k = 2$)
Conducted emission (150 kHz ~ 30 MHz)	± 4.16 dB	Confidence levels of 95 % ($k = 2$)



5.4 Limit

RFI Conducted	FCC Limit(dB μ V/m) Class B	
Freq. Range	Quasi-Peak	Average
150 kHz ~ 0.5 MHz	66 ~ 56*	56 ~ 46*
0.5 MHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50
*Limits decreases linearly with the logarithm of frequency.		

5.5 Test Equipment used

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

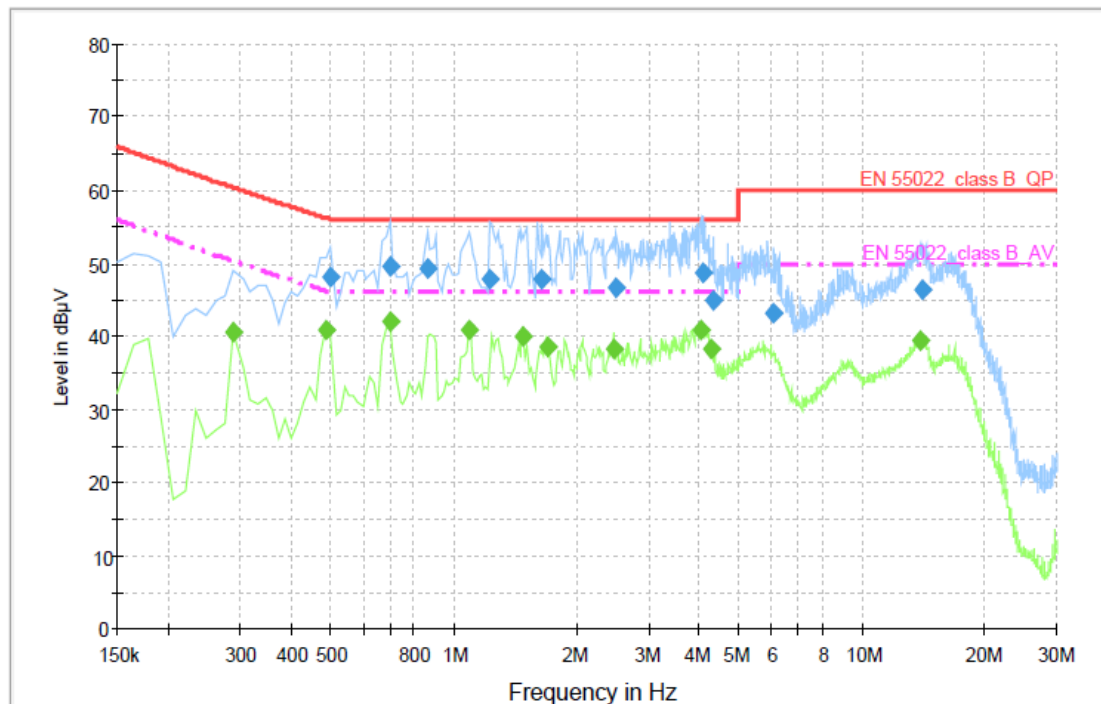
5.6 Test data for Conducted Emission

-. Test Date : October 11, 2010
-. Resolution Bandwidth : 9 kHz
-. Frequency Range : 0.15 MHz ~ 30 MHz



◆ Operating condition: 1 680 × 1 050 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.500000	48.2	1000.000	9.000	GND	L1	10.0	7.8	56.0	
0.696000	49.7	1000.000	9.000	GND	L1	10.0	6.3	56.0	
0.864000	49.3	1000.000	9.000	GND	L1	10.0	6.7	56.0	
1.228000	47.9	1000.000	9.000	GND	L1	10.1	8.1	56.0	
1.648000	48.0	1000.000	9.000	GND	L1	10.1	8.0	56.0	
2.502000	46.6	1000.000	9.000	GND	L1	10.1	9.4	56.0	
4.056000	48.8	1000.000	9.000	GND	L1	10.2	7.2	56.0	
4.322000	45.0	1000.000	9.000	GND	L1	10.2	11.0	56.0	
6.086000	43.1	1000.000	9.000	GND	L1	10.2	16.9	60.0	
14.052000	46.4	1000.000	9.000	GND	L1	10.7	13.6	60.0	

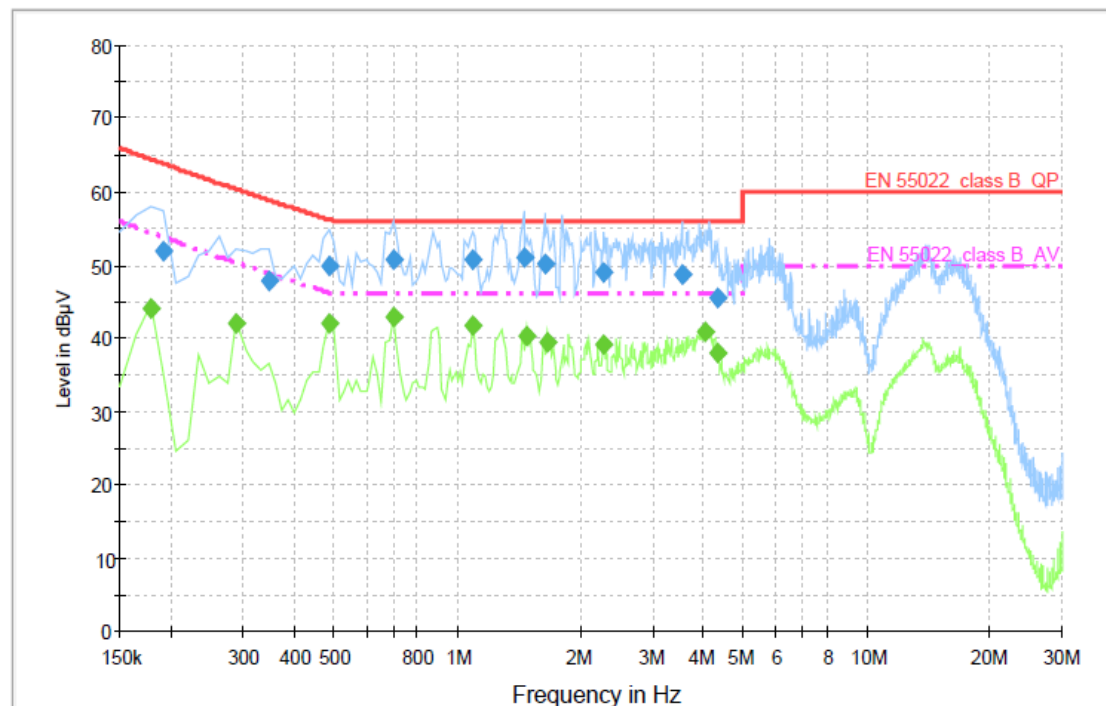
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	40.6	1000.000	9.000	GND	L1	10.0	9.7	50.3	
0.486000	41.0	1000.000	9.000	GND	L1	10.0	5.2	46.2	
0.696000	42.0	1000.000	9.000	GND	L1	10.0	4.0	46.0	
1.088000	40.8	1000.000	9.000	GND	L1	10.0	5.2	46.0	
1.480000	40.0	1000.000	9.000	GND	L1	10.1	6.0	46.0	
1.704000	38.5	1000.000	9.000	GND	L1	10.1	7.5	46.0	
2.460000	38.2	1000.000	9.000	GND	L1	10.1	7.8	46.0	
4.014000	40.9	1000.000	9.000	GND	L1	10.2	5.1	46.0	
4.294000	38.4	1000.000	9.000	GND	L1	10.2	7.6	46.0	
13.898000	39.4	1000.000	9.000	GND	L1	10.6	10.6	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
0.192000	51.8	1000.000	9.000	GND	N	10.0	12.0	63.8	
0.346000	47.8	1000.000	9.000	GND	N	10.0	11.1	58.9	
0.486000	50.0	1000.000	9.000	GND	N	10.0	6.2	56.2	
0.696000	50.8	1000.000	9.000	GND	N	10.0	5.2	56.0	
1.088000	50.8	1000.000	9.000	GND	N	10.1	5.2	56.0	
1.452000	51.0	1000.000	9.000	GND	N	10.1	5.0	56.0	
1.634000	50.2	1000.000	9.000	GND	N	10.1	5.8	56.0	
2.278000	49.1	1000.000	9.000	GND	N	10.1	6.9	56.0	
3.538000	48.7	1000.000	9.000	GND	N	10.2	7.3	56.0	
4.308000	45.4	1000.000	9.000	GND	N	10.2	10.6	56.0	

Final Measurement Detector 2

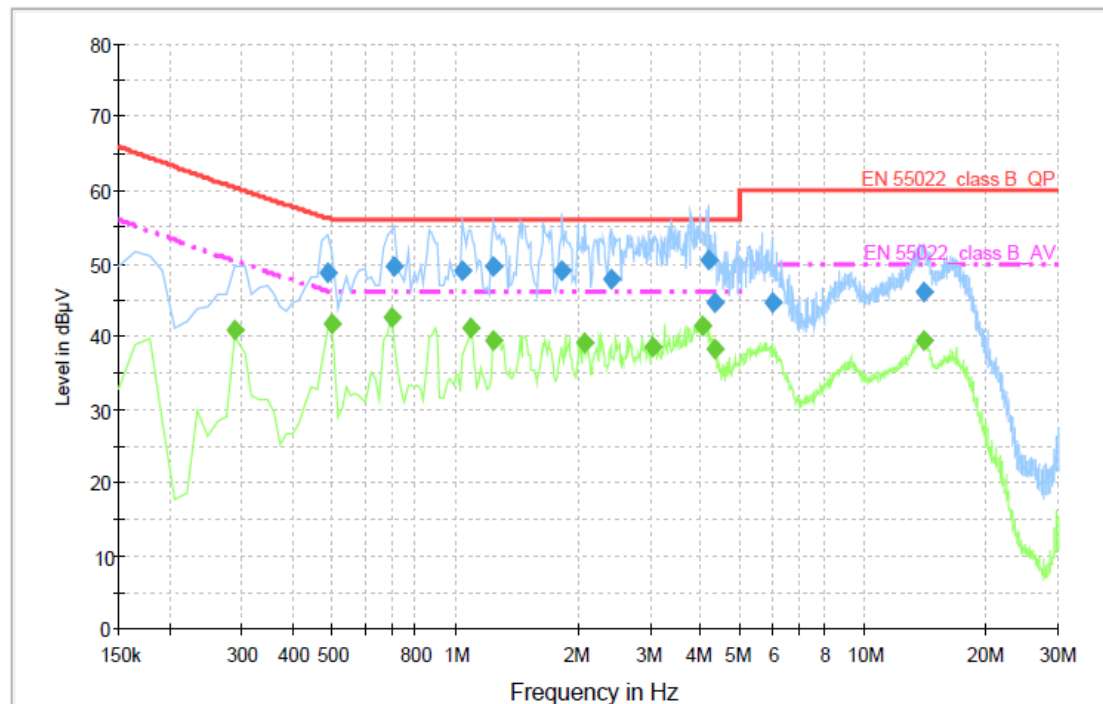
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.178000	44.0	1000.000	9.000	GND	N	10.0	10.5	54.5	
0.290000	42.0	1000.000	9.000	GND	N	10.0	8.3	50.3	
0.486000	42.1	1000.000	9.000	GND	N	10.0	4.1	46.2	
0.696000	43.0	1000.000	9.000	GND	N	10.0	3.0	46.0	
1.088000	41.7	1000.000	9.000	GND	N	10.1	4.3	46.0	
1.480000	40.2	1000.000	9.000	GND	N	10.1	5.8	46.0	
1.662000	39.4	1000.000	9.000	GND	N	10.1	6.6	46.0	
2.278000	39.3	1000.000	9.000	GND	N	10.1	6.7	46.0	
4.014000	40.8	1000.000	9.000	GND	N	10.2	5.2	46.0	
4.308000	38.1	1000.000	9.000	GND	N	10.2	7.9	46.0	

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



◆ Operating condition: 1 024 × 768 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.486000	48.7	1000.000	9.000	GND	L1	10.0	7.5	56.2	
0.710000	49.6	1000.000	9.000	GND	L1	10.0	6.4	56.0	
1.046000	49.1	1000.000	9.000	GND	L1	10.0	6.9	56.0	
1.242000	49.5	1000.000	9.000	GND	L1	10.1	6.5	56.0	
1.830000	49.0	1000.000	9.000	GND	L1	10.1	7.0	56.0	
2.404000	47.9	1000.000	9.000	GND	L1	10.1	8.1	56.0	
4.168000	50.4	1000.000	9.000	GND	L1	10.2	5.6	56.0	
4.336000	44.6	1000.000	9.000	GND	L1	10.2	11.4	56.0	
5.960000	44.5	1000.000	9.000	GND	L1	10.2	15.5	60.0	
13.996000	46.2	1000.000	9.000	GND	L1	10.6	13.8	60.0	

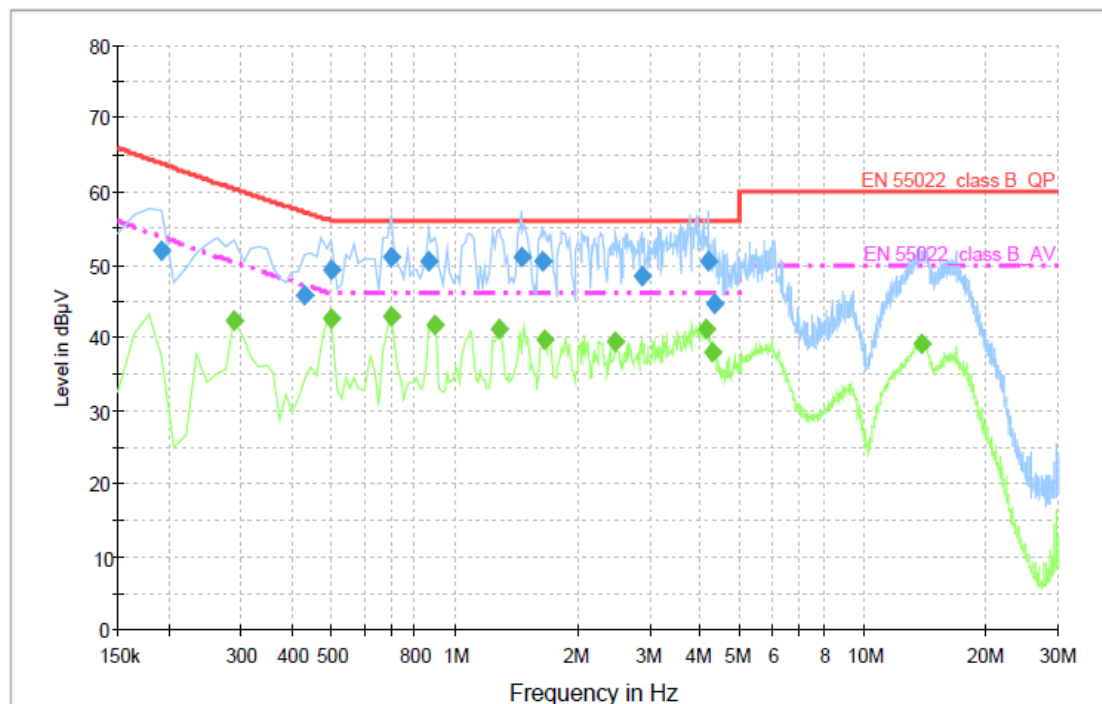
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	40.8	1000.000	9.000	GND	L1	10.0	9.5	50.3	
0.500000	41.7	1000.000	9.000	GND	L1	10.0	4.3	46.0	
0.696000	42.7	1000.000	9.000	GND	L1	10.0	3.3	46.0	
1.088000	41.3	1000.000	9.000	GND	L1	10.0	4.7	46.0	
1.242000	39.4	1000.000	9.000	GND	L1	10.1	6.6	46.0	
2.082000	39.3	1000.000	9.000	GND	L1	10.1	6.7	46.0	
3.034000	38.5	1000.000	9.000	GND	L1	10.1	7.5	46.0	
4.042000	41.5	1000.000	9.000	GND	L1	10.2	4.5	46.0	
4.308000	38.2	1000.000	9.000	GND	L1	10.2	7.8	46.0	
14.038000	39.5	1000.000	9.000	GND	L1	10.7	10.5	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
0.192000	51.9	1000.000	9.000	GND	N	10.0	11.9	63.8	
0.430000	45.8	1000.000	9.000	GND	N	10.0	11.4	57.2	
0.500000	49.4	1000.000	9.000	GND	N	10.0	6.6	56.0	
0.696000	51.1	1000.000	9.000	GND	N	10.0	4.9	56.0	
0.864000	50.3	1000.000	9.000	GND	N	10.0	5.7	56.0	
1.452000	51.0	1000.000	9.000	GND	N	10.1	5.0	56.0	
1.634000	50.4	1000.000	9.000	GND	N	10.1	5.6	56.0	
2.866000	48.4	1000.000	9.000	GND	N	10.1	7.6	56.0	
4.168000	50.3	1000.000	9.000	GND	N	10.2	5.7	56.0	
4.336000	44.5	1000.000	9.000	GND	N	10.2	11.5	56.0	

Final Measurement Detector 2

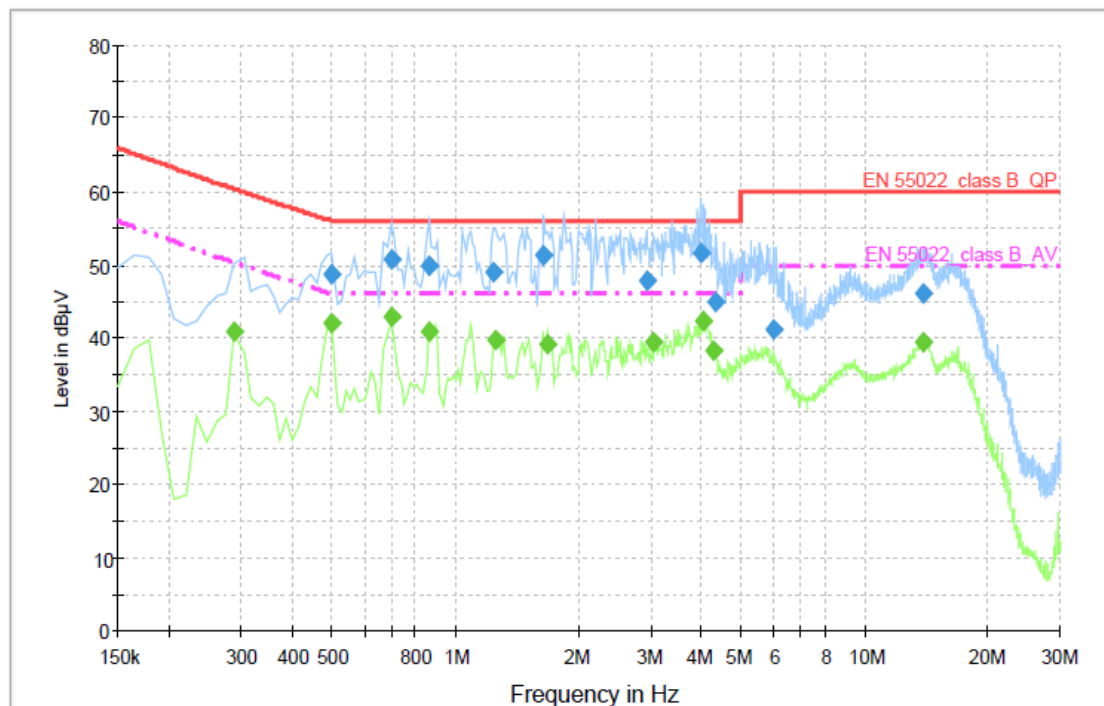
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	42.2	1000.000	9.000	GND	N	10.0	8.1	50.3	
0.500000	42.5	1000.000	9.000	GND	N	10.0	3.5	46.0	
0.696000	42.9	1000.000	9.000	GND	N	10.0	3.1	46.0	
0.892000	41.8	1000.000	9.000	GND	N	10.0	4.2	46.0	
1.284000	41.0	1000.000	9.000	GND	N	10.1	5.0	46.0	
1.662000	39.6	1000.000	9.000	GND	N	10.1	6.4	46.0	
2.474000	39.5	1000.000	9.000	GND	N	10.1	6.5	46.0	
4.126000	41.3	1000.000	9.000	GND	N	10.2	4.7	46.0	
4.294000	37.9	1000.000	9.000	GND	N	10.2	8.1	46.0	
13.912000	39.3	1000.000	9.000	GND	N	10.5	10.7	50.0	

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



◆ Operating condition: 640 × 480 / 60 Hz (RGB: Analog)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.500000	48.8	1000.000	9.000	GND	L1	10.0	7.2	56.0	
0.696000	50.6	1000.000	9.000	GND	L1	10.0	5.4	56.0	
0.864000	49.8	1000.000	9.000	GND	L1	10.0	6.2	56.0	
1.242000	49.0	1000.000	9.000	GND	L1	10.1	7.0	56.0	
1.648000	51.2	1000.000	9.000	GND	L1	10.1	4.8	56.0	
2.936000	47.8	1000.000	9.000	GND	L1	10.1	8.2	56.0	
3.972000	51.7	1000.000	9.000	GND	L1	10.2	4.3	56.0	
4.336000	45.0	1000.000	9.000	GND	L1	10.2	11.0	56.0	
6.002000	41.2	1000.000	9.000	GND	L1	10.2	18.8	60.0	
13.898000	46.0	1000.000	9.000	GND	L1	10.6	14.0	60.0	

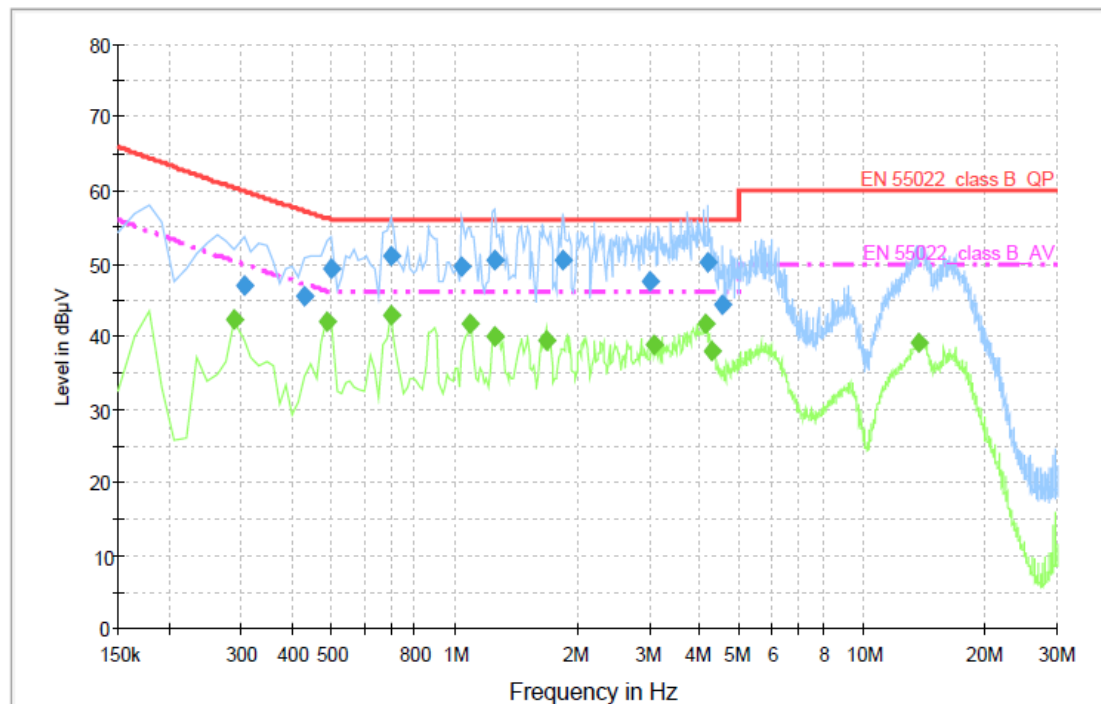
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	40.9	1000.000	9.000	GND	L1	10.0	9.4	50.3	
0.500000	42.0	1000.000	9.000	GND	L1	10.0	4.0	46.0	
0.696000	42.8	1000.000	9.000	GND	L1	10.0	3.2	46.0	
0.864000	40.9	1000.000	9.000	GND	L1	10.0	5.1	46.0	
1.256000	39.7	1000.000	9.000	GND	L1	10.1	6.3	46.0	
1.676000	39.2	1000.000	9.000	GND	L1	10.1	6.8	46.0	
3.062000	39.4	1000.000	9.000	GND	L1	10.1	6.6	46.0	
4.042000	42.3	1000.000	9.000	GND	L1	10.2	3.7	46.0	
4.294000	38.2	1000.000	9.000	GND	L1	10.2	7.8	46.0	
13.842000	39.5	1000.000	9.000	GND	L1	10.6	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
0.304000	47.0	1000.000	9.000	GND	N	10.0	12.9	59.9	
0.430000	45.5	1000.000	9.000	GND	N	10.0	11.7	57.2	
0.500000	49.4	1000.000	9.000	GND	N	10.0	6.6	56.0	
0.696000	51.0	1000.000	9.000	GND	N	10.0	5.0	56.0	
1.046000	49.7	1000.000	9.000	GND	N	10.1	6.3	56.0	
1.256000	50.3	1000.000	9.000	GND	N	10.1	5.7	56.0	
1.844000	50.4	1000.000	9.000	GND	N	10.1	5.6	56.0	
3.006000	47.4	1000.000	9.000	GND	N	10.1	8.6	56.0	
4.168000	50.2	1000.000	9.000	GND	N	10.2	5.8	56.0	
4.518000	44.3	1000.000	9.000	GND	N	10.2	11.7	56.0	

Final Measurement Detector 2

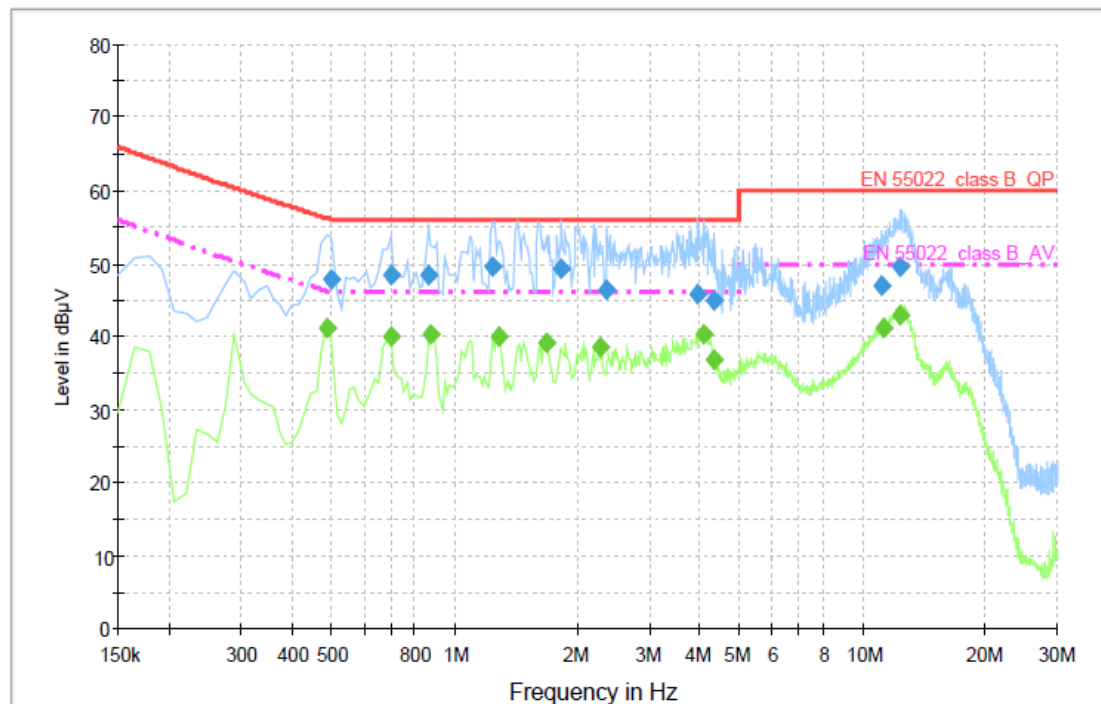
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	42.2	1000.000	9.000	GND	N	10.0	8.1	50.3	
0.486000	42.1	1000.000	9.000	GND	N	10.0	4.1	46.2	
0.696000	43.0	1000.000	9.000	GND	N	10.0	3.0	46.0	
1.088000	41.7	1000.000	9.000	GND	N	10.1	4.3	46.0	
1.256000	40.0	1000.000	9.000	GND	N	10.1	6.0	46.0	
1.676000	39.4	1000.000	9.000	GND	N	10.1	6.6	46.0	
3.076000	38.9	1000.000	9.000	GND	N	10.1	7.1	46.0	
4.126000	41.7	1000.000	9.000	GND	N	10.2	4.3	46.0	
4.294000	38.1	1000.000	9.000	GND	N	10.2	7.9	46.0	
13.758000	39.1	1000.000	9.000	GND	N	10.5	10.9	50.0	

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



◆ Operating condition: 1 680 × 1 050 / 60 Hz (HDMI/DVI: Digital)

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.500000	47.9	1000.000	9.000	GND	L1	10.0	8.2	56.0	
0.696000	48.5	1000.000	9.000	GND	L1	10.0	7.5	56.0	
0.864000	48.3	1000.000	9.000	GND	L1	10.0	7.7	56.0	
1.242000	49.5	1000.000	9.000	GND	L1	10.1	6.5	56.0	
1.830000	49.3	1000.000	9.000	GND	L1	10.1	6.7	56.0	
2.362000	46.5	1000.000	9.000	GND	L1	10.1	9.5	56.0	
3.944000	45.9	1000.000	9.000	GND	L1	10.2	10.1	56.0	
4.336000	45.0	1000.000	9.000	GND	L1	10.2	11.0	56.0	
11.098000	46.9	1000.000	9.000	GND	L1	10.5	13.1	60.0	
12.344000	49.4	1000.000	9.000	GND	L1	10.5	10.6	60.0	

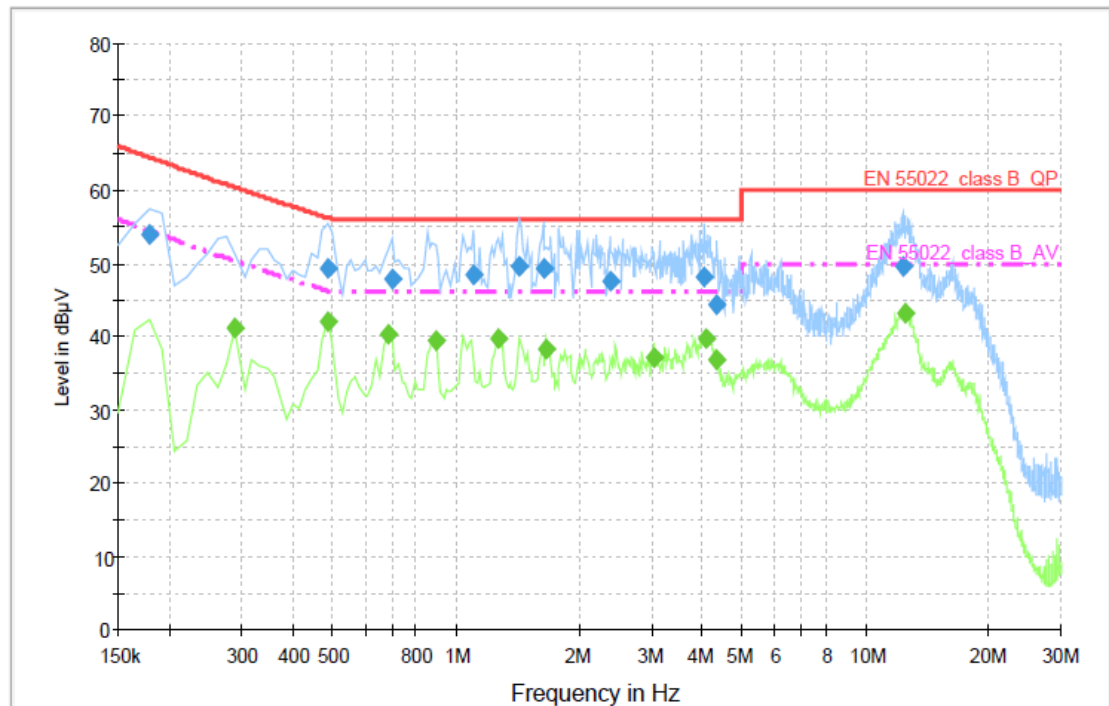
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.486000	41.1	1000.000	9.000	GND	L1	10.0	5.1	46.2	
0.696000	40.1	1000.000	9.000	GND	L1	10.0	5.9	46.0	
0.878000	40.3	1000.000	9.000	GND	L1	10.0	5.7	46.0	
1.284000	39.9	1000.000	9.000	GND	L1	10.1	6.1	46.0	
1.676000	39.2	1000.000	9.000	GND	L1	10.1	6.8	46.0	
2.264000	38.5	1000.000	9.000	GND	L1	10.1	7.5	46.0	
4.098000	40.3	1000.000	9.000	GND	L1	10.2	5.7	46.0	
4.336000	36.9	1000.000	9.000	GND	L1	10.2	9.1	46.0	
11.280000	41.0	1000.000	9.000	GND	L1	10.5	9.0	50.0	
12.358000	42.9	1000.000	9.000	GND	L1	10.5	7.1	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
0.178000	53.8	1000.000	9.000	GND	N	10.0	10.7	64.5	
0.486000	49.2	1000.000	9.000	GND	N	10.0	7.0	56.2	
0.696000	47.7	1000.000	9.000	GND	N	10.0	8.3	56.0	
1.102000	48.5	1000.000	9.000	GND	N	10.1	7.5	56.0	
1.424000	49.5	1000.000	9.000	GND	N	10.1	6.5	56.0	
1.634000	49.4	1000.000	9.000	GND	N	10.1	6.6	56.0	
2.376000	47.5	1000.000	9.000	GND	N	10.1	8.5	56.0	
4.042000	48.2	1000.000	9.000	GND	N	10.2	7.8	56.0	
4.322000	44.3	1000.000	9.000	GND	N	10.2	11.7	56.0	
12.288000	49.5	1000.000	9.000	GND	N	10.5	10.5	60.0	

Final Measurement Detector 2

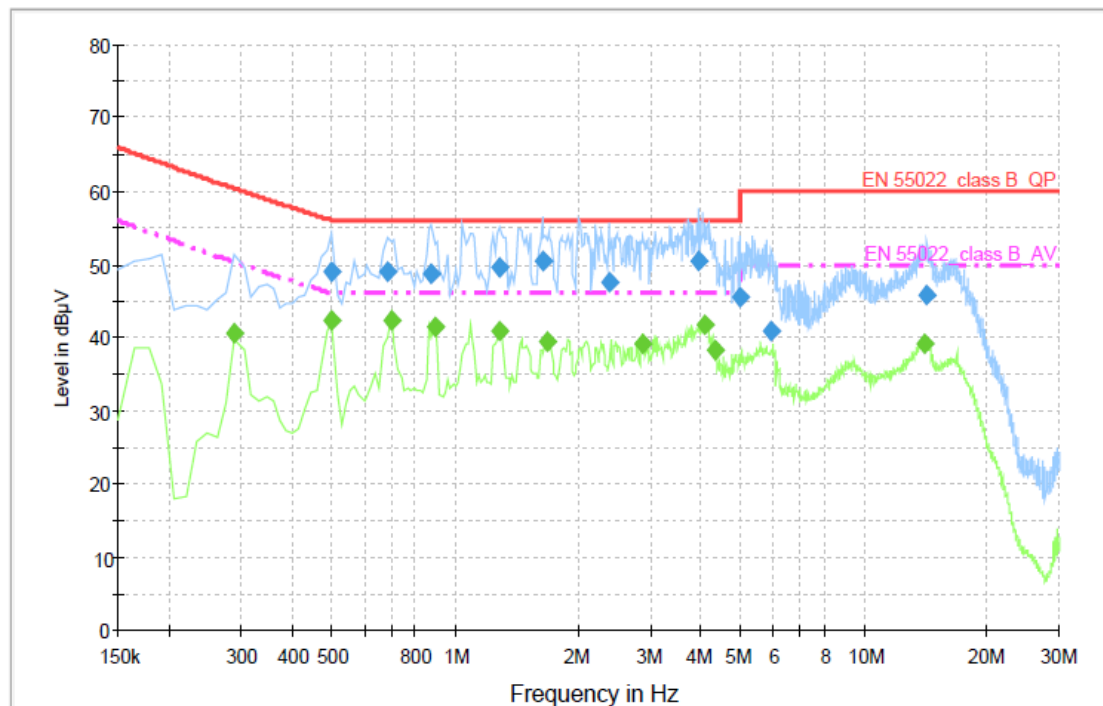
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	41.0	1000.000	9.000	GND	N	10.0	9.3	50.3	
0.486000	42.1	1000.000	9.000	GND	N	10.0	4.1	46.2	
0.682000	40.3	1000.000	9.000	GND	N	10.0	5.7	46.0	
0.892000	39.4	1000.000	9.000	GND	N	10.0	6.6	46.0	
1.270000	39.6	1000.000	9.000	GND	N	10.1	6.4	46.0	
1.662000	38.4	1000.000	9.000	GND	N	10.1	7.6	46.0	
3.034000	37.1	1000.000	9.000	GND	N	10.1	8.9	46.0	
4.084000	39.8	1000.000	9.000	GND	N	10.2	6.2	46.0	
4.308000	36.9	1000.000	9.000	GND	N	10.2	9.1	46.0	
12.456000	43.3	1000.000	9.000	GND	N	10.5	6.7	50.0	

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



◆ Operating condition: USB memory stick play mode

Voltage with 4-Line-LISN_L1



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.500000	48.9	1000.000	9.000	GND	L1	10.0	7.1	56.0	
0.682000	49.0	1000.000	9.000	GND	L1	10.0	7.0	56.0	
0.878000	48.7	1000.000	9.000	GND	L1	10.0	7.3	56.0	
1.284000	49.6	1000.000	9.000	GND	L1	10.1	6.4	56.0	
1.634000	50.3	1000.000	9.000	GND	L1	10.1	5.7	56.0	
2.376000	47.5	1000.000	9.000	GND	L1	10.1	8.5	56.0	
3.930000	50.5	1000.000	9.000	GND	L1	10.2	5.5	56.0	
4.952000	45.4	1000.000	9.000	GND	L1	10.2	10.6	56.0	
5.946000	40.9	1000.000	9.000	GND	L1	10.2	19.1	60.0	
14.290000	45.9	1000.000	9.000	GND	L1	10.7	14.1	60.0	

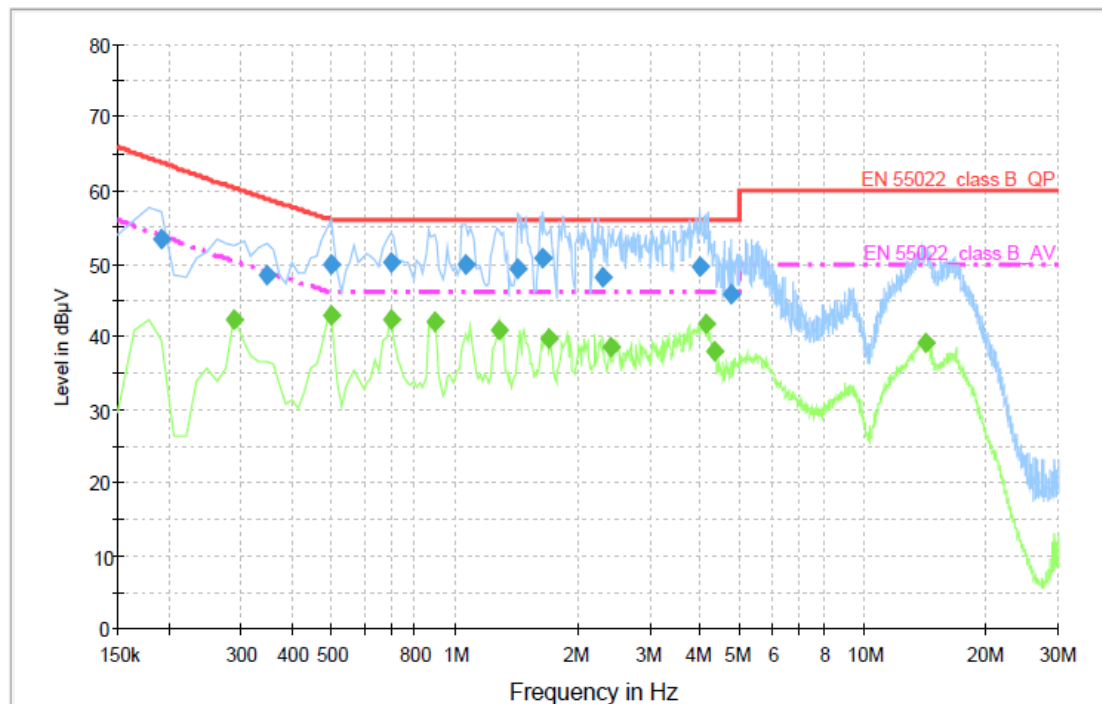
Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	40.6	1000.000	9.000	GND	L1	10.0	9.7	50.3	
0.500000	42.2	1000.000	9.000	GND	L1	10.0	3.8	46.0	
0.696000	42.3	1000.000	9.000	GND	L1	10.0	3.7	46.0	
0.892000	41.6	1000.000	9.000	GND	L1	10.0	4.4	46.0	
1.284000	40.9	1000.000	9.000	GND	L1	10.1	5.1	46.0	
1.676000	39.3	1000.000	9.000	GND	L1	10.1	6.7	46.0	
2.880000	39.1	1000.000	9.000	GND	L1	10.1	6.9	46.0	
4.070000	41.8	1000.000	9.000	GND	L1	10.2	4.2	46.0	
4.322000	38.2	1000.000	9.000	GND	L1	10.2	7.8	46.0	
14.122000	39.0	1000.000	9.000	GND	L1	10.7	11.0	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
0.192000	53.4	1000.000	9.000	GND	N	10.0	10.4	63.8	
0.346000	48.3	1000.000	9.000	GND	N	10.0	10.6	58.9	
0.500000	49.8	1000.000	9.000	GND	N	10.0	6.2	56.0	
0.696000	50.2	1000.000	9.000	GND	N	10.0	5.8	56.0	
1.060000	49.7	1000.000	9.000	GND	N	10.1	6.3	56.0	
1.424000	49.4	1000.000	9.000	GND	N	10.1	6.6	56.0	
1.648000	50.8	1000.000	9.000	GND	N	10.1	5.2	56.0	
2.292000	48.3	1000.000	9.000	GND	N	10.1	7.7	56.0	
3.972000	49.4	1000.000	9.000	GND	N	10.2	6.6	56.0	
4.756000	45.8	1000.000	9.000	GND	N	10.2	10.2	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.290000	42.5	1000.000	9.000	GND	N	10.0	7.8	50.3	
0.500000	43.0	1000.000	9.000	GND	N	10.0	3.0	46.0	
0.696000	42.4	1000.000	9.000	GND	N	10.0	3.6	46.0	
0.892000	42.1	1000.000	9.000	GND	N	10.0	3.9	46.0	
1.284000	40.9	1000.000	9.000	GND	N	10.1	5.1	46.0	
1.690000	39.7	1000.000	9.000	GND	N	10.1	6.3	46.0	
2.404000	38.5	1000.000	9.000	GND	N	10.1	7.5	46.0	
4.126000	41.8	1000.000	9.000	GND	N	10.2	4.2	46.0	
4.322000	38.1	1000.000	9.000	GND	N	10.2	7.9	46.0	
14.164000	39.1	1000.000	9.000	GND	N	10.5	10.9	50.0	

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



6. Radiated Emission

6.1 Operating Environment

Temperature : 25 °C
Relative Humidity : 47 % R.H.

6.2 Test Set-up

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

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

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

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

6.3 Measurement Uncertainty

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

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

Test Items(Chamber)	Uncertainty	Remark
Radiated emission (30 MHz ~ 300 MHz, 3 m, Vertical)	± 4.32 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (30 MHz ~ 300 MHz, 3 m, Horizontal)	± 4.21 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Vertical)	± 3.96 dB	Confidence levels of 95 % ($k = 2$)
Radiated emission (300 MHz ~ 1 000 MHz, 3 m, Horizontal)	± 3.97 dB	Confidence levels of 95 % ($k = 2$)



6.4 Limit

Frequency (MHz)	FCC Limit @ 3 m. dB μ V/m	CISPR Limit @ 10 m. dB μ V/m
30 ~ 88	40.0	30.0
88 ~ 216	43.5	30.0
216 ~ 230	46.0	30.0
230 ~ 960	46.0	37.0
960 ~ 1 000	54.0	37.0
> 1 000	54.0	No Specified limit

6.5 Test Equipment used

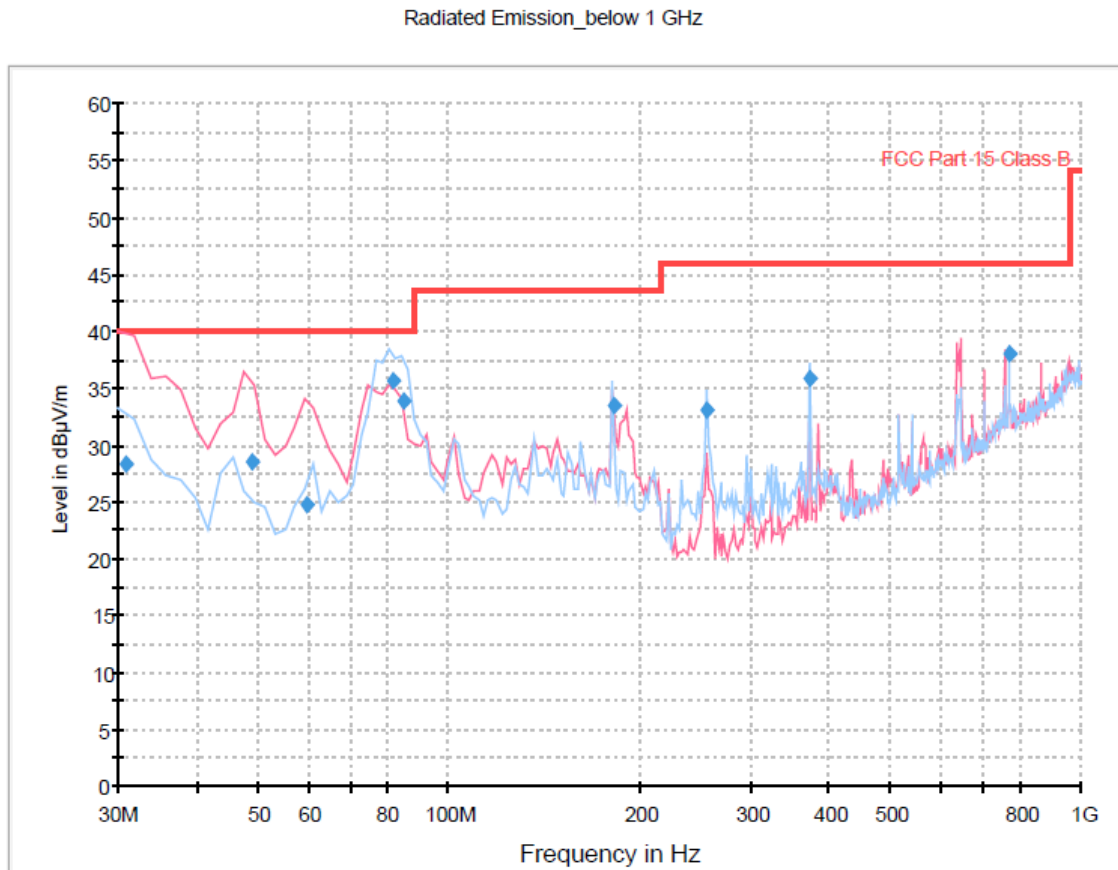
Model Name	Manufacturer	Description	Serial Number	Due to Calibration
■ - ESIB26	Rohde & Schwarz	EMI Test Receiver	830482/010	12. 11. 2010
■ - VULB9160	Schwarzbeck	Broadband Test Antenna	3099	07. 21. 2011
■ - BBHA9120D	Schwarzbeck	Horn ANT	207	12. 22. 2011
■ - MCU066	maturo GmbH	Position Controller	1390306	N/A
■ - TT2.5SI	maturo GmbH	Turntable	1390307	N/A
■ - AM 4.0	maturo GmbH	Antenna Mast	1390308	N/A
■ - AFS 44 00101800-25-10P-44	MITEQ	Preamplifier	1258943	11. 12. 2010

6.6 Test data for Radiated Emission

- Test Date : October 11, 2010
- 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 (512 MHz). The measurement was made up to 5 000 MHz



- ◆ Operating Condition: 1 680 × 1 050 / 60 Hz (RGB: Analog)
Red trace: Vertical polarization, Blue trace: Horizontal polarization



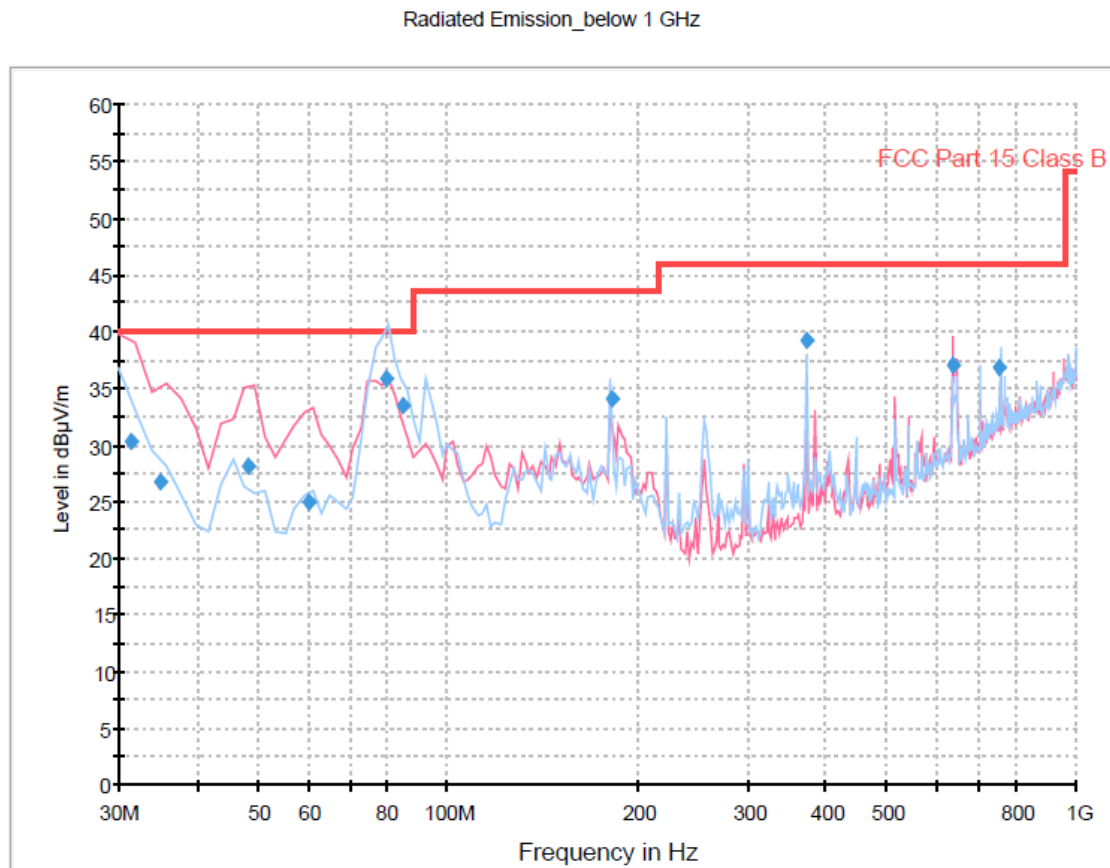
Final Result [1]

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
30.960000	28.4	1000.0	120.000	100.0	V	262.0	12.9	11.6	40.0
48.834990	28.4	1000.0	120.000	131.0	V	0.0	13.6	11.6	40.0
59.578317	24.8	1000.0	120.000	100.0	V	16.0	13.4	15.2	40.0
81.761082	35.7	1000.0	120.000	231.0	H	210.0	9.6	4.3	40.0
84.992745	33.8	1000.0	120.000	300.0	H	193.0	9.7	6.2	40.0
182.363246	33.4	1000.0	120.000	174.0	H	16.0	13.8	10.1	43.5
256.470982	33.1	1000.0	120.000	100.0	H	95.0	14.5	12.9	46.0
371.224248	35.9	1000.0	120.000	139.0	H	79.0	18.2	10.1	46.0
769.521242	38.0	1000.0	120.000	113.0	H	210.0	27.7	8.0	46.0

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



- ◆ Operating Condition: 1 680 × 1 050 / 60 Hz (HDMI/DVI: Digital)
Red trace: Vertical polarization, Blue trace: Horizontal polarization



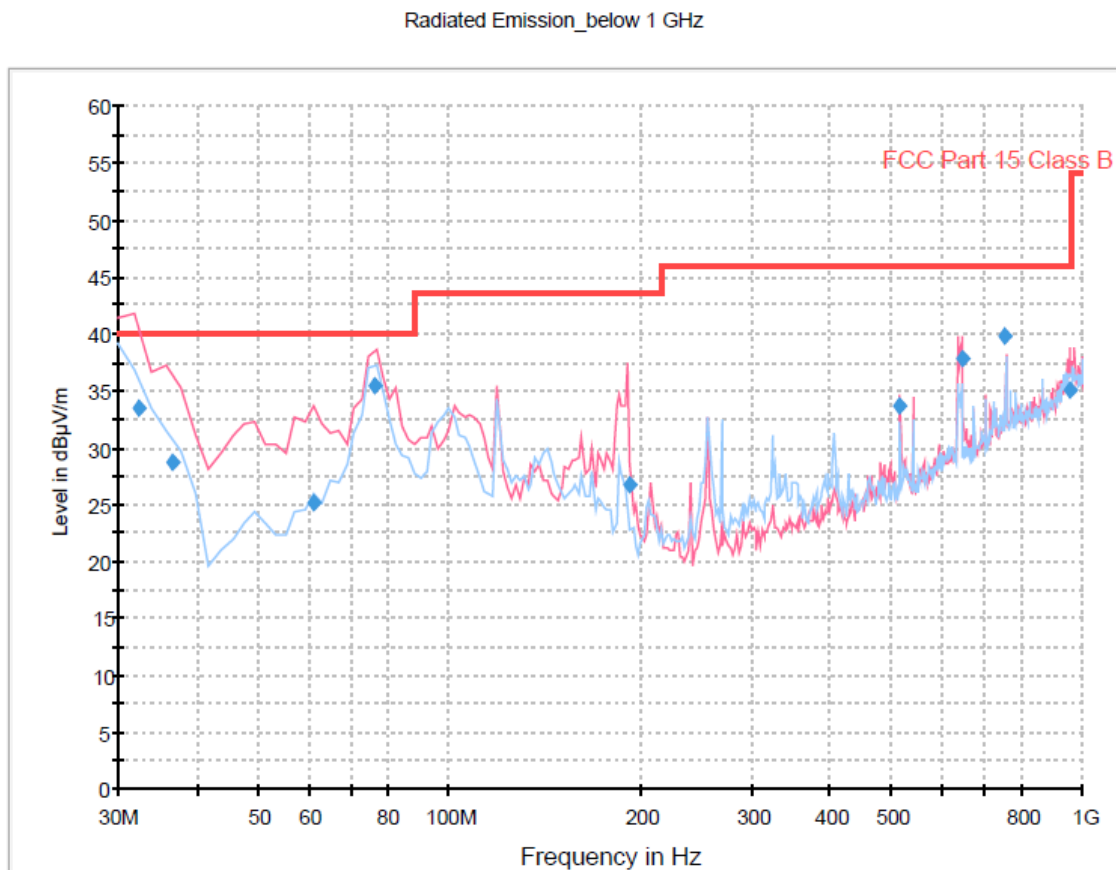
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
31.320000	30.3	1000.0	120.000	122.0	V	323.0	12.9	9.7	40.0
35.091663	26.8	1000.0	120.000	113.0	V	297.0	12.8	13.2	40.0
48.178878	28.1	1000.0	120.000	100.0	V	358.0	13.5	11.9	40.0
60.122204	25.0	1000.0	120.000	100.0	V	332.0	13.3	15.0	40.0
79.681082	35.8	1000.0	120.000	300.0	H	212.0	9.6	4.2	40.0
85.232745	33.4	1000.0	120.000	221.0	H	212.0	9.7	6.6	40.0
182.354400	34.0	1000.0	120.000	160.0	H	293.0	13.8	9.5	43.5
371.127000	39.2	1000.0	120.000	100.0	H	174.0	18.3	6.8	46.0
636.512986	37.0	1000.0	120.000	100.0	V	270.0	25.2	9.0	46.0
755.991700	36.9	1000.0	120.000	230.0	H	274.0	27.6	9.1	46.0

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



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



Final Result 1

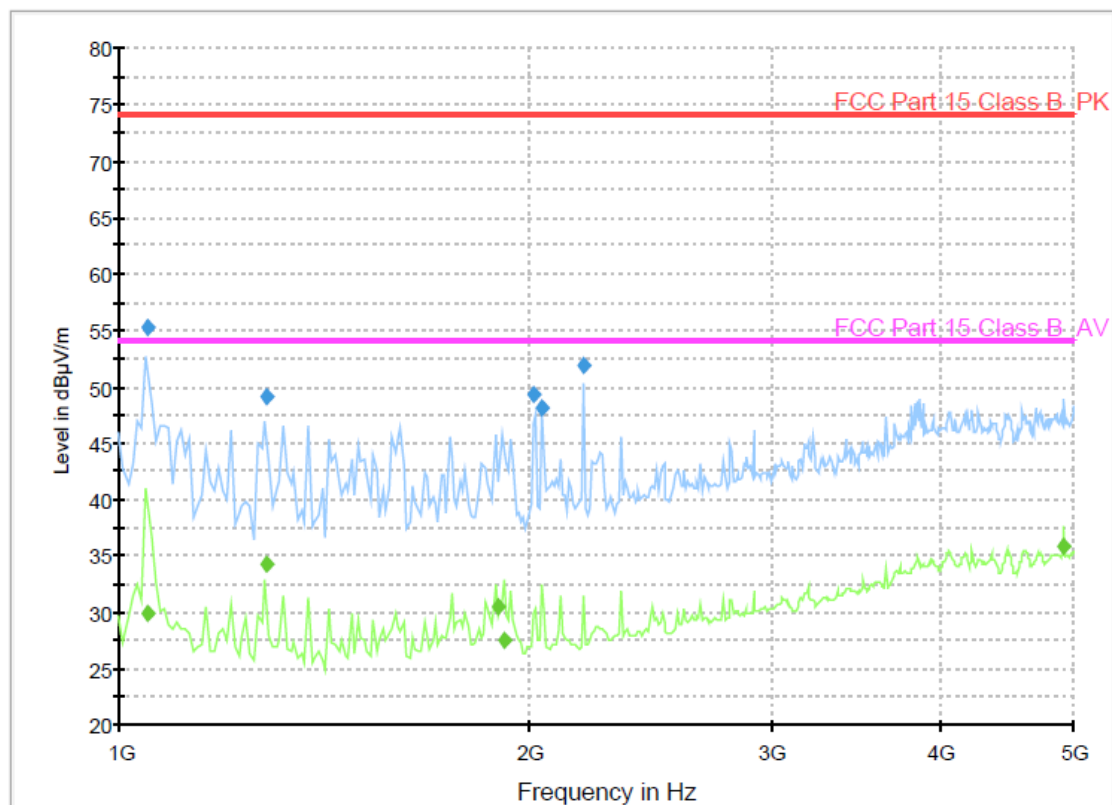
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
32.283888	33.4	1000.0	120.000	100.0	V	356.0	12.9	6.6	40.0
36.731663	28.7	1000.0	120.000	100.0	V	286.0	12.9	11.3	40.0
61.242204	25.2	1000.0	120.000	100.0	V	6.0	13.1	14.8	40.0
76.473307	35.4	1000.0	120.000	131.0	V	44.0	10.2	4.6	40.0
192.162685	26.7	1000.0	120.000	100.0	V	174.0	12.6	16.8	43.5
513.008056	33.8	1000.0	120.000	100.0	V	252.0	21.7	12.2	46.0
645.952425	37.9	1000.0	120.000	100.0	V	243.0	25.4	8.1	46.0
755.994028	39.7	1000.0	120.000	122.0	H	205.0	27.6	6.3	46.0
954.670581	35.1	1000.0	120.000	113.0	V	200.0	31.0	10.9	46.0

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



- ◆ Operating Condition: 1 680 × 1 050 / 60 Hz (RGB: Analog)
Green trace: Average detector, Blue trace: 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)
1050.296192	55.3	100.0	1000.000	201.0	V	295.0	-15.6	18.7	74.0
1282.361122	49.1	100.0	1000.000	204.0	V	206.0	-14.4	24.9	74.0
2015.836072	49.2	100.0	1000.000	100.0	V	211.0	-12.6	24.8	74.0
2041.084168	48.2	100.0	1000.000	100.0	V	218.0	-12.5	25.8	74.0
2187.372746	51.9	100.0	1000.000	100.0	V	225.0	-11.8	22.1	74.0

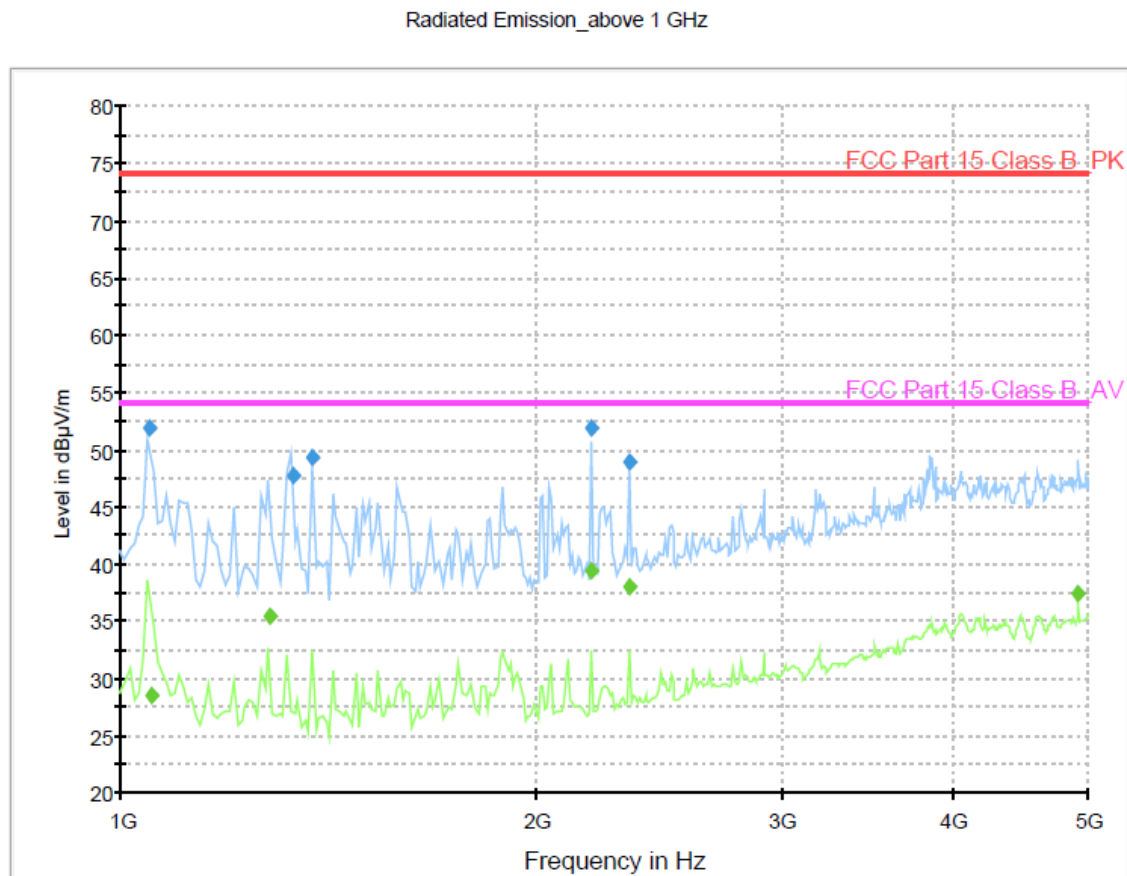
Final Result [2]

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1049.896192	29.8	100.0	1000.000	192.0	V	295.0	-15.6	24.2	54.0
1282.361122	34.4	100.0	1000.000	200.0	V	206.0	-14.4	19.6	54.0
1894.779559	30.4	100.0	1000.000	150.0	H	182.0	-13.1	23.6	54.0
1918.827655	27.6	100.0	1000.000	100.0	H	163.0	-13.0	26.4	54.0
4914.839679	35.9	100.0	1000.000	114.0	H	163.0	-2.6	18.1	54.0

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



- ◆ Operating Condition: 1 680 × 1 050 / 60 Hz (HDMI/DVI: Digital)
Green trace: Average detector, Blue trace: Peak detector



Final Result [1]

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1051.096192	51.8	100.0	1000.000	200.0	V	293.0	-15.6	22.2	74.0
1333.657315	47.6	100.0	1000.000	100.0	V	10.0	-14.4	26.4	74.0
1376.953507	49.3	100.0	1000.000	100.0	H	149.0	-14.4	24.7	74.0
2186.572746	51.9	100.0	1000.000	100.0	V	223.0	-11.8	22.1	74.0
2332.861323	48.8	100.0	1000.000	100.0	V	128.0	-11.2	25.2	74.0

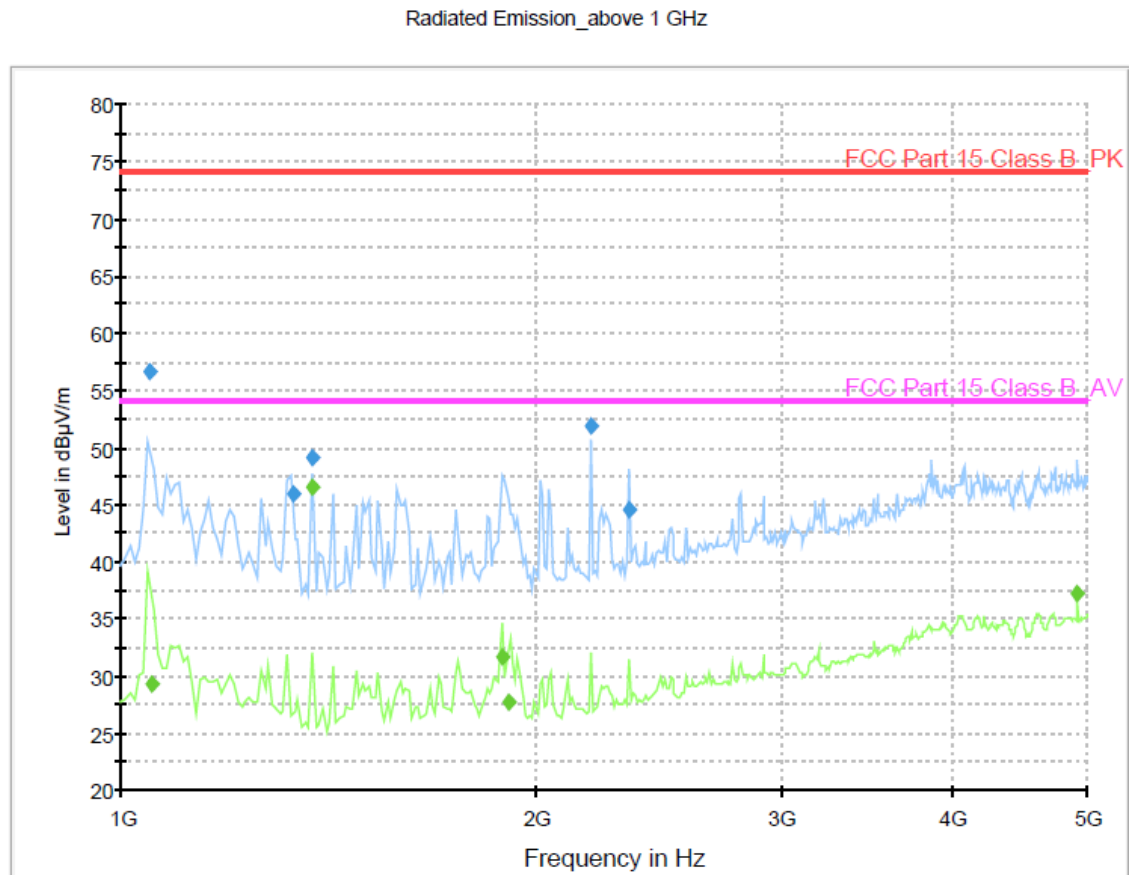
Final Result [2]

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1053.096192	28.5	100.0	1000.000	113.0	V	293.0	-15.6	25.5	54.0
1282.361122	35.4	100.0	1000.000	140.0	V	190.0	-14.4	19.6	54.0
2186.972746	39.5	100.0	1000.000	100.0	V	223.0	-11.8	14.5	54.0
2332.861323	37.9	100.0	1000.000	100.0	V	128.0	-11.2	16.1	54.0
4914.839679	37.4	100.0	1000.000	150.0	H	149.0	-2.6	16.6	54.0

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



- ◆ Operating Condition: USB memory stick play mode
Green trace: Average detector, Blue trace: Peak detector



Final Result [1]

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1050.296192	56.6	100.0	1000.000	192.0	V	355.0	-15.6	17.4	74.0
1333.657315	46.0	100.0	1000.000	100.0	V	31.0	-14.4	28.0	74.0
1376.953507	49.0	100.0	1000.000	100.0	H	150.0	-14.4	25.0	74.0
2186.972746	51.9	100.0	1000.000	100.0	V	223.0	-11.8	22.1	74.0
2332.861323	44.6	100.0	1000.000	160.0	V	243.0	-11.2	29.4	74.0

Final Result [2]

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1053.096192	29.2	100.0	1000.000	100.0	V	355.0	-15.6	24.8	54.0
1376.953507	46.5	100.0	1000.000	100.0	H	150.0	-14.4	7.5	54.0
1889.979559	31.8	100.0	1000.000	100.0	H	184.0	-13.1	22.2	54.0
1909.227655	27.8	100.0	1000.000	100.0	H	150.0	-13.1	26.2	54.0
4914.839679	37.1	100.0	1000.000	150.0	H	148.0	-2.6	16.9	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. DLP PROJECTOR (Model Name: HX350Y-JE)** was complies with §15.107 and 15.109 of the FCC Rules.