

FCC TEST REPORT

Reference No. : G-45-2011-02103

Applicant : LG Electronics Inc.

Equipment Under Test (EUT) :

Product Name : GSM/WCDMA and LTE Phone with
Bluetooth and WLAN

Model Name : LG-P930

Applied Standards : FCC Part 15 : 2009, Subpart B, Class B

ANSI C63.4 : 2003

CISPR 22 : 2006

Date of Receipt : July 27, 2011

Date of Test : August 10, 2011 ~ August 11, 2011

Date of Issue : August 17, 2011

Test Results : Complied

Tested by

:


Jerry Jeong

Reviewed by

:


Forest Lee

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or Testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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1. General Information

1.1 Client Information

Applicant : LG Electronics Inc.
Address of Applicant : 60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea
Manufacturer : LG Electronics Inc.
Address of Manufacturer : 60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea
435-040

1.3 General Information of E.U.T.

Product Name : GSM/WCDMA and LTE Phone with Bluetooth and WLAN
Model Name : LG-P930
FCC ID : BEJP930
Serial No. : N/A
Highest Internal Frequency : 1.2 GHz
Test Voltage : 120 V a.c., 60 Hz (Notebook Computer)
Battery 3.7 V d.c., 1830 mAh, 7.0 Wh Inside

1.4 Operating Modes and Conditions

Operating mode	Operating condition
Mode 1 USB Mode	USB Data Communication
Mode 2 HDMI Mode	HDMI Output

Note : EUT was exercised through batch file during testing.

1.5 Peripheral Equipments

Description	Model	Serial No.	Manufacturer
USB Mouse	Basic Optical Mouse 1.0A USB/PS2 Compatible	-	Microsoft Corporation
Micro SD Card	Mobile Ultra 2GB	-	SanDisk
Notebook Computer	LGX14	008QTEQ024836	LG
LCD Monitor	W2261VT	003NDWEKY873	LG

Note: Peripherals are DoC.

1.6 Cable List

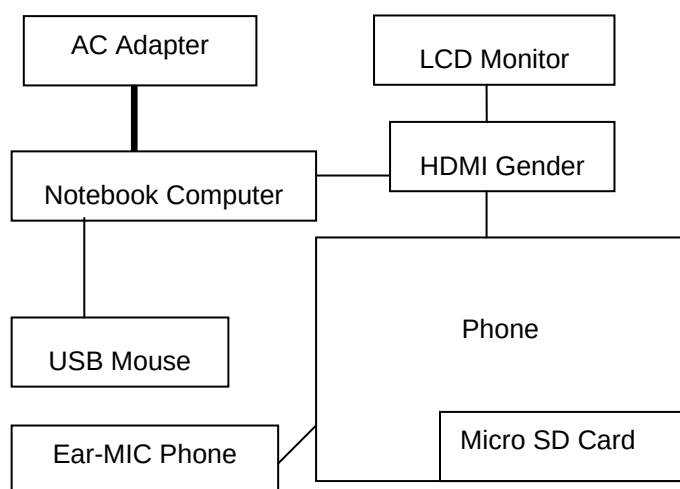
Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
HDMI Mode					
Phone	USB	HDMI Gender	-	0.9	Shield
	IO	Ear-MIC Phone	-	1.1	Unshield
	MicroSD	Micro SD Card	-	-	-
HDMI Gender	-	Phone	USB	0.9	Shield
	-	Notebook Computer	USB	1.1	Shield
	HDMI	LCD Monitor	HDMI	1.7	Shield
LCD Monitor	AC IN	AC Source	-	1.0	Unshield
	HDMI	HDMI Gender	HDMI	1.7	Shield
Notebook Computer	USB	HDMI Gender	-	1.1	Shield
	USB	USB Mouse	-	1.8	Shield
	DC IN	AC Adapter	DC OUT	1.2	Unshield
AC Adapter	AC IN	AC Source	-	1.0	Unshield
USB Mode					
Phone	USB	Notebook Computer	-	1.1	Shield
	IO	Ear-MIC Phone	-	1.1	Unshield
	MicroSD	Micro SD Card	-	-	-
Notebook Computer	USB	Phone	-	1.1	Shield
	USB	USB Mouse	-	1.8	Shield
	DC IN	AC Adapter	DC OUT	1.2	Unshield
AC Adapter	AC IN	AC Source	-	1.0	Unshield

1.7 System Configurations

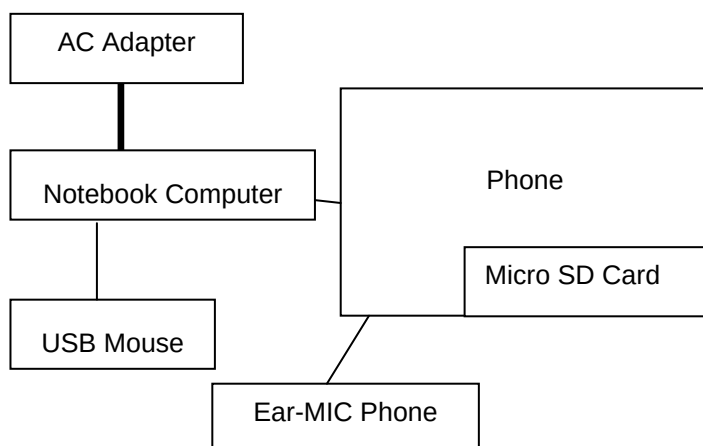
Description	Model	Serial No.	Manufacturer
Ear MIC Phone	-	-	-
Battery	BL-49KH	EAC61678801 LLL	LG
HDMI Gender	-	-	-

1.8 Test System Layout

-HDMI Mode



-USB Mode



1.9 Modifications

There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 : 2009, Subpart B ANSI C63.4 : 2003 CISPR 22 : 2006	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Standards	Results
Conducted Emission	FCC Part 15 : 2009, Subpart B ANSI C63.4 : 2003 CISPR 22 : 2006	Complied
Radiated Emission	FCC Part 15 : 2009, Subpart B ANSI C63.4 : 2003 CISPR 22 : 2006	Complied

EMISSION

2.1 Test Results

Test Items	Standards	Test Results
Conducted Emission	FCC Part 15 : 2009, Subpart B ANSI C63.4 : 2003 CISPR 22 : 2006	Complied
Radiated Emission	FCC Part 15 : 2009, Subpart B ANSI C63.4 : 2003 CISPR 22 : 2006	Complied

2.2 Test Equipments

Equipment	Model	Manufacturer	S/N	Last Cal. Date
Two-Line V-Network	ENV216	R & S	100190	2011.01.06
Artificial Mains Networks	ESH2-Z5	R & S	100280	2011.04.06
Test Receiver	ESHS10	R & S	863365/018	2011.04.27
Horn Antenna	HF906	R & S	100229	2011.04.27
Signal Conditioning Unit	SCU 18	R & S	10117	2011.03.23
Bilog Antenna	VULB9163	SCHWARZBEC K MESS- ELEKTRONIK	390	2011.04.27
Test Receiver	ESU26	R & S	100109	2011.04.27
Amplifier	8447F	HP	2944A03909	2011.07.04

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

2.3 Test Site

Conducted Emission : Shield Room in Gunpo Laboratory

Radiated Emission :10m Open Area Test Site in Yongin Laboratory

2.4 Conducted Emission Test Data

The initial preliminary exploratory scans were performed measuring frequency range(0.15MHz to 30MHz) using a max hold mode incorporating a Peak detector and Average detector and using the software of ES-K1(Version V1.71 from R&S). The final test data was measured using a Quasi-Peak detector and Average detector.

Temperature : 23.0 °C ~ 23.2 °C
Humidity : 37.0 % RH ~ 38.0 % RH
Atmospheric Pressure : 99.2 kPa

USB Mode

Freq	Line	Level(dBμV)		C/L	LISN	Result (dBμV)		Limit (dBμV)		Margin (dB)	
(MHz)	(H/N)	Q/P	A/V	(dB)	(dB)	Q/P	A/V	Q/P	A/V	Q/P	A/V
0.17	N	43.20	26.90	0.34	9.65	53.19	36.89	64.96	54.96	11.77	18.07
0.22	N	35.20	17.00	0.42	9.65	45.27	27.07	62.87	52.87	17.60	25.80
0.31	H	24.20	11.20	0.53	9.57	34.30	21.30	59.90	49.90	25.60	28.60
0.43	H	20.90	10.60	0.60	9.57	31.07	20.77	57.18	47.18	26.11	26.41
0.44	N	21.30	16.20	0.57	9.65	31.52	26.42	56.99	46.99	25.47	20.57

HDMI Mode

Freq	Line	Level(dBμV)		C/L	LISN	Result (dBμV)		Limit (dBμV)		Margin (dB)	
(MHz)	(H/N)	Q/P	A/V	(dB)	(dB)	Q/P	A/V	Q/P	A/V	Q/P	A/V
0.19	H	41.20	24.80	0.39	9.57	51.16	34.76	63.86	53.86	12.70	19.10
0.20	N	40.30	23.50	0.39	9.65	50.34	33.54	63.77	53.77	13.43	20.23
0.26	H	31.00	15.20	0.46	9.57	41.03	25.23	61.43	51.43	20.40	26.20
0.27	N	30.00	13.50	0.47	9.65	40.12	23.62	61.24	51.24	21.12	27.62
0.32	H	23.80	11.40	0.55	9.57	33.92	21.52	59.63	49.63	25.71	28.11
4.36	N	9.70	4.30	0.10	9.66	19.46	14.06	56.00	46.00	36.54	31.94

Measurement Uncertainty : $\pm 3.37\text{dB}$ (The confidential level is about 95%, K=2)

Note : • Line (H) : Hot • Line (N) : Neutral
• C/L : Cable Loss • LISN : LISN Factor
• Result = Level + C/L + LISN • Margin = Limit - Result

See Appendix A (Conducted Emission)

2.5 Radiated Emission Test Data

The initial preliminary exploratory scans were performed measuring frequency range(30MHz to 6 GHz) using a max hold mode incorporating a Peak detector and using the software of EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1GHz and a Peak and Average detector above 1GHz. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Below 1GHz (3m method)

Temperature : 21.6 °C ~ 21.8 °C
Humidity : 34.0 % RH ~ 35.0 % RH
Atmospheric Pressure : 98.9 kPa

USB Mode

FREQ. (MHz)	LEVEL (dBμV)	POL (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp (dB)	F/S (dBμV/m)	LIMIT (dBμV/m)	MARGIN (dB)
199.13	48.70	H	100.0	1.00	10.94	1.88	27.63	33.89	43.50	9.61
203.03	51.10	H	50.0	2.00	11.08	1.89	27.61	36.46	43.50	7.04
310.64	46.60	H	62.0	1.00	12.75	2.35	27.43	34.27	46.00	11.73

HDMI Mode

FREQ. (MHz)	LEVEL (dBμV)	POL (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp (dB)	F/S (dBμV/m)	LIMIT (dBμV/m)	MARGIN (dB)
48.02	38.30	V	182.0	1.00	14.01	0.94	28.28	24.97	40.00	15.03
203.26	46.20	H	131.0	2.00	11.09	1.89	27.61	31.57	43.50	11.93
212.74	40.30	H	122.0	2.00	11.40	1.92	27.56	26.06	43.50	17.44
308.27	48.30	H	90.0	1.00	12.72	2.34	27.42	35.94	46.00	10.06

Measurement Uncertainty (Horizontal) : $\pm 5.00\text{dB}$ (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) : $\pm 5.36\text{dB}$ (The confidential level is about 95%, K=2)

Note: • AF = Antenna Factor • CL = Cable Loss • F/S = Field Strength
• POL H = Horizontal • POL V = Vertical • Amp = Amplifier Gain
• Margin = Limit – F/S • F/S = Level + AF + CL – Amp
• A : Angle • H : Height

Above 1GHz (3m method)

Temperature : 23.6 °C

Humidity : 48.0 % RH

Atmospheric Pressure : 100.7 kPa

USB Mode

FREQ. (MHz)	LEVEL (dBμV)	POL (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp (dB)	F/S (dBμV/m)	LIMIT (dBμV/m)	MARGIN (dB)
Peak Detector										
1331.78	53.50	V	60.0	1.00	25.02	3.98	43.65	38.85	74.00	35.15
1992.94	41.60	V	163.0	2.00	27.50	5.00	43.74	30.36	74.00	43.64
Average Detector										
1331.78	31.20	V	60.0	1.00	25.02	3.98	43.65	16.55	54.00	37.45
1992.94	25.10	V	163.0	2.00	27.50	5.00	43.74	13.86	54.00	40.14

HDMI Mode

FREQ. (MHz)	LEVEL (dBμV)	POL (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp (dB)	F/S (dBμV/m)	LIMIT (dBμV/m)	MARGIN (dB)
Peak Detector										
1996.81	39.70	V	110.0	1.00	27.50	5.02	43.74	28.48	74.00	45.52
2491.02	39.90	V	100.0	1.00	28.11	5.70	43.81	29.90	74.00	44.10
Average Detector										
1996.81	28.70	V	110.0	1.00	27.50	5.02	43.74	17.48	54.00	36.52
2491.02	25.00	V	100.0	1.00	28.11	5.70	43.81	15.00	54.00	39.00

Measurement Uncertainty (Horizontal) : $\pm 4.89\text{dB}$ (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) : $\pm 4.93\text{dB}$ (The confidential level is about 95%, K=2)

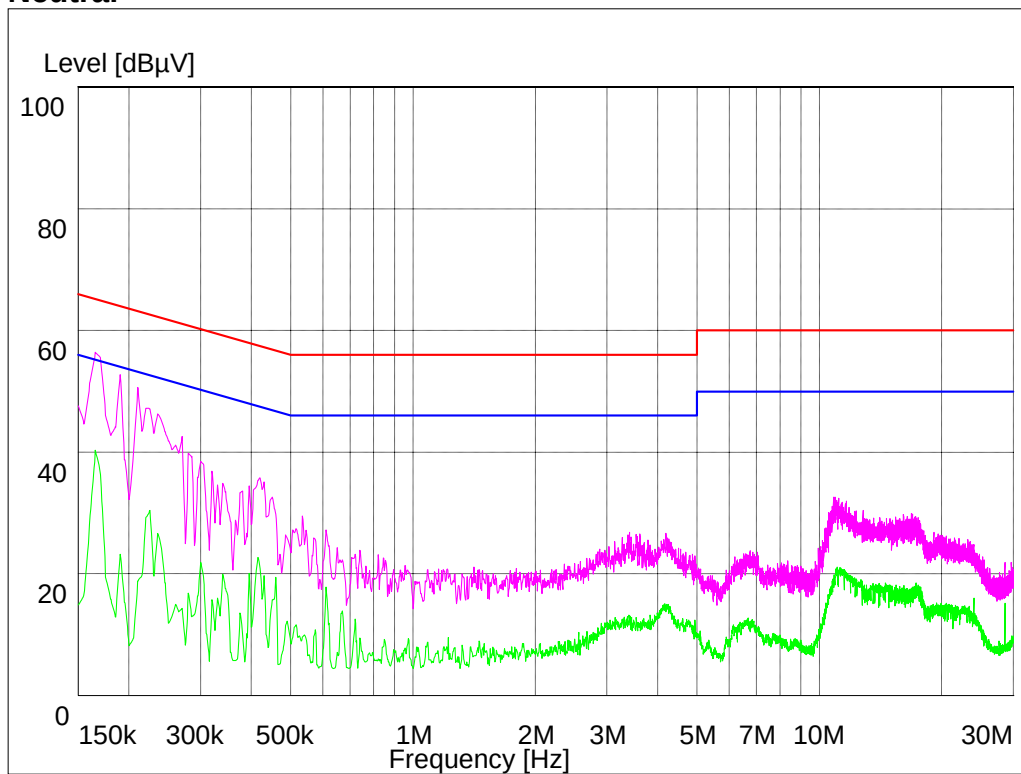
Note : • AF = Antenna Factor • CL = Cable Loss • F/S = Field Strength
• POL H = Horizontal • POL V = Vertical • Amp = Amplifier Gain
• Margin = Limit – F/S • F/S = Level + AF + CL – Amp
• A : Angle • H : Height

See Appendix B (Radiated Emission)

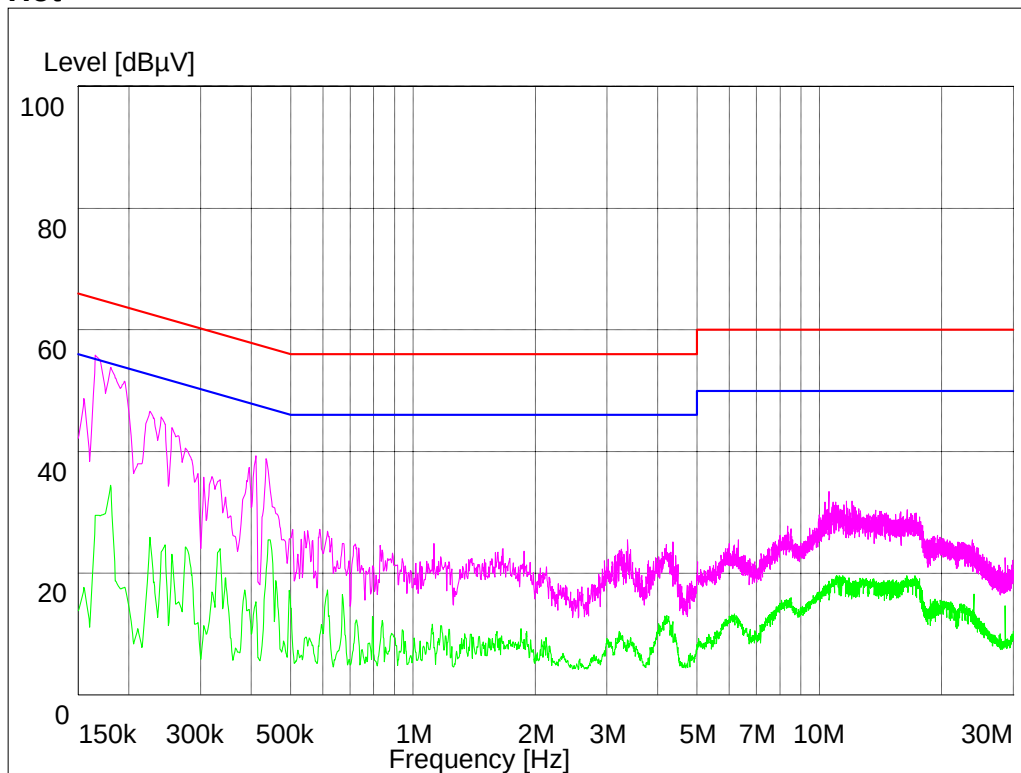
Appendix A : Conducted Emission

USB Mode

Neutral

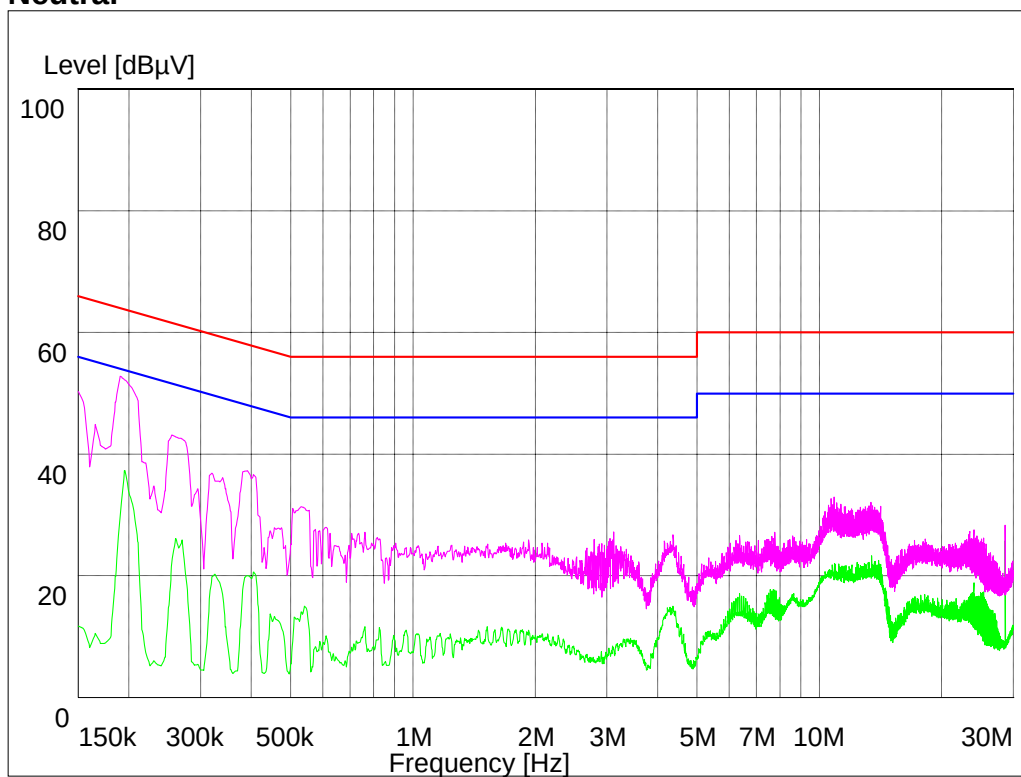


Hot

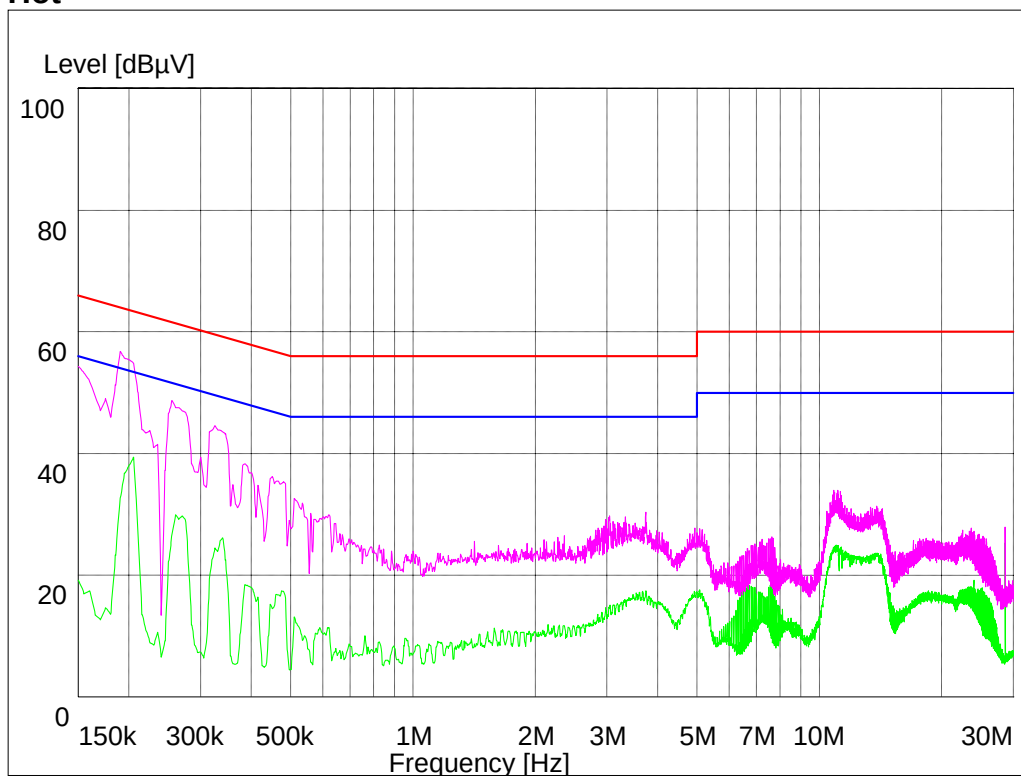


HDMI Mode

Neutral



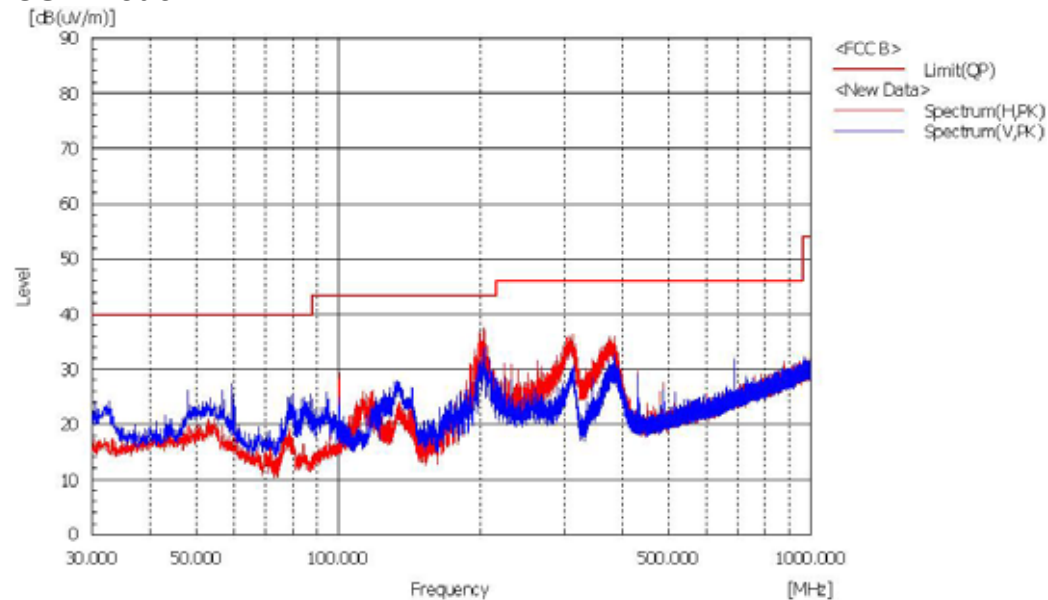
Hot



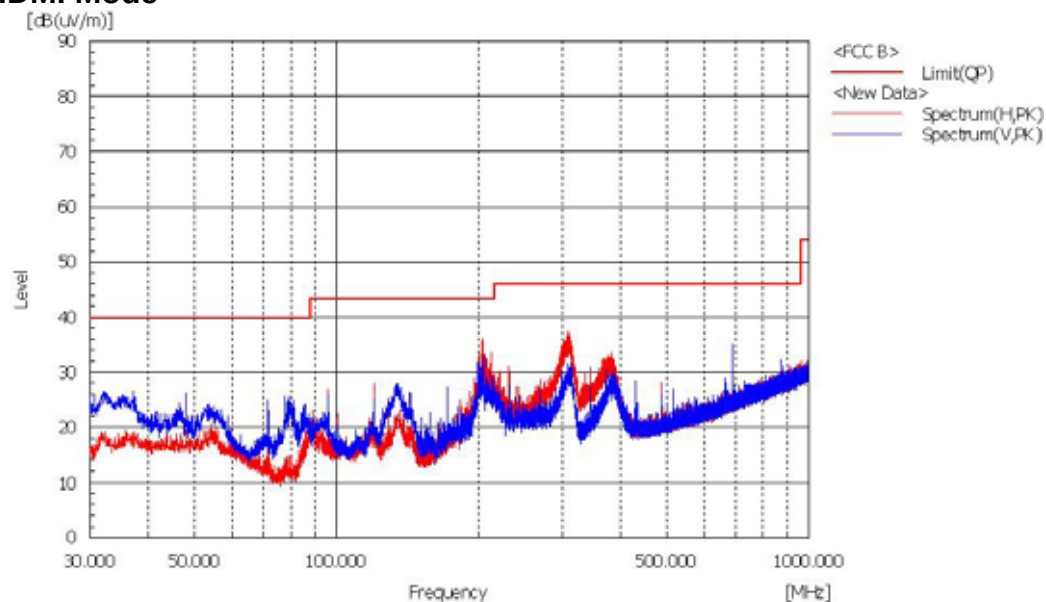
Appendix B : Radiated Emission

Below 1GHz

USB Mode

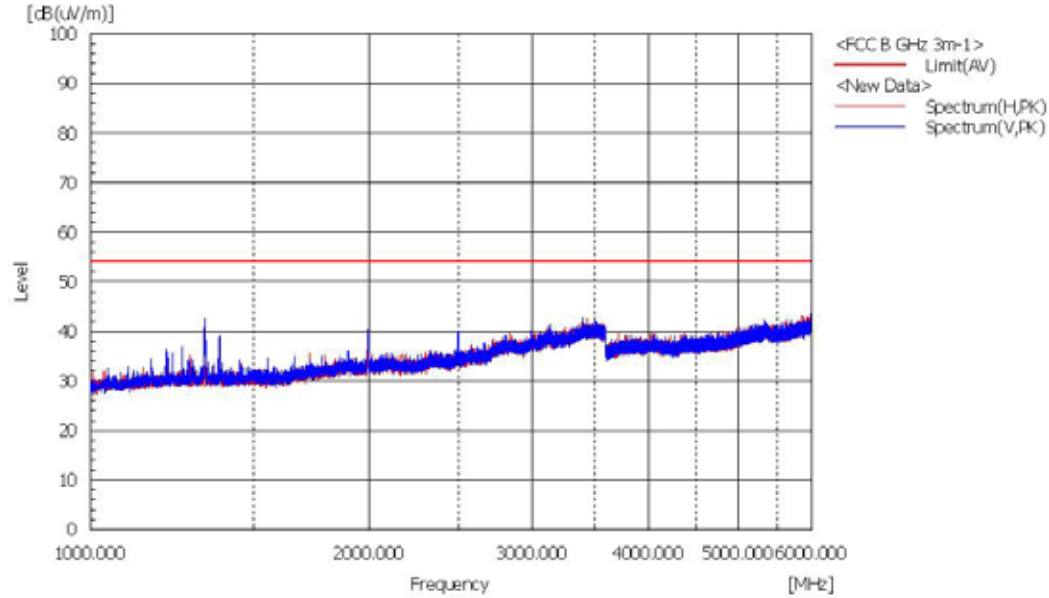


HDMI Mode



Above 1GHz

USB Mode



HDMI Mode

