EMC TEST REPORT

Test item	: LED TV Monitor
Model No.	: 47GA6400-UD
Order No.	: 1212-02944
Date of receipt	: 2012-12-17
Test duration	: 2012-12-20 ~ 2012-12-21
Use of report	: FCC CoC Marking
Date of Issue	: 2013-01-04

Applicant : LG Electronics Inc.
19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea

Test laboratory : Digital EMC Co., Ltd.
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Gyeonggi-Do, 449-080, Korea

Test specification : ANSI C 63.4:2003
FCC Part 15 Subpart B
(Type of Device : Class B Personal Computers and Peripherals (JBP))

Test environment : Temperature : (17 ~ 22) °C,
Humidity : (30 ~ 37) % R.H.

Test result : ☒ Comply ☐ Not Comply

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose.
This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:

Assistant Manager
DaeHwa Eun

Reviewed by:

General Manager
ChangHo Lee

PRESIDENT OF DIGITAL EMC CO., LTD.

CONTENTS

1. General Remarks

This report contains the result of tests performed by:

DIGITAL EMC CO., LTD.

Address : 683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Gyeonggi-Do, 449-080, Korea

http://www.digitalemc.com

Tel: +82-31-321-2664 Fax: +82-31-321-1664

2. Test Laboratory

Digital EMC Co., Ltd. has been accredited / filed / authorized by the agencies listed in the following table;

Certificate	Nation	Agency	Code	Mark
Accreditation	Korea	KOLAS	393	ISO/IEC 17025
Site Filing	USA	FCC	101842 678747	Test Facility list & NSA Data
	Canada	IC	5740A-1 5740A-2	Test Facility list & NSA Data
	Japan	VCCI	C-1427 R-1364, R-3385 T-1442, G-338	Test Facility list & NSA Data
Certification	Korea	KC	KR0034	Test Facility list & NSA Data
	Germany	TUV	ROK1124C	ISO/IEC 17025

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competent of calibration and testing laboratory”.

3. General Information of EUT

Model No.	47GA6400-UD
EUT Type	LED TV Monitor
Serial No	NONE
FCC ID	BEJ47GA6400UD
Type of Sample Tested	Pre-Production
High Frequency	Max 800 MHz
Rating	AC 100-240 V~ 50/60 Hz, 1.2 A
Supplied Power for Test	AC 120 V, 60 Hz
Applicant	LG Electronics Inc. 19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea
Manufacturer	LG Electronics Inc. 19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea

Component supported mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
720 x 480i	15.73	59.94
	15.73	60.00
720 x 480p	31.47	59.94
	31.50	60.00
1280 x 720p	44.96	59.94
	45.00	60.00
1920 x 1080i	33.72	59.94
	33.75	60.00
1920 x 1080p	26.97	23.976
	27.00	24.00
	33.71	29.97
	33.75	30.00
	67.432	59.94
	67.500	60.00

4. Test Summary

4.1 Applied standards and test results

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4:2003	**C**
Radiated Disturbance	ANSI C63.4:2003	**C**
C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable		

The data in this test report are traceable to the national or international standards.

4.2 Test environment and conditions

Test Items	Test date (MM-DD)	Temp (℃)	Humidity (% R.H.)
Conducted Disturbance	12-20	22	30
Radiated Disturbance	12-21	17	37

4.3 Test result Summary

(1) Conducted Emission (USB MODE)

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
0.78500	**N**	**34.4**	Average	**46.0**	**11.6**

(2) Radiated Emission (USB MODE)

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
249.990	**V**	**39.4**	Quasi-Peak	**46.0**	**6.6**

5. Test Set-up and operation mode

5.1 Principle of Configuration Selection

Emission : The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

5.2 Test Operation Mode

- HDMI MODE : "H" Pattern mode, 1920 x 1080 Resolution
- USB MODE : USB recorded file play

5.3 Support Equipment Used

Unit	Model No.	Serial No.	Manufacturer	CABLE				Backshell	FCC ID
				Connect type	Length (m)	ferrite core	shield		
PC	VOSTRO220	G3RZKBX	DELL INC	Power HDMI USB USB USB	1.6 1.8 1.8 1.6 2.0	Not use Not use Not use Not use Not use	Non-shield Shield Non-shield Non-shield Non-shield	Plastic	DOC
KEYBOARD	SKG-3000UB	TAKB601241E	MONITEREY INTERNATIONAL CORP	USB	1.8	Not use	Non-shield	Plastic	DOC
MOUSE	1094	N/A	MICROSOFT CORPORATION	USB	1.6	Use	Non-shield	Plastic	DOC
CD/DVD PLAYER	DVP-NS92V	2001499	SONY EMCS	POWER AV	1.7 1.6	Not use Not use	Non-shield Non-shield	Plastic	VER
USB MEMORY	SDCZ37-004G	N/A	SANDISK	USB	-	-	-	Plastic	DOC
PRINTER	SRP-770	SRP770080600 35	BIXOLON	USB Power	1.8 2.0	Not use Not use	Non-shield Non-shield	Plastic	DOC
Headset	COV903	N/A	COSY	STEREO	2.0	Not use	Non-shield	Plastic	DOC
Remote Control	AN-MR300Q	N/A	LG	-	-	-	-	-	DOC

6. Test Results : Emission

6.1 Conducted Disturbance

6.1.1 Measurement Procedure

In the range of 0.15 MHz to 30 MHz, the conducted disturbance was measured and set-up was made accordance with **ANSI C63.4.**

If the EUT is table top equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 0.4 m from the conducting wall of the shielded room.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.

Connect the EUT's power source lines to the appropriate power mains / peripherals through the LISN. All the other peripherals are connected to the 2nd LISN, if any.

Unused measuring port of the LISN was resistively terminated by 50 ohm terminator.

The measuring port of the LISN for EUT was connected to spectrum analyzer.

Using conducted emission test software, the emissions were scanned with peak detector mode.

After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and Average detector.

By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.

For further description of the configuration refer to the picture of the test set-up.

6.1.2 Limit for Conducted Disturbance

(1) Conducted disturbance at mains ports.

Frequency range (MHz)	Limits dB(μV)			
	Quasi-peak		Average	
	Class A	Class B	Class A	Class B
0.15 to 0.50	79	66 to 56	66	56 to 46
0.50 to 5	73	56	60	46
5 to 30		60		50
Note 1 The lower limit shall apply at the transition frequencies. Note 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Note) 1. Emission Level = Reading Value + Correction Factor.
2. Correction Factor = Cable Loss + Insertion Loss of LISN
3. Margin = Limit - Emission level

Test Result

< HDMI MODE >

Digital EMC

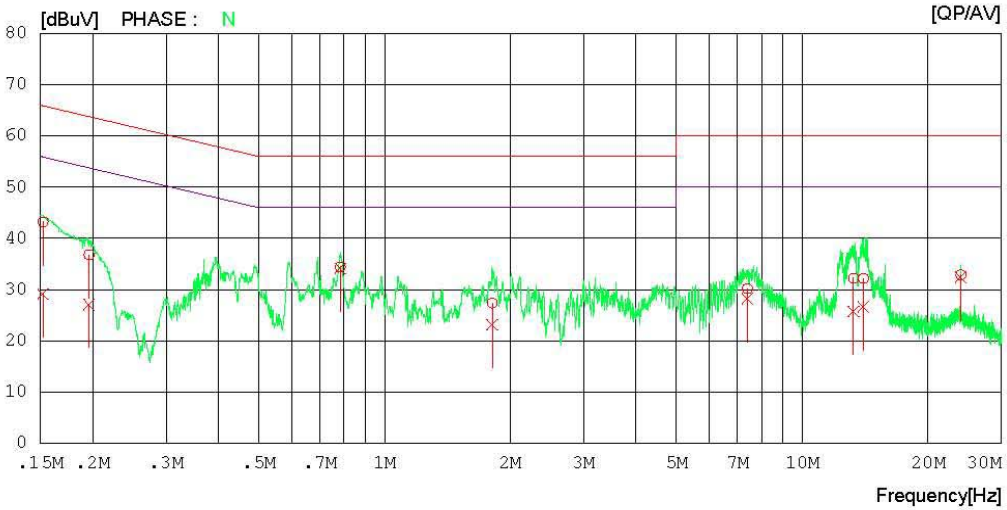
Results of Conducted Emission

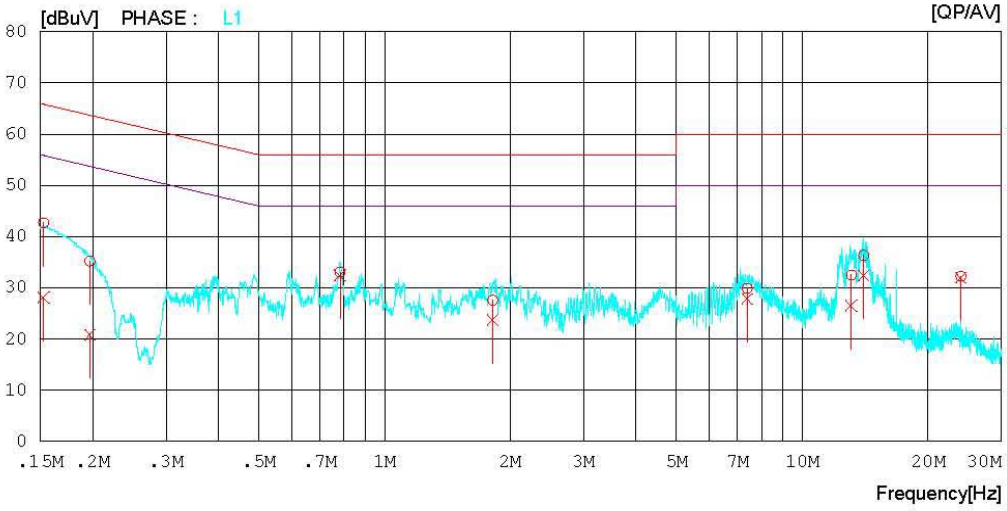
Digital EMC
Date : 2012-12-20

Model No.	:	47GA6400-UD	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	22 'C 30 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

Digital EMC
Date : 2012-12-20

Model No.	:	47GA6400-UD	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	22 'C 30 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15236	43.0	28.9	0.2	43.2	29.1	65.9	55.9	22.7	26.8	N
2	0.19616	36.6	26.9	0.2	36.8	27.1	63.8	53.8	27.0	26.7	N
3	0.78430	34.2	33.9	0.2	34.4	34.1	56.0	46.0	21.6	11.9	N
4	1.81150	27.0	22.8	0.3	27.3	23.1	56.0	46.0	28.7	22.9	N
5	7.39700	29.7	27.7	0.5	30.2	28.2	60.0	50.0	29.8	21.8	N
6	13.26800	31.5	25.0	0.7	32.2	25.7	60.0	50.0	27.8	24.3	N
7	14.02550	31.5	25.9	0.7	32.2	26.6	60.0	50.0	27.8	23.4	N
8	23.98750	31.9	31.4	1.0	32.9	32.4	60.0	50.0	27.1	17.6	N
9	0.15271	42.5	27.9	0.2	42.7	28.1	65.9	55.9	23.2	27.8	L1
10	0.19715	35.0	20.6	0.2	35.2	20.8	63.7	53.7	28.5	32.9	L1
11	0.78366	32.9	32.2	0.2	33.1	32.4	56.0	46.0	22.9	13.6	L1
12	1.81700	27.3	23.4	0.3	27.6	23.7	56.0	46.0	28.4	22.3	L1
13	7.39300	29.4	27.3	0.5	29.9	27.8	60.0	50.0	30.1	22.2	L1
14	13.11300	31.8	25.8	0.7	32.5	26.5	60.0	50.0	27.5	23.5	L1
15	14.03300	35.7	31.7	0.7	36.4	32.4	60.0	50.0	23.6	17.6	L1
16	23.98750	31.2	31.0	1.0	32.2	32.0	60.0	50.0	27.8	18.0	L1

< USB MODE >

Digital EMC

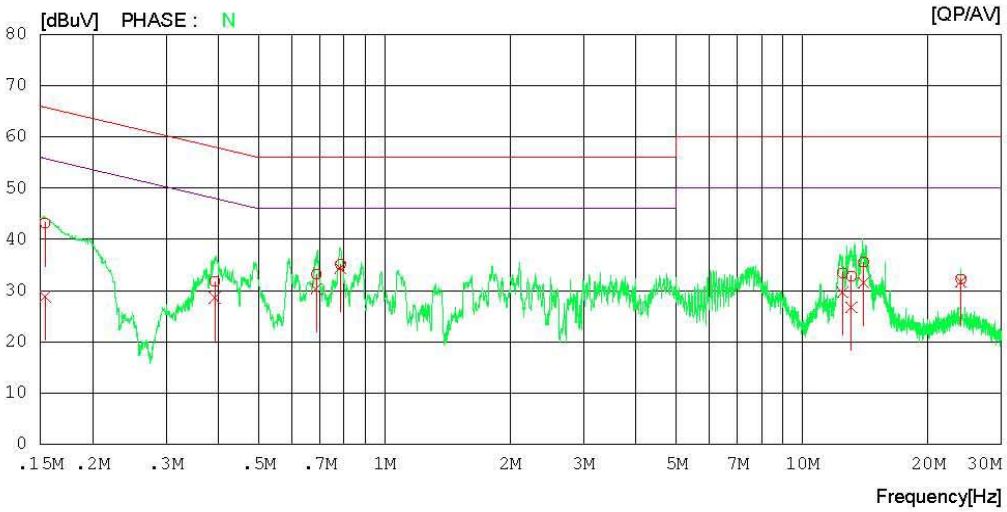
Results of Conducted Emission

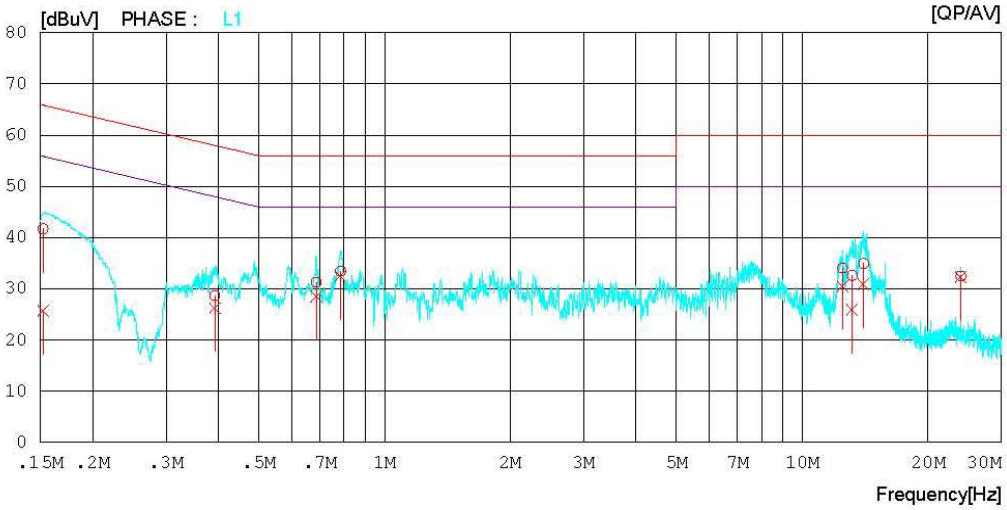
Digital EMC
Date : 2012-12-20

Model No.	:	47GA6400-UD	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	22 'C 30 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV





Results of Conducted Emission

Digital EMC
Date : 2012-12-20

Model No.	:	47GA6400-UD	Referrence No.	:	
Type	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi.	:	22 'C 30 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15394	43.0	28.6	0.2	43.2	28.8	65.8	55.8	22.6	27.0	N
2	0.39231	31.6	28.4	0.2	31.8	28.6	58.0	48.0	26.2	19.4	N
3	0.68725	33.0	30.1	0.2	33.2	30.3	56.0	46.0	22.8	15.7	N
4	0.78500	34.9	34.2	0.2	35.1	34.4	56.0	46.0	20.9	11.6	N
5	12.50250	32.8	29.0	0.7	33.5	29.7	60.0	50.0	26.5	20.3	N
6	13.11300	32.1	26.0	0.7	32.8	26.7	60.0	50.0	27.2	23.3	N
7	14.02900	34.8	30.8	0.7	35.5	31.5	60.0	50.0	24.5	18.5	N
8	23.98650	31.2	30.7	1.0	32.2	31.7	60.0	50.0	27.8	18.3	N
9	0.15231	41.5	25.6	0.2	41.7	25.8	65.9	55.9	24.2	30.1	L1
10	0.39261	28.5	26.1	0.2	28.7	26.3	58.0	48.0	29.3	21.7	L1
11	0.68690	31.1	28.3	0.2	31.3	28.5	56.0	46.0	24.7	17.5	L1
12	0.78471	33.2	32.3	0.2	33.4	32.5	56.0	46.0	22.6	13.5	L1
13	12.50550	33.4	29.9	0.7	34.1	30.6	60.0	50.0	25.9	19.4	L1
14	13.18100	31.9	25.2	0.7	32.6	25.9	60.0	50.0	27.4	24.1	L1
15	14.03050	34.3	30.2	0.7	35.0	30.9	60.0	50.0	25.0	19.1	L1
16	23.98800	31.5	31.3	1.0	32.5	32.3	60.0	50.0	27.5	17.7	L1

6.2 Radiated Disturbance

6.2.1 Measurement Procedure

The radiated disturbance was measured and set-up was made accordance with **ANSI C63.4.**
If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 3 m or 10 m away from the interference receiving antenna in the **10m semi-anechoic chamber.**
Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.
Rotate the EUT from (0 - 360)° and position the receiving antenna at heights from (1 - 4) m above the reference ground plane continuously to determine associated with higher emission levels and record them.
The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.
For below 1 GHz frequency range, Quasi-Peak detector with 120 kHz RBW was used.
Also Peak and Average detector with 1 MHz RBW were used for above 1 GHz frequency range.
For further description of the configuration refer to the picture of the test set-up.

6.2.2 Limit for Radiated Disturbance

- The test frequency range of Radiated Disturbance measurements are listed below.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1 000
108 – 500	2 000
500 – 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

(1) Limit for Radiated Emission below 1 000MHz

Frequency range (MHz)	Class A Equipment (10 m distance)	Class B Equipment (3 m distance)
	Quasi-peak (dBμV/m)	Quasi-peak (dBμV/m)
30 to 88	39.1	40
88 to 216	43.5	43.5
216 to 960	46.4	46
960 to 1 000	49.5	54
Note 1 The lower limit shall apply at the transition frequency. Note 2 Additional provisions may be required for cases where interference occurs. Note 3 According to 15.109(g), as an alternative to the radiated emission limit shown above, digital devices may be shown to comply with the standards(CISPR), Pub. 22 shown as below.		
Frequency range (MHz)	**Class A Equipment (10 m distance)**	**Class B Equipment (10 m distance)**
	Quasi-peak (dBμV/m)	**Quasi-peak (dBμV/m)**
30 to 230	40	30
230 to 1 000	47	37

(2) Limits for Radiated Emission above 1 000MHz at a measuring distance of 3 m

Frequency (GHz)	Class A Equipment		Class B Equipment	
	Peak (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)
1 to 40	80	60	74	54

Note) 1. Emission Level = Reading Value + Correction Factor.
2. Correction Factor = Cable loss - Amp gain + Antenna Factor
3. Margin = Limit - Emission level

Test Result

< HDMI MODE_30 MHz ~ 1 GHz >

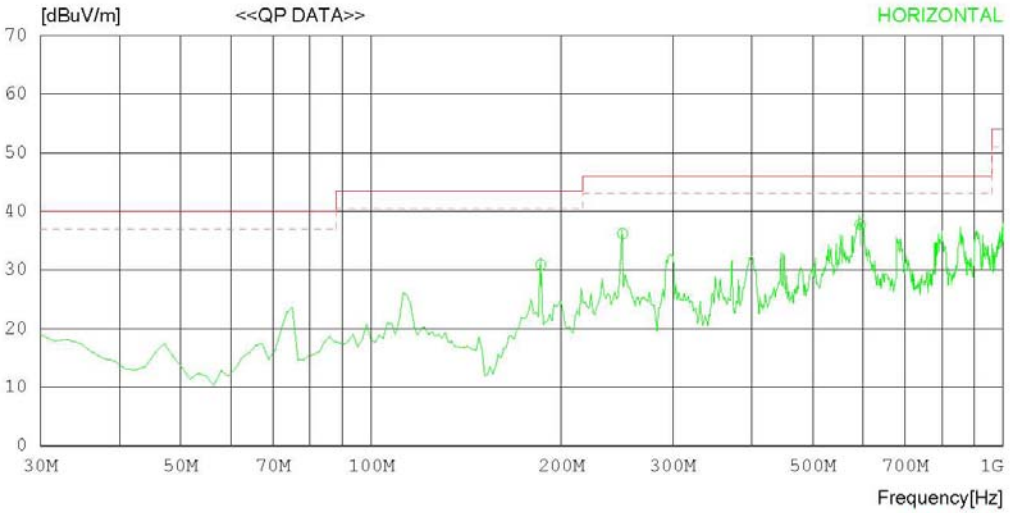
RADIATED EMISSION

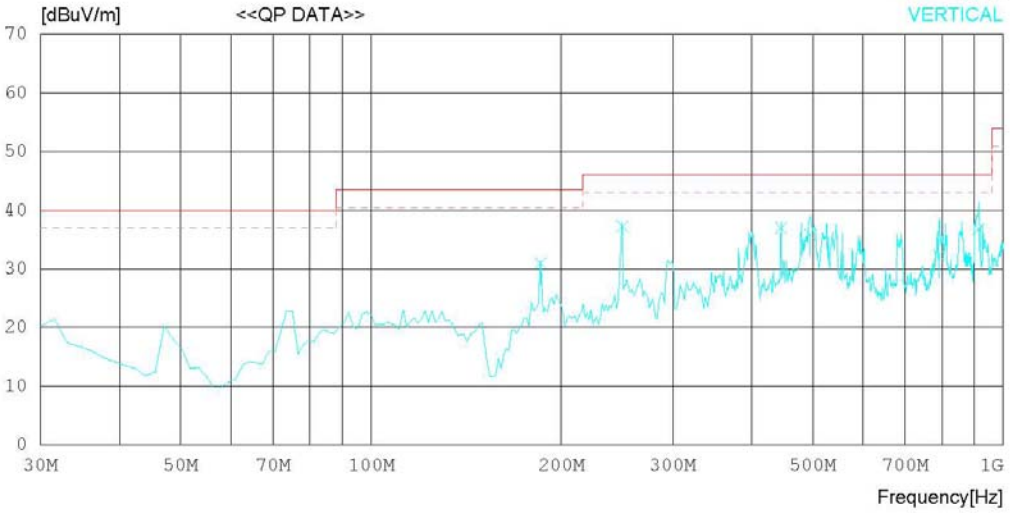
Date : 2012-12-20

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB





RADIATED EMISSION

Date : 2012-12-20

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB

No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	185.637	42.7	9.3	2.2	23.3	30.9	43.5	12.6	100	103
2	250.000	44.9	12.3	2.6	23.6	36.2	46.0	9.8	100	180
3	594.010	39.9	18.5	4.1	24.7	37.8	46.0	8.2	100	202
----- Vertical ------										
4	185.637	42.8	9.3	2.2	23.3	31.0	43.5	12.5	100	180
5	250.000	46.0	12.3	2.6	23.6	37.3	46.0	8.7	100	181
6	445.500	41.6	16.5	3.5	24.6	37.0	46.0	9.0	100	209
7	495.000	39.3	17.4	3.9	24.7	35.9	46.0	10.1	100	169
8	791.980	31.4	19.9	4.8	23.8	32.3	46.0	13.7	100	359
9	914.353	33.6	21.0	5.3	23.1	36.8	46.0	9.2	100	158

< HDMI MODE _ (1 ~ 6) GHz _ Peak >

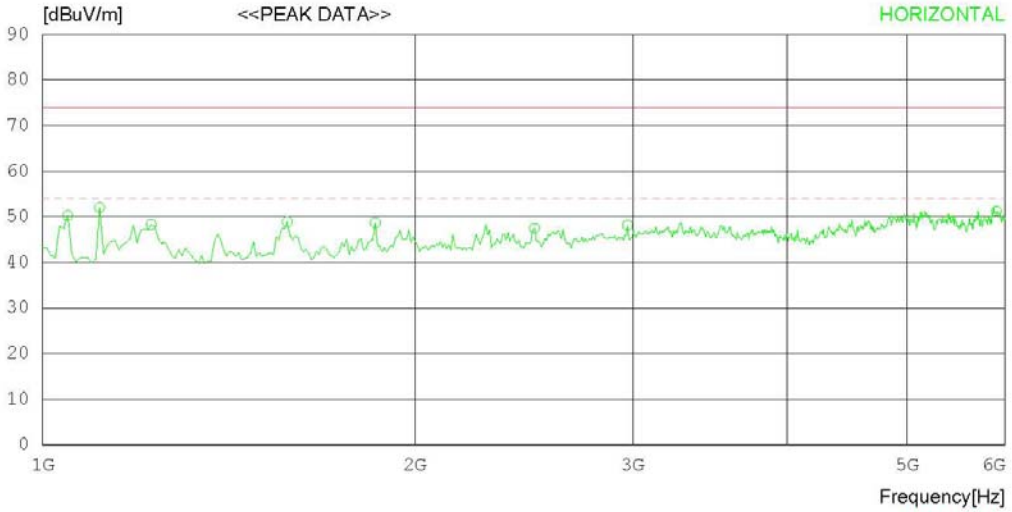
RADIATED EMISSION

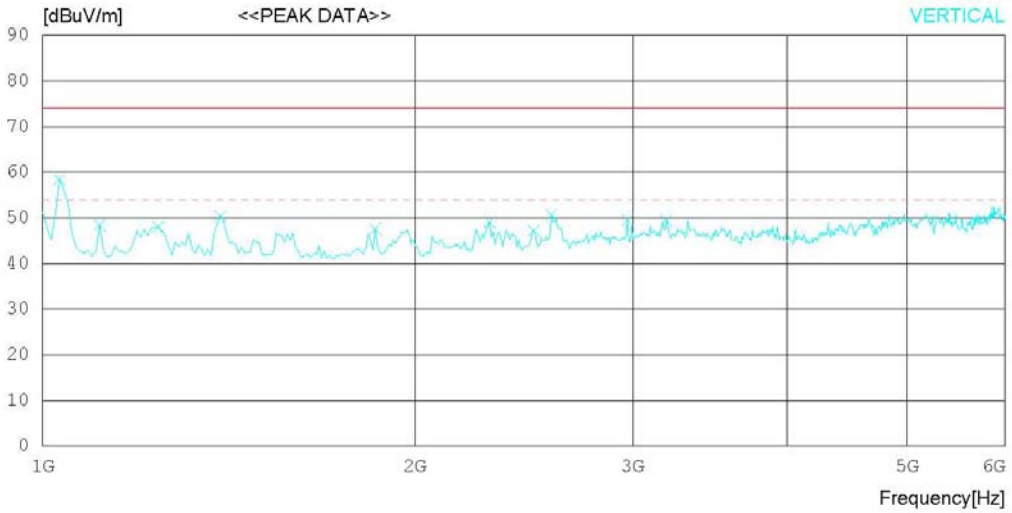
Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





RADIATED EMISSION

Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1048.077	61.5	24.7	5.9	41.8	50.3	74.0	23.7	100	1
2	1112.179	62.9	24.8	6.1	41.8	52.0	74.0	22	100	1
3	1224.359	58.7	24.9	6.5	41.8	48.3	74.0	25.7	100	165
4	1576.923	57.5	25.4	7.6	41.6	48.9	74.0	25.1	100	220
5	1857.371	56.5	25.7	8.2	41.7	48.7	74.0	25.3	100	1
6	2498.404	52.7	27.3	9.5	42.0	47.5	74.0	26.5	100	1
7	2971.167	50.9	28.7	10.5	41.9	48.2	74.0	25.8	100	1
8	5903.848	45.5	32.1	15.6	42.0	51.2	74.0	22.8	100	303
----- Vertical ------										
9	1032.051	69.6	24.7	5.9	41.8	58.4	74.0	15.6	100	358
10	1112.179	59.3	24.8	6.1	41.8	48.4	74.0	25.6	100	153
11	1240.385	58.2	25.0	6.6	41.8	48.0	74.0	26	100	194
12	1392.628	59.9	25.1	7.1	41.7	50.4	74.0	23.6	100	219
13	1857.371	55.4	25.7	8.2	41.7	47.6	74.0	26.4	100	203
14	2298.080	55.0	26.8	9.1	41.8	49.1	74.0	24.9	100	204
15	2498.404	52.4	27.3	9.5	42.0	47.2	74.0	26.8	100	358
16	2578.533	55.3	27.6	9.7	41.9	50.7	74.0	23.3	100	358
17	2971.167	52.2	28.7	10.5	41.9	49.5	74.0	24.5	100	358
18	3195.530	51.2	29.0	11.0	41.8	49.4	74.0	24.6	100	222
19	5903.848	45.3	32.1	15.6	42.0	51.0	74.0	23	100	358

< HDMI MODE _ (1 ~ 6) GHz _ Average >

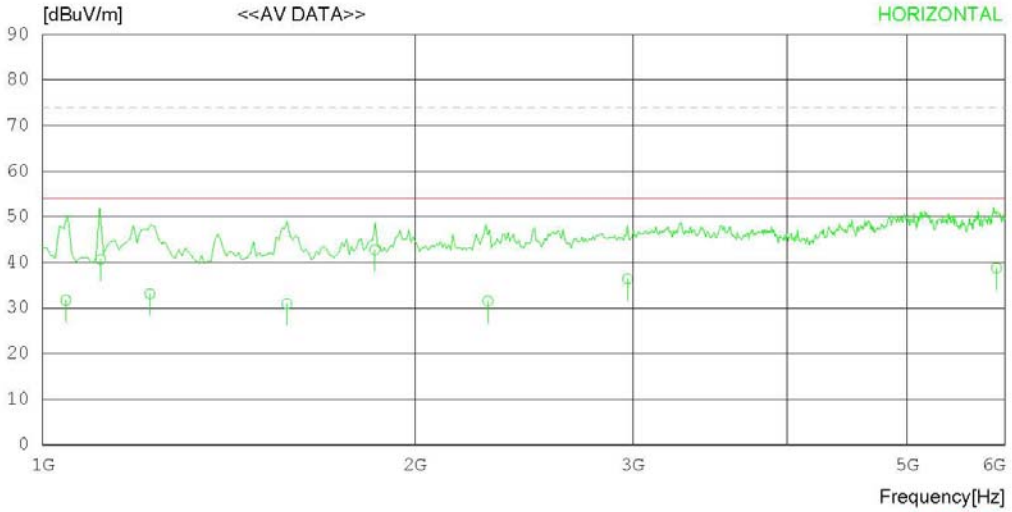
RADIATED EMISSION

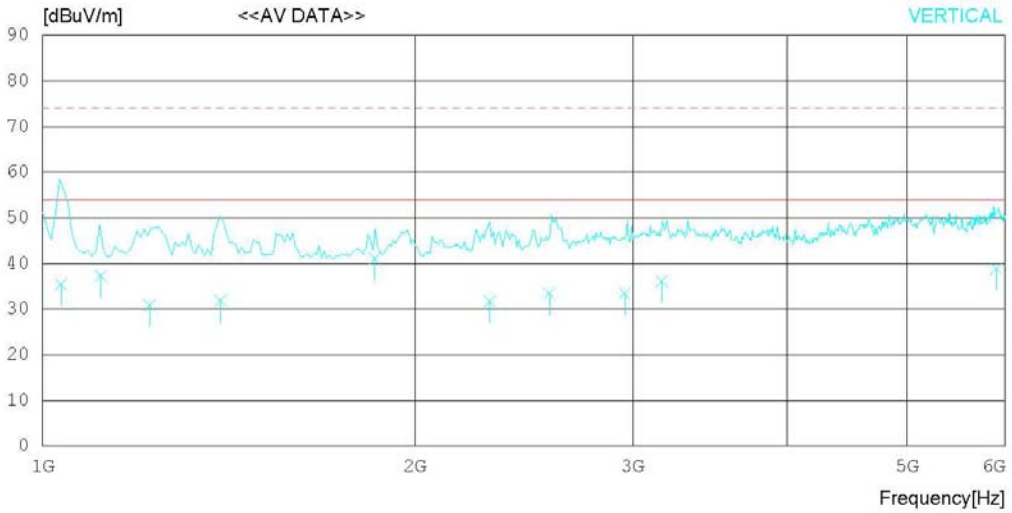
Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





RADIATED EMISSION

Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	HDMI	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING AV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1043.865	42.9	24.7	5.9	41.8	31.7	54.0	22.3	100	1
2	1113.762	51.5	24.8	6.1	41.8	40.6	54.0	13.4	100	351
3	1220.868	43.5	24.9	6.5	41.8	33.1	54.0	20.9	100	235
4	1575.192	39.5	25.4	7.6	41.6	30.9	54.0	23.1	100	220
5	1856.391	50.7	25.7	8.2	41.8	42.8	54.0	11.2	100	202
6	2291.125	37.5	26.7	9.1	41.8	31.5	54.0	22.5	100	235
7	2971.167	39.1	28.7	10.5	41.9	36.4	54.0	17.6	100	211
8	5903.848	33.1	32.1	15.6	42.0	38.8	54.0	15.2	100	244
----- Vertical ------										
9	1035.365	46.6	24.7	5.9	41.8	35.4	54.0	18.6	100	178
10	1113.763	48.2	24.8	6.1	41.8	37.3	54.0	16.7	100	139
11	1220.868	41.2	24.9	6.5	41.8	30.8	54.0	23.2	100	194
12	1392.628	41.4	25.1	7.1	41.7	31.9	54.0	22.1	100	221
13	1856.391	49.0	25.7	8.2	41.8	41.1	54.0	12.9	100	188
14	2298.561	37.6	26.8	9.1	41.8	31.7	54.0	22.3	100	204
15	2568.654	38.2	27.5	9.7	41.9	33.5	54.0	20.5	100	194
16	2955.362	36.1	28.7	10.4	41.8	33.4	54.0	20.6	100	358
17	3167.878	38.1	28.9	10.9	41.8	36.1	54.0	17.9	100	222
18	5903.848	33.2	32.1	15.6	42.0	38.9	54.0	15.1	100	358

< USB MODE_30 MHz ~ 1 GHz >

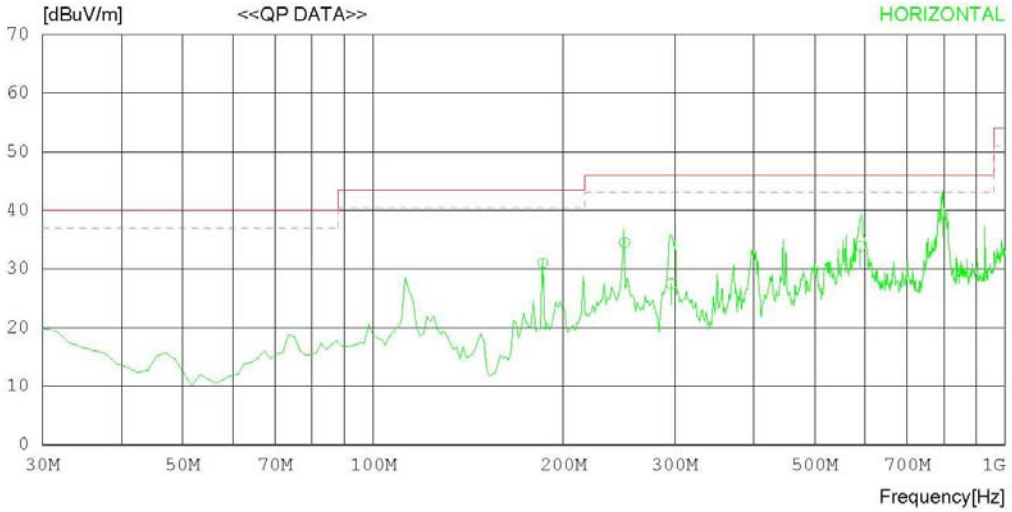
RADIATED EMISSION

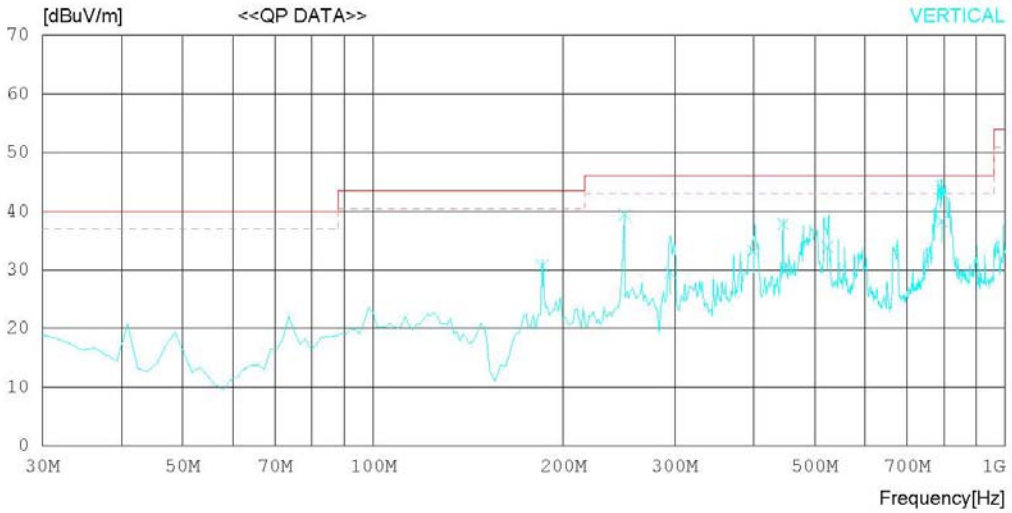
Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB





RADIATED EMISSION

Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB

No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	185.620	42.8	9.3	2.2	23.3	31.0	43.5	12.5	125	116
2	250.033	43.2	12.3	2.6	23.6	34.5	46.0	11.5	132	196
3	296.404	35.5	13.1	2.8	23.9	27.5	46.0	18.5	126	263
4	590.222	35.9	18.5	4.1	24.7	33.8	46.0	12.2	156	248
5	795.898	38.3	19.9	4.8	23.8	39.2	46.0	6.8	220	156
----- Vertical ------										
6	185.630	42.6	9.3	2.2	23.3	30.8	43.5	12.7	111	254
7	249.990	48.1	12.3	2.6	23.6	39.4	46.0	6.6	125	184
8	295.058	37.7	13.0	2.8	23.9	29.6	46.0	16.4	171	304
9	400.169	38.5	15.7	3.5	24.5	33.2	46.0	12.8	122	170
10	445.485	42.4	16.5	3.5	24.6	37.8	46.0	8.2	129	167
11	523.858	37.0	17.8	3.9	24.8	33.9	46.0	12.1	146	199
12	794.808	37.4	19.9	4.8	23.8	38.3	46.0	7.7	195	167

< USB MODE _ (1 ~ 6) GHz _ Peak >

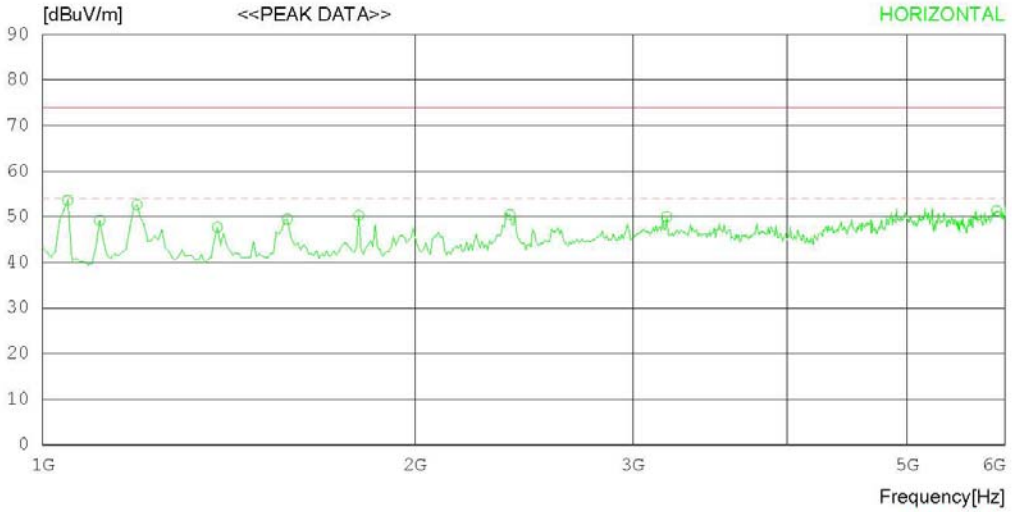
RADIATED EMISSION

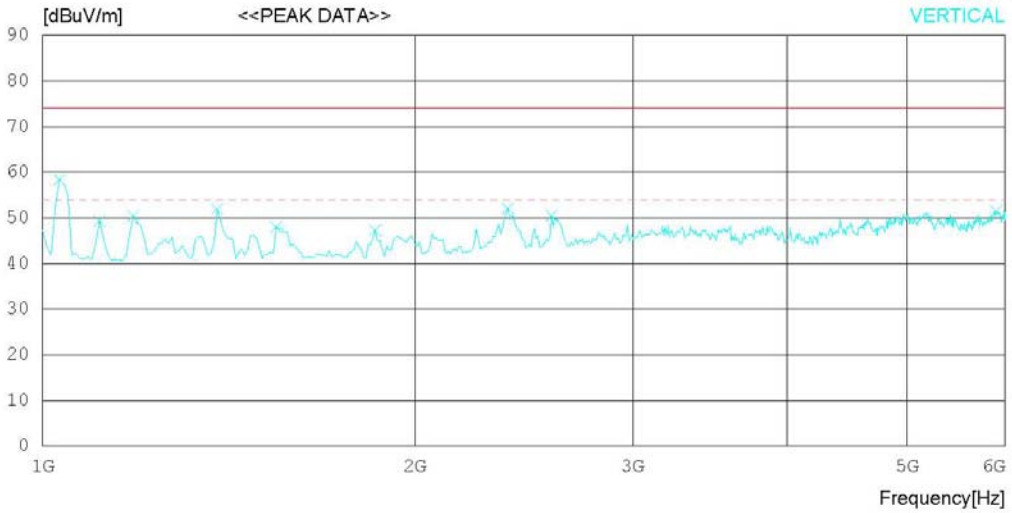
Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





RADIATED EMISSION

Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1048.077	64.8	24.7	5.9	41.8	53.6	74.0	20.4	100	358
2	1112.179	60.1	24.8	6.1	41.8	49.2	74.0	24.8	100	358
3	1192.308	63.3	24.9	6.4	41.9	52.7	74.0	21.3	100	358
4	1384.615	57.2	25.1	7.1	41.7	47.7	74.0	26.3	100	162
5	1576.923	58.1	25.4	7.6	41.6	49.5	74.0	24.5	100	218
6	1801.282	58.4	25.6	8.1	41.8	50.3	74.0	23.7	100	187
7	2386.223	56.1	27.0	9.3	41.9	50.5	74.0	23.5	100	358
8	3195.530	51.8	29.0	11.0	41.8	50.0	74.0	24	100	358
9	5903.848	45.6	32.1	15.6	42.0	51.3	74.0	22.7	100	31
----- Vertical ------										
10	1032.051	69.6	24.7	5.9	41.8	58.4	74.0	15.6	100	166
11	1112.179	60.2	24.8	6.1	41.8	49.3	74.0	24.7	100	150
12	1184.295	61.1	24.9	6.4	41.9	50.5	74.0	23.5	100	350
13	1384.615	61.4	25.1	7.1	41.7	51.9	74.0	22.1	100	1
14	1544.872	56.7	25.3	7.6	41.6	48.0	74.0	26	100	164
15	1857.371	55.1	25.7	8.2	41.7	47.3	74.0	26.7	100	1
16	2378.210	57.6	27.0	9.3	41.9	52.0	74.0	22	100	1
17	2578.533	55.1	27.6	9.7	41.9	50.5	74.0	23.5	100	1
18	5903.848	45.8	32.1	15.6	42.0	51.5	74.0	22.5	100	1

< USB MODE _ (1 ~ 6) GHz _ Average >

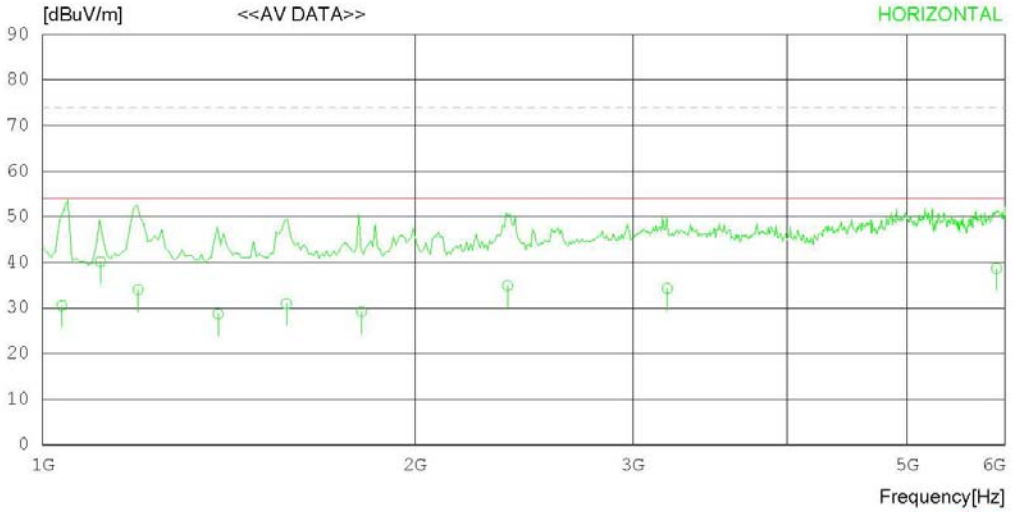
RADIATED EMISSION

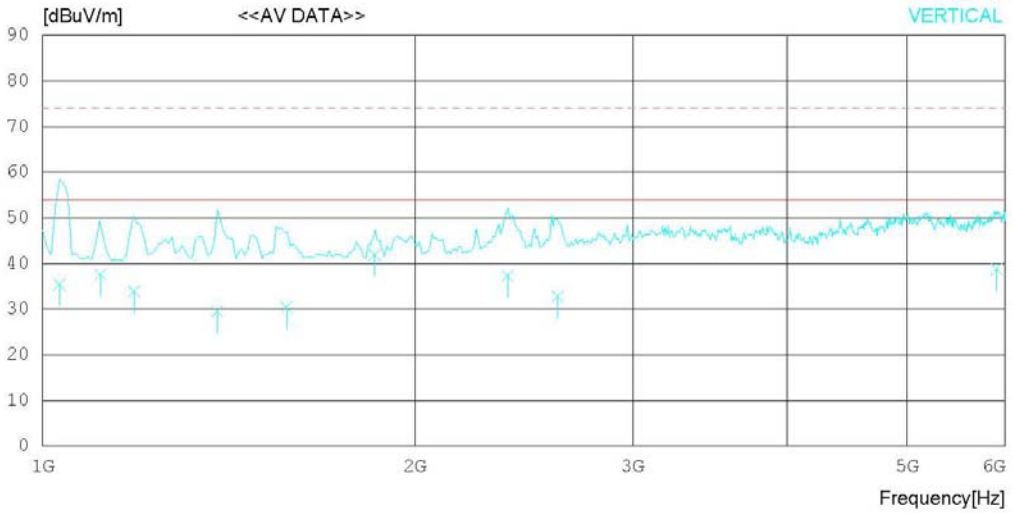
Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





RADIATED EMISSION

Date : 2012-12-21

Model Name	:	47GA6400-UD	Reference No.	:	
Model No.	:		Power Supply	:	120V 60Hz
Serial No.	:		Temp/Humi	:	17 'C 37 % R.H.
Test Condition	:	USB	Operator	:	

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING AV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1036.248	41.7	24.7	5.9	41.8	30.5	54.0	23.5	100	281
2	1113.762	51.1	24.8	6.1	41.8	40.2	54.0	13.8	100	154
3	1194.600	44.6	24.9	6.4	41.9	34.0	54.0	20.0	100	223
4	1385.878	38.2	25.1	7.1	41.7	28.7	54.0	25.3	100	162
5	1574.401	39.5	25.4	7.6	41.6	30.9	54.0	23.1	100	223
6	1810.609	37.2	25.7	8.1	41.8	29.2	54.0	24.8	100	187
7	2375.965	40.5	27.0	9.3	41.9	34.9	54.0	19.1	100	181
8	3199.295	36.1	29.0	11.0	41.8	34.3	54.0	19.7	100	358
9	5903.848	33.0	32.1	15.6	42.0	38.7	54.0	15.3	100	31
----- Vertical ------										
10	1032.448	46.6	24.7	5.9	41.8	35.4	54.0	18.6	100	166
11	1113.698	48.5	24.8	6.1	41.8	37.6	54.0	16.4	100	150
12	1185.571	44.5	24.9	6.4	41.9	33.9	54.0	20.1	100	350
13	1384.615	39.0	25.1	7.1	41.7	29.5	54.0	24.5	100	179
14	1574.401	39.0	25.4	7.6	41.6	30.4	54.0	23.6	100	164
15	1856.275	49.8	25.7	8.2	41.8	41.9	54.0	12.1	100	221
16	2375.965	42.9	27.0	9.3	41.9	37.3	54.0	16.7	100	199
17	2608.583	37.1	27.7	9.8	41.8	32.8	54.0	21.2	100	204
18	5903.848	33.1	32.1	15.6	42.0	38.8	54.0	15.2	100	199

Appendix 1

List of Test and Measurement Instruments

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment is identified by the Test Laboratory.

1. Conducted Disturbance

Name of Instrument		Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☐	SPECTRUM ANALYZER	8591E	H/P	3649A05889	2012.03.05	2013.03.05
☐	RFI/FIELD INTENSITY METER	KNM-2402	KYORITSU	4N-170-3	2012.07.02	2013.07.02
☐	LISN	KNW-407	KYORITSU	8-317-8	2012.01.09	2013.01.09
☐	LISN	PMM L2-16B	NARDA S.T.S. / PMM	000WX20305	2012.07.25	2013.07.25
☐	50 OHM TERMINATOR	CT-01	TME	N/A	2012.01.09	2013.01.09
☒	EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2012.03.06	2013.03.06
☒	LISN	ESH2-Z5	ROHDE & SCHWARZ	828739/006	2012.09.18	2013.09.18
☒	LISN	LISN1600	TTI	197204	2012.07.02	2013.07.02
☒	50 OHM TERMINATOR	CT-01	TME	N/A	2012.01.09	2013.01.09

2. Radiated Disturbance

Name of Instrument		Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☒	EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100014	2012.01.09	2013.01.09
☒	BILOG ANTENNA	CBL6112D	SCHAFFNER	22609	2011.12.21	2012.12.21
☒	HORN ANTENNA	BBHA9120D	SCHWARZBECK	9120D-1014	2012.07.20	2013.07.20
☒	AMPLIFIER	8447E	H/P	2945A02865	2012.01.09	2013.01.09
☒	AMPLIFIER	MLA-100M18-B01-25	TSJ	1719458	2012.06.04	2013.06.04
☐	SPECTRUM ANALYZER	E4411B	AGILENT	US41062735	2012.07.11	2013.07.11
☐	AMPLIFIER	8447D	AGILENT	2443A03690	2012.07.01	2013.07.01
☐	BILOG ANTENNA	CBL6112B	SCHAFFNER	2737	2012.03.22	2014.03.22
☐	EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2012.03.06	2013.03.06
☐	BICONICAL ANT.	VHA 9103	SCHWARZBECK	91032789	2012.04.10	2014.04.10
☐	LOG-PERIODIC ANT.	UHALP 9108A	SCHWARZBECK	590	2012.04.10	2014.04.10
☐	BICONICAL ANT.	VHA 9103	SCHWARZBECK	91031946	2012.03.12	2014.03.12
☐	LOG-PERIODIC ANT.	UHALP 9108-A1	SCHWARZBECK	1098	2012.03.12	2014.03.12
☐	AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2012.03.05	2013.03.05