

EMC TEST REPORT

Test item : LED LCD TV Monitor
Model No. : 47LS4600-UA
Order No. : 1112-01775
Date of receipt : 2011-12-19
Test duration : 2011-12-26 ~ 2011-12-30
Use of report : FCC CoC Marking
Date of Issue : 2012-01-03

Applicant : LG Electronics Inc.

9-1, 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 : (18 ~ 19) °C,
Humidity : (31 ~ 33) % 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
D.H.EUN

Reviewed by:


General Manager
C.H.LEE

The above test report is the accredited test results by Korea Laboratory Accreditation Scheme,
which signed the ILAC-MRA.

PRESIDENT OF DIGITAL EMC CO., LTD.

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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.digitalemcc.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	ROK1028C	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.	47LS4600-UA
EUT Type	LED LCD TV Monitor
Serial No	NONE
FCC ID	BEJ47LS4600UA
Type of Sample Tested	Pre-Production
High Frequency	667 MHz
Rating	AC100-240 V~, 50/60 Hz, 1.2 A
Supplied Power for Test	AC120V, 60Hz
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

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
720x400	31.469	70.08
640x480	31.469	59.94
800x600	37.879	60.31
1024x768	48.363	60.00
1360x768	47.712	60.015
1280x1024	63.981	60.02
1920x1080	67.5	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.)	Pressure (hPa)
Conducted Disturbance	12-26	19	33	-
Radiated Disturbance	12-28	18	32	
	12-30	19	31	

4.3 Test result Summary

(1) Conducted Emission(HDMI + LAN MODE)

Frequency [MHz]	Phase	Result [dB μ V]	Detector	Limit [dB μ V]	Margin [dB]
1.57000	N	34.6	Average	46.0	11.4

(2) Radiated Emission(USB MODE)

Frequency [MHz]	Pol.	Result [dB(μ V/m)]	Detector	Limit [dB(μ V/m)]	Margin [dB]
742.525	H	42.4	Quasi-Peak	46.0	3.6

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

- DSUB+LAN MODE – Resolution : 1920 x 1080 Resolution (Worst Case)
- HDMI+LAN MODE – Resolution : 1920 x 1080 Resolution (Worst Case)
- USB MODE

5.3 Support Equipment Used

Unit	Model No.	Serial No.	Manufacturer	CABLE			Backshell	FCC ID
				Connect type	Length (m)	shield		
PC	VOSTRO430	9K77SBX	DELL	POWER	1.8	Non-shield	Plastic	DOC
				HDMI	1.8	Shield		
				DSUB	1.8	Shield		
				USB	1.8	Non-shield		
				PS/2	1.6	Non-shield		
				PS/2	1.8	Non-shield		
				STEREO	1.6	Non-shield		
				LAN	1.6	Non-shield		
KEYBOARD	SKG-210P	TAKSC12255P	MONITOEREY INTERNATIONAL CORP	PS/2	1.6	Non-shield	Plastic	DOC
MOUSE	SML-510PB	TAKS903519Z	MONITOEREY INTERNATIONAL CORP	PS/2	1.8	Non-shield	Plastic	DOC
PRINTER	SRP-770	SRP77008060035	BICSOLON	POWER USB	1.8 1.8	Non-shield	Plastic	DOC
USB MEMORY	POP-S2	N/A	MEMORIVE	USB	-	-	-	DOC

6. Test Results : Emission

6.1 Conducted Disturbance

6.1.1 Measurement Procedure

In the range of 0.15MHz to 30MHz, 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 0.8m above the reference ground plane and 0.4m 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 0.15m 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 0.15MHz to 0.5MHz.				

Test Result

< DSUB + LAN MODE >



Results of Conducted Emission

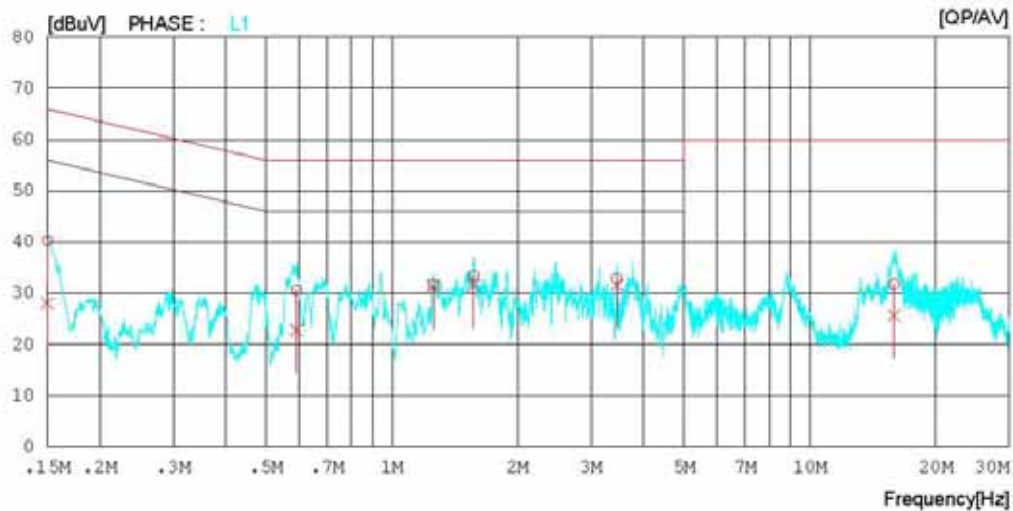
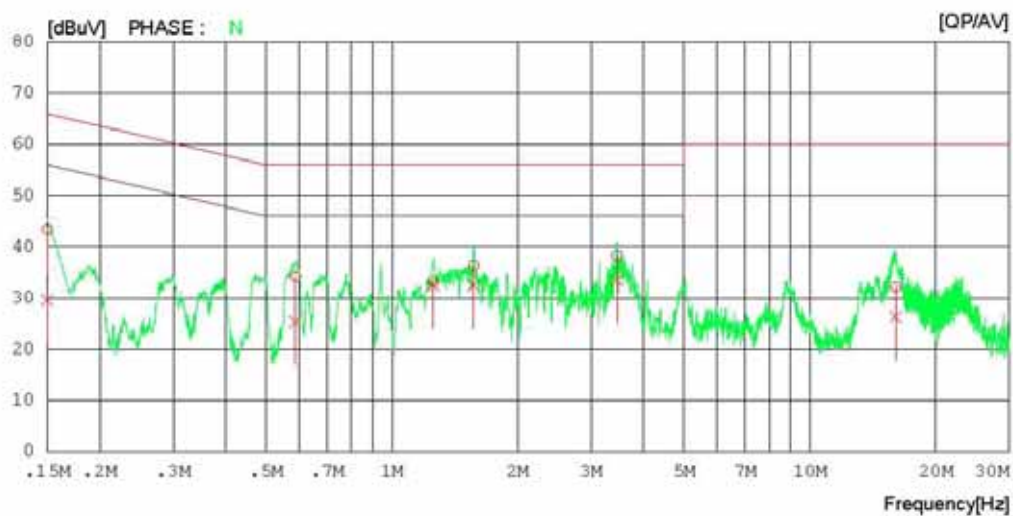
Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : DSUB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV



Results of Conducted Emission

Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : DSUB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15000	43.2	29.4	0.2	43.4	29.6	66.0	56.0	22.6	26.4	N
2	0.58750	34.1	25.3	0.1	34.2	25.4	56.0	46.0	21.8	20.6	N
3	1.25600	33.0	32.3	0.2	33.2	32.5	56.0	46.0	22.8	13.5	N
4	1.56900	36.1	32.3	0.2	36.3	32.5	56.0	46.0	19.7	13.5	N
5	3.45450	37.8	33.1	0.4	38.2	33.5	56.0	46.0	17.8	12.5	N
6	16.05300	31.2	25.3	1.0	32.2	26.3	60.0	50.0	27.8	23.7	N
7	0.15012	40.1	27.9	0.2	40.3	28.1	66.0	56.0	25.7	27.9	L1
8	0.59134	30.5	22.8	0.1	30.6	22.9	56.0	46.0	25.4	23.1	L1
9	1.25650	31.4	31.3	0.2	31.6	31.5	56.0	46.0	24.4	14.5	L1
10	1.56950	33.3	31.4	0.2	33.5	31.6	56.0	46.0	22.5	14.4	L1
11	3.45650	32.4	31.2	0.4	32.8	31.6	56.0	46.0	23.2	14.4	L1
12	15.93150	30.8	24.6	1.0	31.8	25.6	60.0	50.0	28.2	24.4	L1

< HDMI + LAN MODE >



Results of Conducted Emission

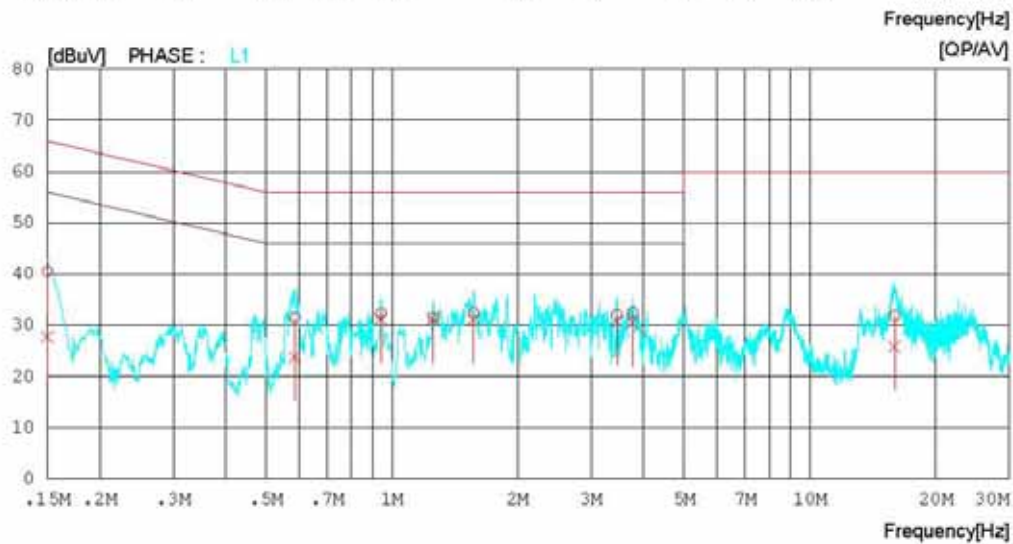
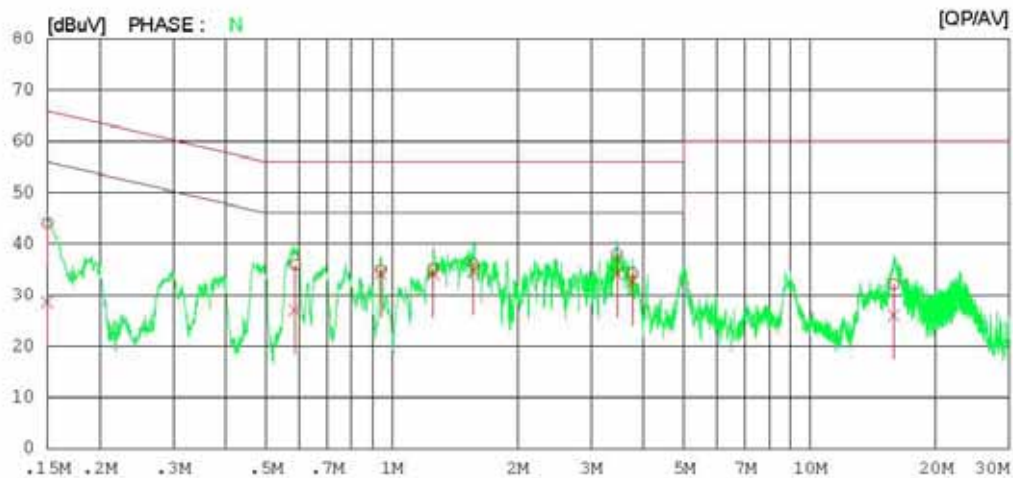
Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : HDMI

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B OP
 CISPR22_B AV



Results of Conducted Emission

Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : HDMI

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15000	43.9	28.5	0.2	44.1	28.7	66.0	56.0	21.9	27.3	N
2	0.58691	35.9	26.9	0.1	36.0	27.0	56.0	46.0	20.0	19.0	N
3	0.94234	34.6	34.0	0.2	34.8	34.2	56.0	46.0	21.2	11.8	N
4	1.25550	34.9	33.9	0.2	35.1	34.1	56.0	46.0	20.9	11.9	N
5	1.57000	35.8	34.4	0.2	36.0	34.6	56.0	46.0	20.0	11.4	N
6	3.45550	37.6	33.8	0.4	38.0	34.2	56.0	46.0	18.0	11.8	N
7	3.76950	33.9	32.3	0.4	34.3	32.7	56.0	46.0	21.7	13.3	N
8	15.89300	31.1	25.0	1.0	32.1	26.0	60.0	50.0	27.9	24.0	N
9	0.15012	40.3	27.5	0.2	40.5	27.7	66.0	56.0	25.5	28.3	L1
10	0.58616	31.4	23.7	0.1	31.5	23.8	56.0	46.0	24.5	22.2	L1
11	0.94239	32.1	31.1	0.2	32.3	31.3	56.0	46.0	23.7	14.7	L1
12	1.25600	31.3	31.1	0.2	31.5	31.3	56.0	46.0	24.5	14.7	L1
13	1.56900	32.2	31.0	0.2	32.4	31.2	56.0	46.0	23.6	14.8	L1
14	3.45300	31.7	30.4	0.4	32.1	30.8	56.0	46.0	23.9	15.2	L1
15	3.76950	32.0	30.0	0.4	32.4	30.4	56.0	46.0	23.6	15.6	L1
16	15.95450	30.8	24.8	1.0	31.8	25.8	60.0	50.0	28.2	24.2	L1

< USB MODE >



Results of Conducted Emission

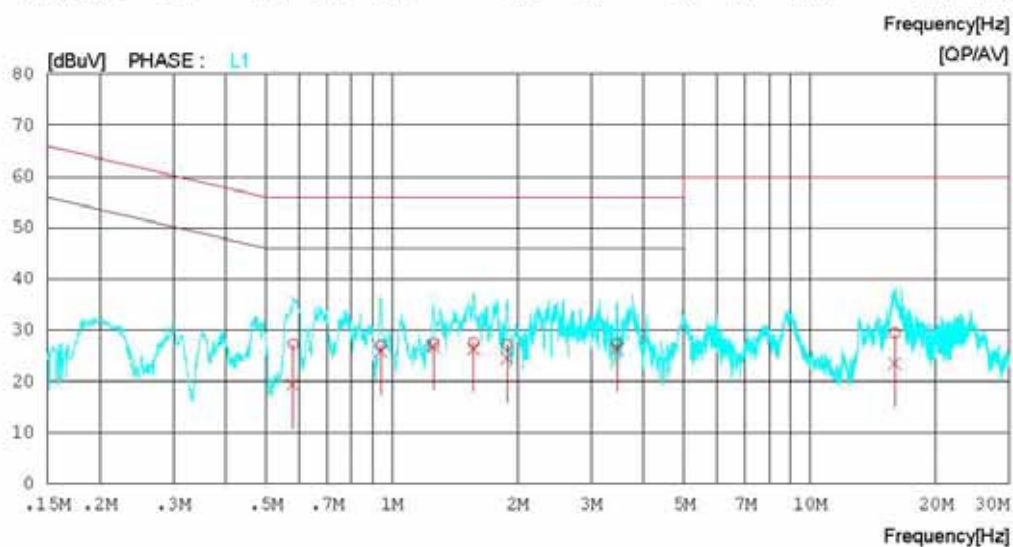
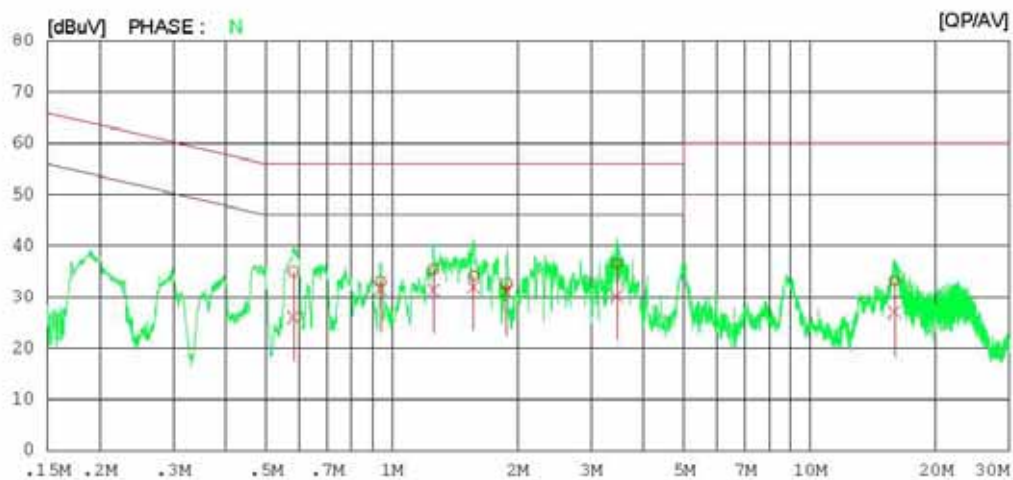
Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : USB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B OP
 CISPR22_B AV



Results of Conducted Emission

Digital EMC
 Date : 2011-12-26

Model No. : 47LS4600-UA
 Type :
 Serial No. :
 Test Condition : USB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi. : 19 °C 33 % R.H.
 Operator :

Memo :

LIMIT : CISPR22_B QP
 CISPR22_B AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.58155	34.8	25.9	0.1	34.9	26.0	56.0	46.0	21.1	20.0	N
2	0.94050	32.9	31.3	0.2	33.1	31.5	56.0	46.0	22.9	14.5	N
3	1.25900	35.2	31.1	0.2	35.4	31.3	56.0	46.0	20.6	14.7	N
4	1.56850	33.9	31.7	0.2	34.1	31.9	56.0	46.0	21.9	14.1	N
5	1.88450	32.5	30.8	0.2	32.7	31.0	56.0	46.0	23.3	15.0	N
6	3.45100	36.1	29.8	0.4	36.5	30.2	56.0	46.0	19.5	15.8	N
7	15.93950	32.1	26.0	1.0	33.1	27.0	60.0	50.0	26.9	23.0	N
8	0.58103	27.2	19.2	0.1	27.3	19.3	56.0	46.0	28.7	26.7	L1
9	0.94050	26.9	25.7	0.2	27.1	25.9	56.0	46.0	28.9	20.1	L1
10	1.25700	27.2	26.7	0.2	27.4	26.9	56.0	46.0	28.6	19.1	L1
11	1.56900	27.4	26.3	0.2	27.6	26.5	56.0	46.0	28.4	19.5	L1
12	1.88650	27.0	24.4	0.2	27.2	24.6	56.0	46.0	28.8	21.4	L1
13	3.45500	27.0	26.0	0.4	27.4	26.4	56.0	46.0	28.6	19.6	L1
14	15.96850	28.5	22.6	1.0	29.5	23.6	60.0	50.0	30.5	26.4	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 0.8m above the reference ground plane and 3m 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 0.15m above the reference ground plane.

Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4m 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 1GHz frequency range, Quasi-Peak detector with 120kHz RBW was used.

Also Peak and Average detector with 1MHz RBW were used for above 1GHz 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	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40GHz, whichever is lower

(1) Limit for Radiated Emission below 1000MHz

Frequency range (MHz)	Class A Equipment (10m distance)	Class B Equipment (3m distance)
	Quasi-peak (dB μ V/m)	Quasi-peak (dB μ V/m)
30 to 88	39.1	40
88 to 216	43.5	43.5
216 to 960	46.4	46
960 to 1000	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 (10m distance)	Class B Equipment (10m distance)
	Quasi-peak (dB μ V/m)	Quasi-peak (dB μ V/m)
30 to 230	40	30
230 to 1000	47	37

(2) Limits for Radiated Emission above 1000MHz at a measuring distance of 3m

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

Test Result

< DSUB + LAN MODE_30 MHz ~ 1 GHz >

RADIATED EMISSION

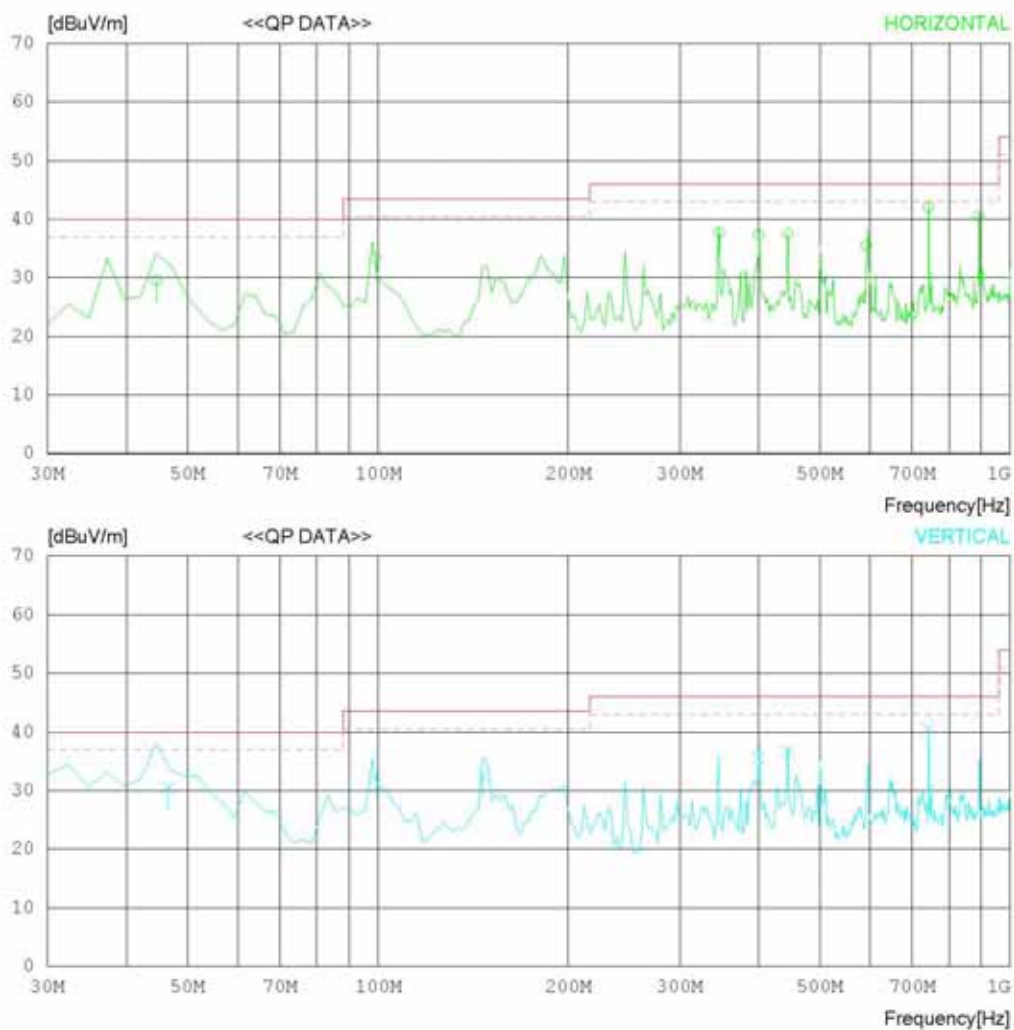
Date : 2011-12-28

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : DSUB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 18 °C 32 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-28

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 18 °C 32 % R.H.
Test Condition : DSUB	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	44.550	37.0	14.2	1.0	22.6	29.6	40.0	10.4	300	29
2	98.995	44.0	10.6	1.5	22.7	33.4	43.5	10.1	305	143
3	346.488	44.3	14.8	2.7	24.1	37.7	46.0	8.3	100	1
4	399.990	42.6	16.0	3.0	24.3	37.3	46.0	8.7	100	164
5	444.674	42.1	16.7	3.2	24.5	37.5	46.0	8.5	201	358
6	592.320	37.3	18.7	3.9	24.4	35.5	46.0	10.5	100	1
7	742.525	42.0	19.5	4.4	23.9	42.0	46.0	4.0	100	67
8	891.030	38.4	20.6	4.8	23.3	40.5	46.0	5.5	100	28
----- Vertical -----										
9	46.550	39.4	12.7	1.0	22.6	30.5	40.0	9.5	100	42
10	99.000	43.1	10.6	1.5	22.7	32.5	43.5	11.0	100	332
11	146.400	43.3	10.6	1.7	23.1	32.5	43.5	11.0	100	358
12	400.000	41.0	16.0	3.0	24.4	35.6	46.0	10.4	199	1
13	445.518	41.0	16.8	3.2	24.5	36.5	46.0	9.5	100	358
14	742.514	40.5	19.5	4.4	23.9	40.5	46.0	5.5	100	11

< DSUB + LAN MODE_1 GHz ~ 6 GHz_PEAK >

RADIATED EMISSION

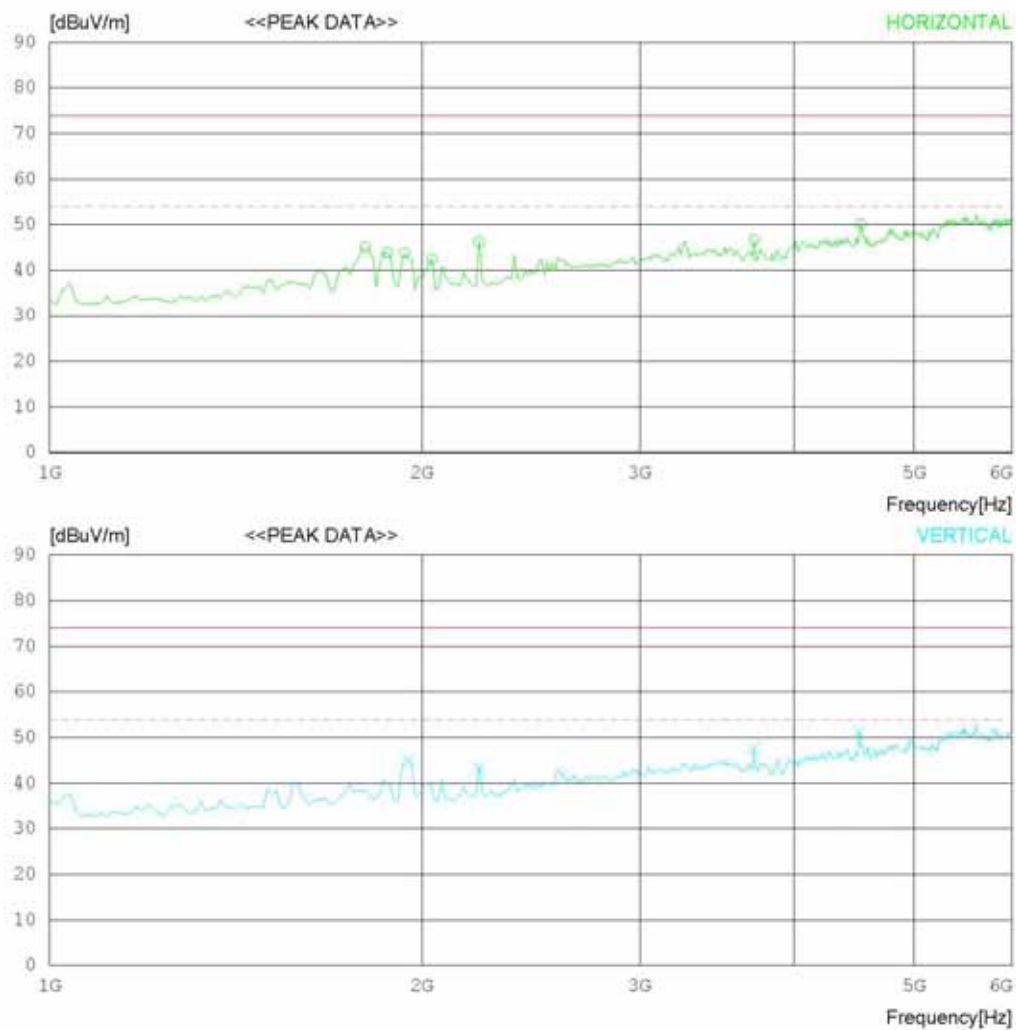
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : DSUB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % R.H.
Test Condition : DSUB	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	1800.000	55.3	25.2	6.6	42.0	45.1	74.0	28.9	100	73
2	1875.000	54.0	25.2	6.7	42.0	43.9	74.0	30.1	100	47
3	1937.500	53.7	25.2	6.9	42.0	43.8	74.0	30.2	100	1
4	2037.500	52.0	25.4	7.1	42.0	42.5	74.0	31.5	100	1
5	2225.000	54.7	26.2	7.3	42.0	46.2	74.0	27.8	100	1
6	3712.500	49.3	29.6	9.7	41.9	46.7	74.0	27.3	100	1
7	4525.000	50.0	30.8	10.7	41.4	50.1	74.0	23.9	100	41
----- Vertical -----										
8	1950.000	55.0	25.2	6.9	42.0	45.1	74.0	28.9	100	353
9	2225.000	51.9	26.2	7.3	42.0	43.4	74.0	30.6	100	12
10	3712.500	50.2	29.6	9.7	41.9	47.6	74.0	26.4	100	42
11	4512.500	51.1	30.8	10.7	41.4	51.2	74.0	22.8	100	24

< DSUB + LAN MODE_1 GHz ~ 6 GHz_AV >

RADIATED EMISSION

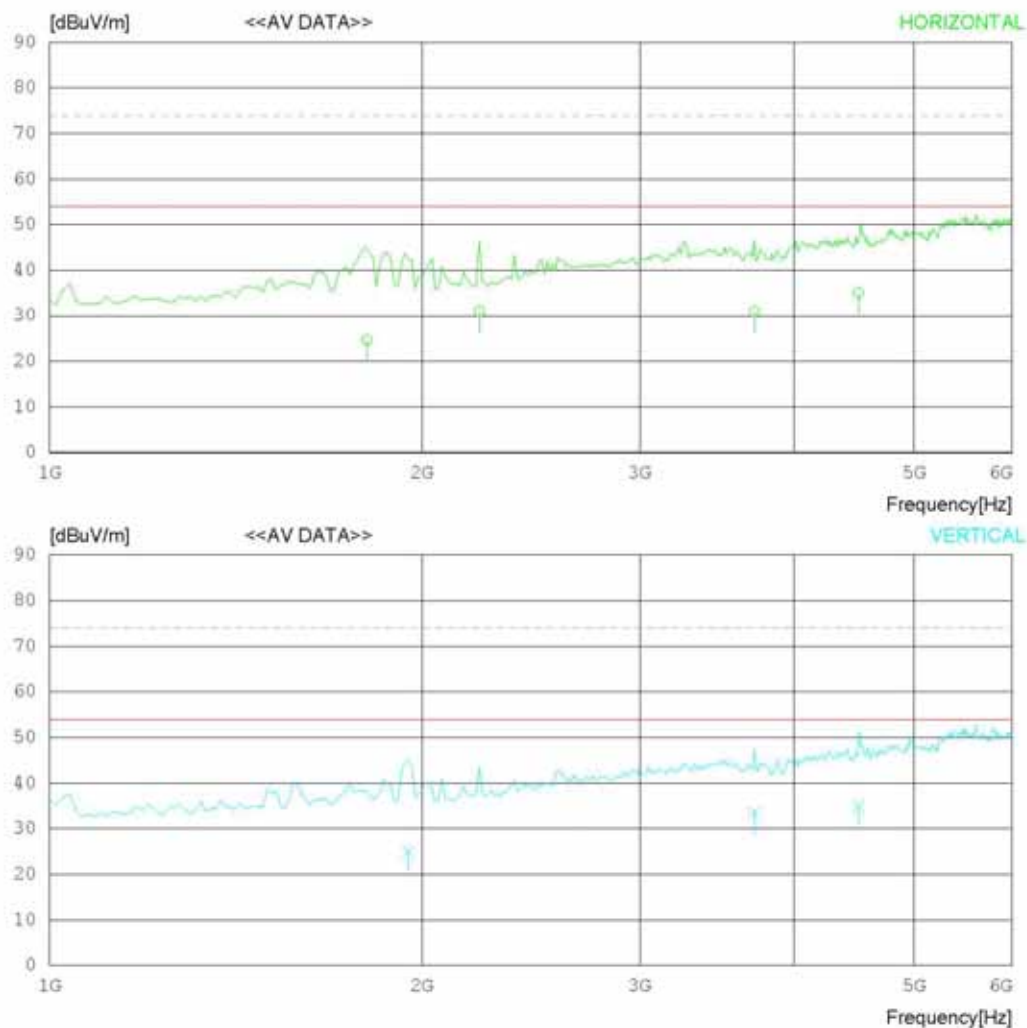
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : DSUB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % R.H.
Test Condition : DSUB	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	1805.500	34.9	25.2	6.6	42.0	24.7	54.0	29.3	100	73
2	2227.625	39.4	26.2	7.3	42.0	30.9	54.0	23.1	100	1
3	3712.450	33.6	29.6	9.7	41.9	31.0	54.0	23.0	100	1
4	4505.750	35.0	30.7	10.7	41.4	35.0	54.0	19.0	100	41
----- Vertical -----										
5	1949.875	34.9	25.2	6.9	42.0	25.0	54.0	29.0	100	353
6	3712.550	36.1	29.6	9.7	41.9	33.5	54.0	20.5	100	42
7	4505.788	34.8	30.7	10.7	41.4	34.8	54.0	19.2	100	24

< HDMI + LAN MODE_30 MHz ~ 1 GHz >

RADIATED EMISSION

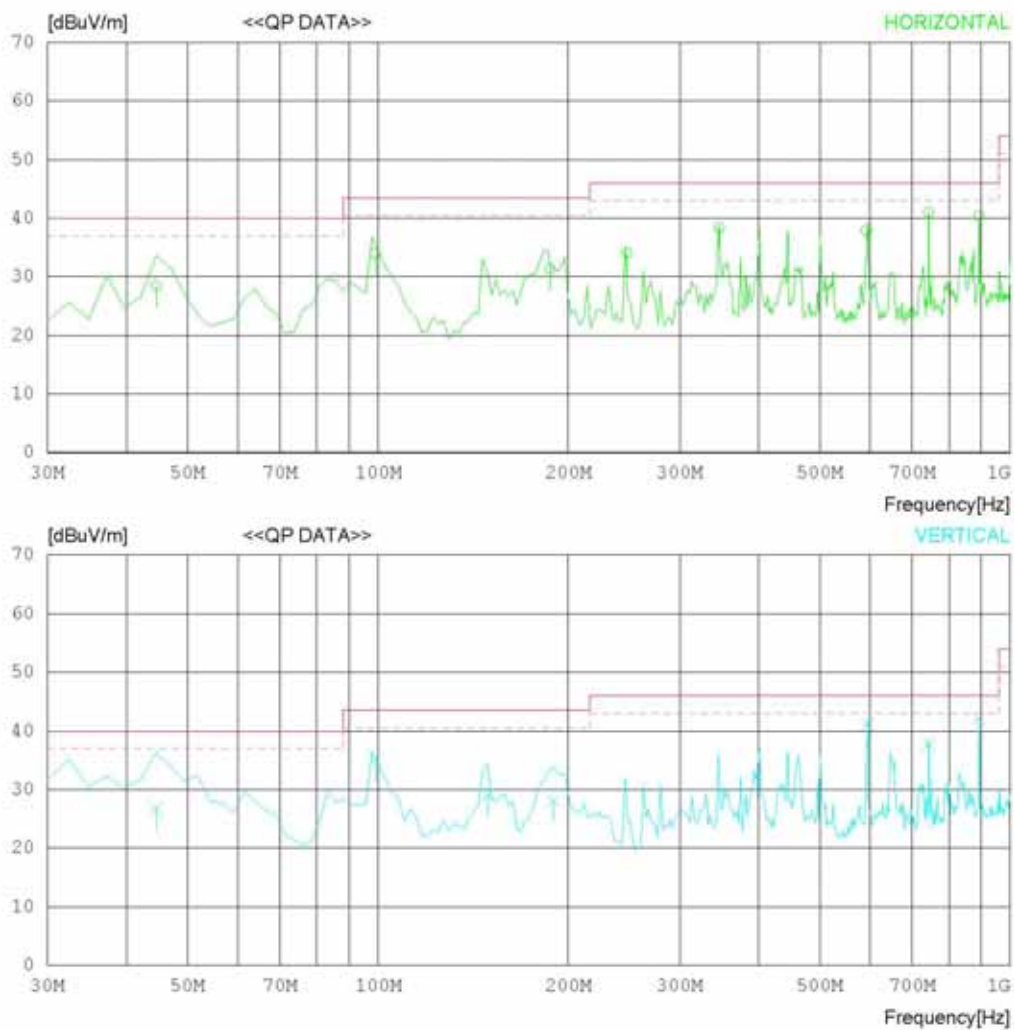
Date : 2011-12-28

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : HDMI

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 18 °C 32 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-28

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 18 °C 32 % 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	44.550	35.9	14.2	1.0	22.6	28.5	40.0	11.5	299	54
2	99.000	44.5	10.6	1.5	22.7	33.9	43.5	9.6	302	358
3	187.250	42.7	9.8	2.0	23.2	31.3	43.5	12.2	100	19
4	247.508	42.3	12.9	2.3	23.5	34.0	46.0	12.0	100	358
5	346.501	45.0	14.8	2.7	24.1	38.4	46.0	7.6	100	358
6	592.300	39.7	18.7	3.9	24.4	37.9	46.0	8.1	100	215
7	742.508	41.0	19.5	4.4	23.9	41.0	46.0	5.0	100	358
8	893.297	38.3	20.6	4.8	23.3	40.4	46.0	5.6	199	3
----- Vertical -----										
9	44.550	34.1	14.2	1.0	22.6	26.7	40.0	13.3	100	1
10	99.025	45.8	10.6	1.5	22.7	35.2	43.5	8.3	100	308
11	149.150	40.0	10.5	1.7	23.1	29.1	43.5	14.4	100	1
12	189.500	39.5	9.8	2.0	23.2	28.1	43.5	15.4	100	159
13	398.113	37.7	15.9	3.0	24.3	32.3	46.0	13.7	200	358
14	594.000	42.9	18.7	3.9	24.4	41.1	46.0	4.9	181	57
15	742.510	37.8	19.5	4.4	23.9	37.8	46.0	8.2	188	358
16	891.008	40.0	20.6	4.8	23.3	42.1	46.0	3.9	182	33

< HDMI + LAN MODE_1 GHz ~ 6 GHz_PEAK >

RADIATED EMISSION

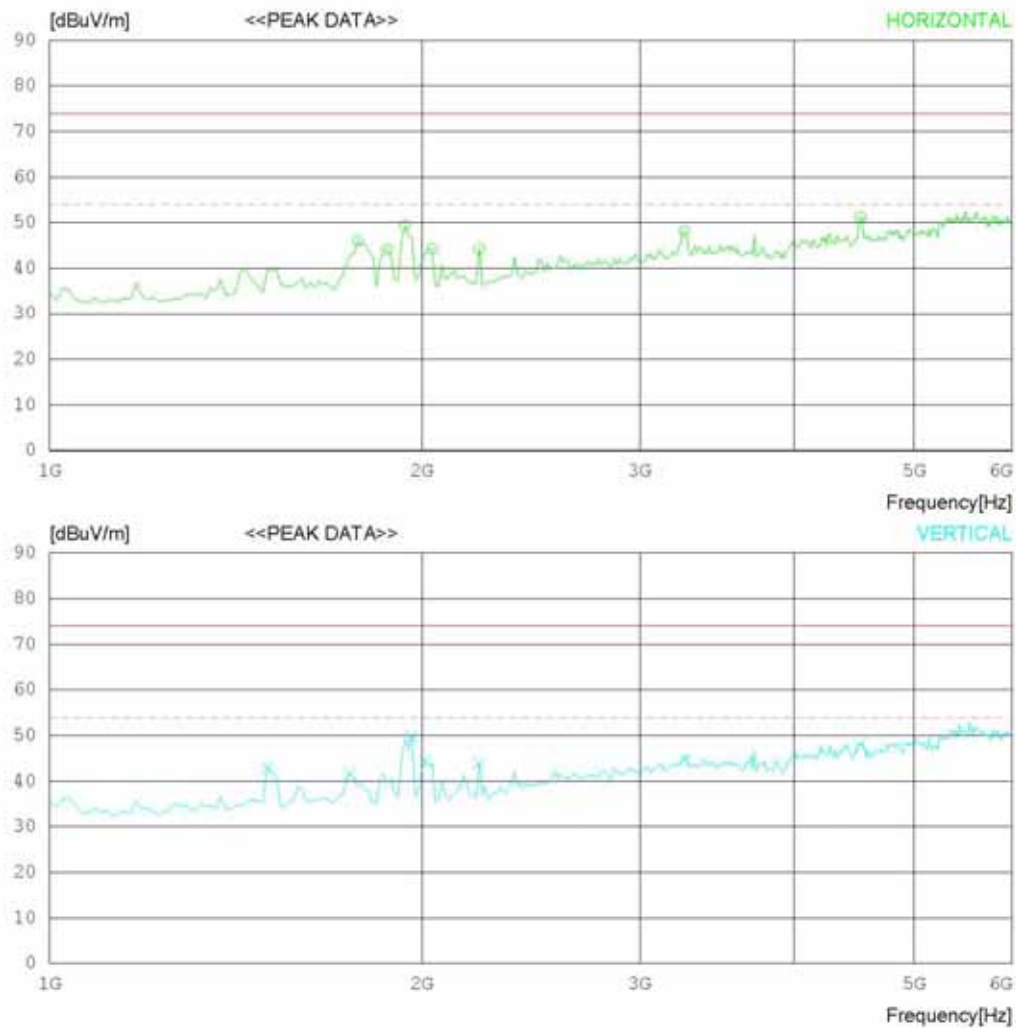
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : HDMI

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % 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	1775.000	56.3	25.2	6.5	42.0	46.0	74.0	28	100	81
2	1875.000	54.2	25.2	6.7	42.0	44.1	74.0	29.9	100	1
3	1937.500	59.3	25.2	6.9	42.0	49.4	74.0	24.6	100	1
4	2037.500	53.8	25.4	7.1	42.0	44.3	74.0	29.7	100	1
5	2225.000	52.8	26.2	7.3	42.0	44.3	74.0	29.7	100	44
6	3262.500	52.0	29.0	9.1	42.0	48.1	74.0	25.9	100	1
7	4525.000	51.1	30.8	10.7	41.4	51.2	74.0	22.8	100	40
----- Vertical -----										
8	1500.000	53.7	25.1	6.0	41.9	42.9	74.0	31.1	100	358
9	1750.000	52.0	25.2	6.5	42.0	41.7	74.0	32.3	100	346
10	1962.500	59.7	25.2	6.9	42.0	49.8	74.0	24.2	100	353
11	2012.500	54.1	25.3	7.0	42.0	44.4	74.0	29.6	100	358
12	2225.000	52.3	26.2	7.3	42.0	43.8	74.0	30.2	100	358
13	3262.500	48.6	29.0	9.1	42.0	44.7	74.0	29.3	100	358
14	4525.000	47.8	30.8	10.7	41.4	47.9	74.0	26.1	100	358

< HDMI + LAN MODE_1 GHz ~ 6 GHz_AV >

RADIATED EMISSION

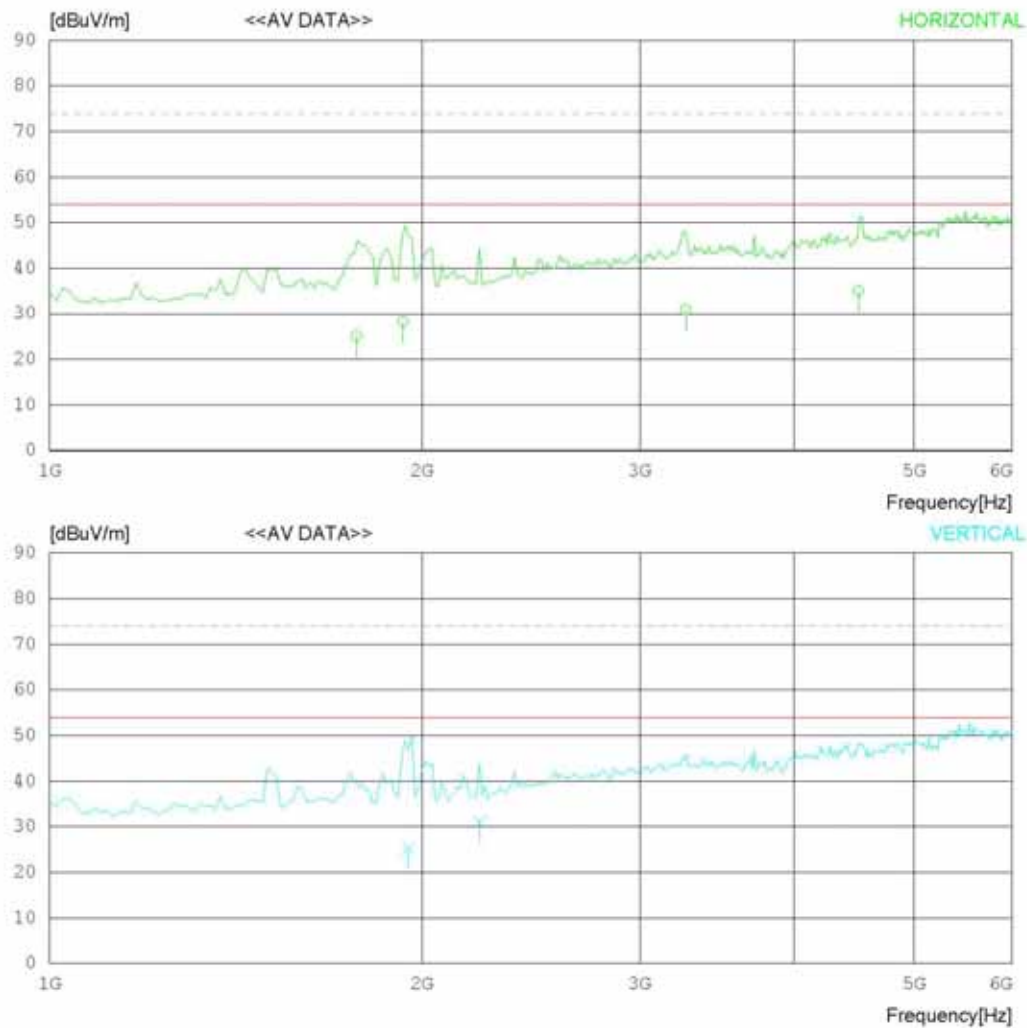
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : HDMI

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % 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	1770.715	35.5	25.2	6.5	42.0	25.2	54.0	28.8	100	81
2	1930.487	38.2	25.2	6.9	42.0	28.3	54.0	25.7	100	1
3	3266.375	34.8	29.0	9.1	42.0	30.9	54.0	23.1	100	1
4	4506.227	35.0	30.7	10.7	41.4	35.0	54.0	19.0	100	40
----- Vertical -----										
5	1950.234	35.2	25.2	6.9	42.0	25.3	54.0	28.7	100	353
6	2227.500	39.6	26.2	7.3	42.0	31.1	54.0	22.9	100	358

< USB MODE_30 MHz ~ 1 GHz >

RADIATED EMISSION

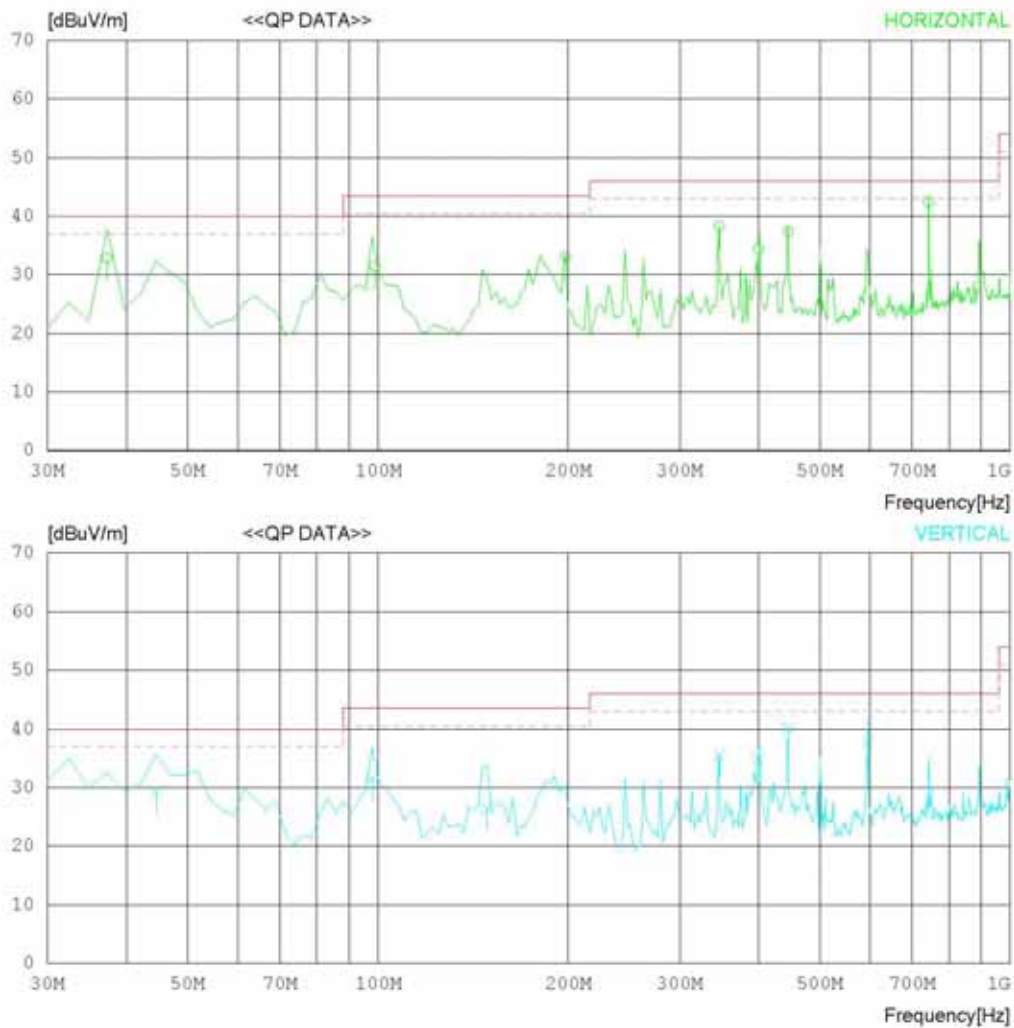
Date : 2011-12-28

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : USB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 18 °C 32 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-28

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 18 °C 32 % 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	37.275	39.1	15.4	0.9	22.6	32.8	40.0	7.2	100	1
2	98.900	41.9	10.6	1.5	22.7	31.3	43.5	12.2	201	358
3	198.013	44.6	9.7	2.0	23.2	33.1	43.5	10.4	100	348
4	346.500	44.9	14.8	2.7	24.1	38.3	46.0	7.7	100	322
5	400.000	39.8	16.0	3.0	24.4	34.4	46.0	11.6	100	1
6	445.503	41.9	16.8	3.2	24.5	37.4	46.0	8.6	100	346
7	742.525	42.4	19.5	4.4	23.9	42.4	46.0	3.6	100	37
----- Vertical -----										
8	44.550	36.7	14.2	1.0	22.6	29.3	40.0	10.7	100	324
9	97.900	42.3	10.4	1.5	22.7	31.5	43.5	12.0	178	329
10	148.825	37.3	10.5	1.7	23.1	26.4	43.5	17.1	100	26
11	346.500	42.1	14.8	2.7	24.1	35.5	46.0	10.5	100	358
12	399.963	40.1	16.0	3.0	24.3	34.8	46.0	11.2	121	46
13	445.500	44.6	16.8	3.2	24.5	40.1	46.0	5.9	100	358
14	594.009	39.3	18.7	3.9	24.4	37.5	46.0	8.5	100	231

< USB MODE_1 GHz ~ 6 GHz_PEAK >

RADIATED EMISSION

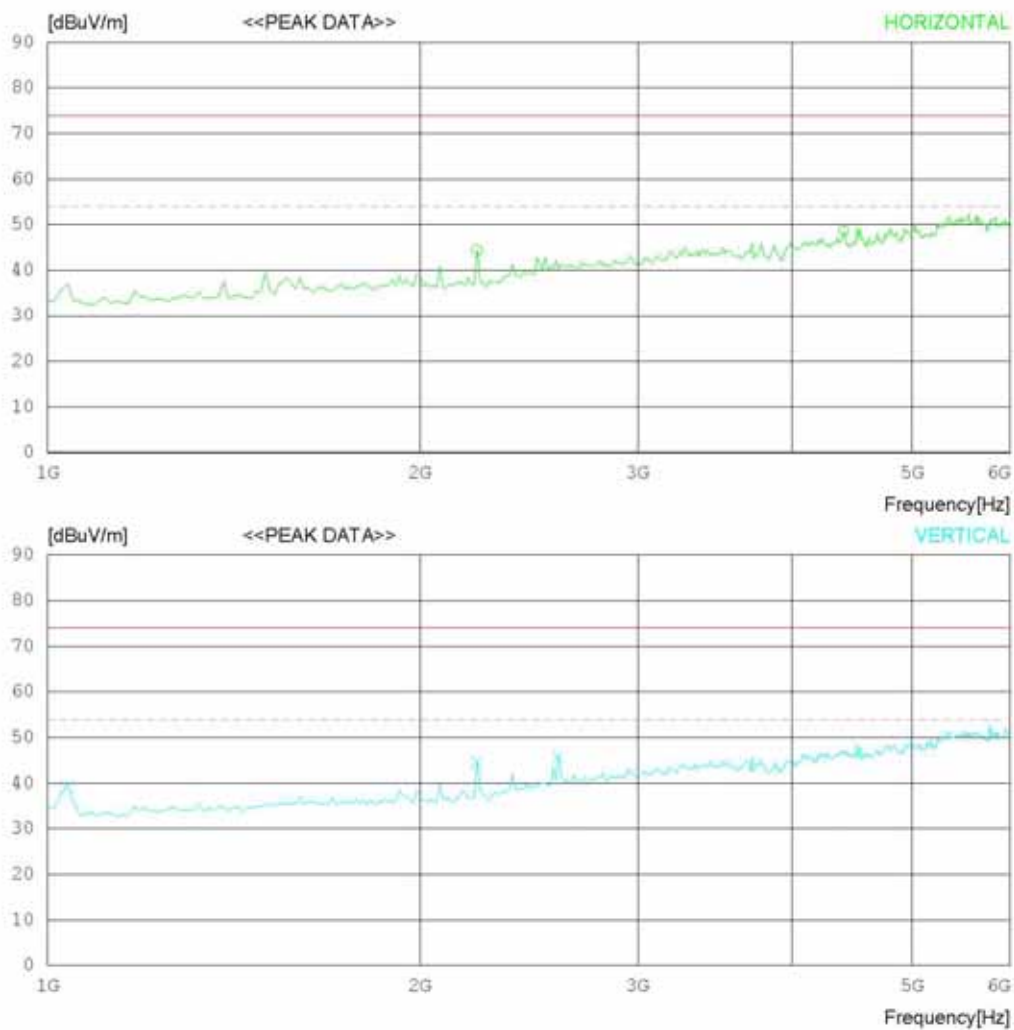
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : USB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % 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	2225.000	52.9	26.2	7.3	42.0	44.4	74.0	29.6	100	60
2	4400.000	49.1	30.6	10.5	41.5	48.7	74.0	25.3	100	232
----- Vertical -----										
3	1037.500	52.5	23.7	4.9	41.8	39.3	74.0	34.7	100	1
4	2225.000	53.1	26.2	7.3	42.0	44.6	74.0	29.4	100	1
5	2587.500	52.4	27.6	7.9	42.1	45.8	74.0	28.2	100	1

< USB MODE_1 GHz ~ 6 GHz_AV >

RADIATED EMISSION

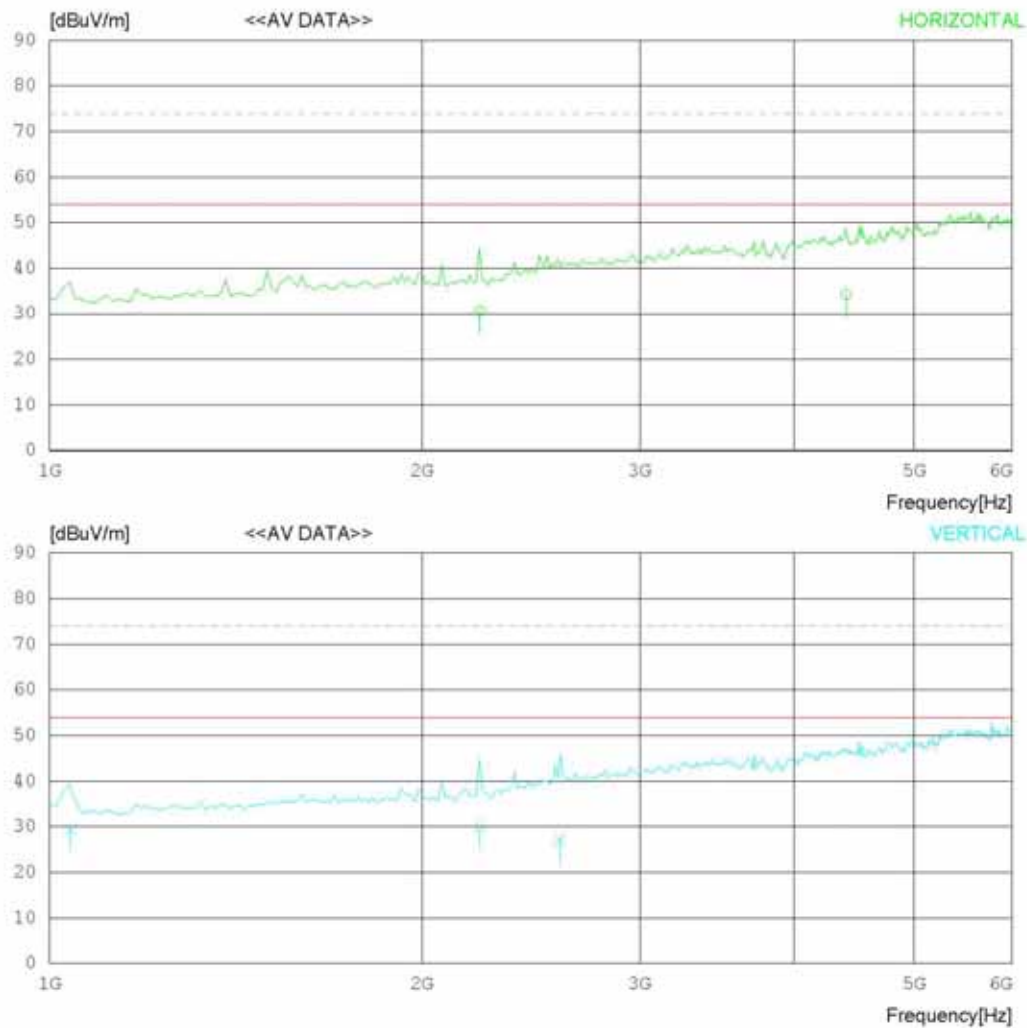
Date : 2011-12-30

Model Name : 47LS4600-UA
 Model No. :
 Serial No. :
 Test Condition : USB

Reference No. :
 Power Supply : 120V 60Hz
 Temp/Humi : 19 °C 31 % R.H.
 Operator :

Memo :

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



RADIATED EMISSION

Date : 2011-12-30

Model Name : 47LS4600-UA	Reference No. :
Model No. :	Power Supply : 120V 60Hz
Serial No. :	Temp/Humi : 19 °C 31 % 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	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	AV [dBuV]	FACTOR [dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	2227.500	39.1	26.2	7.3	42.0	30.6	54.0	23.4	100	60
2	4403.593	34.6	30.6	10.5	41.5	34.2	54.0	19.8	100	232
----- Vertical -----										
3	1039.525	42.7	23.7	4.9	41.8	29.5	54.0	24.5	100	1
4	2227.552	38.5	26.2	7.3	42.0	30.0	54.0	24.0	100	1
5	2586.006	33.8	27.6	7.9	42.1	27.2	54.0	26.8	100	1

Appendix 1

List of Test and Measurement Instruments

1. Conducted Disturbance

Name of Instrument	Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☐ SPECTRUM ANALYZER	8591E	H/P	3649A05889	2011.03.07	2012.03.07
☐ RFI/FIELD INTENSITY METER	KNM-2402	KYORITSU	4N-170-3	2011.07.02	2012.07.02
☐ LISN	KNW-407	KYORITSU	8-317-8	2011.01.11	2012.01.11
☐ LISN	KNW-242	KYORITSU	8-654-15	2011.07.01	2012.07.01
☐ 50 OHM TERMINATOR	CT-01	TME	N/A	2011.01.11	2012.01.11
☒ EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2011.03.08	2012.03.08
☒ LISN	ESH2-Z5	ROHDE & SCHWARZ	828739/006	2011.09.30	2012.09.30
☒ LISN	LISN1600	TTI	197204	2011.07.02	2012.07.02
☒ 50 OHM TERMINATOR	CT-01	TME	N/A	2011.01.11	2012.01.11

2. Radiated Disturbance

Name of Instrument	Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☒ EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100014	2011.01.20	2012.01.20
☒ BILOG ANTENNA	CBL6112B	SCHAFFNER	2737	2010.07.14	2012.07.14
☒ HORN ANTENNA	BBHA9120A	SCHWARZBECK	322	2010.04.13	2012.04.13
☒ AMPLIFIER	8447E	H/P	2945A02865	2011.01.11	2012.01.11
☒ AMPLIFIER	MLA-00108-B02-36	TSJ	1518831	2011.01.11	2012.01.11
☐ SPECTRUM ANALYZER	E4411B	AGILENT	US41062735	2011.07.01	2012.07.01
☐ AMPLIFIER	8447D	AGILENT	2443A03690	2011.07.01	2012.07.01
☐ BILOG ANTENNA	VULB9160	SCHAFFNER	3151	2010.08.25	2012.08.25
☐ EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2011.03.08	2012.03.08
☐ BICONICAL ANT.	VHA 9103	SCHWARZBECK	91032789	2010.11.29	2012.11.29
☐ LOG-PERIODIC ANT.	UHALP 9108A	SCHWARZBECK	590	2010.07.07	2012.07.07
☐ BICONICAL ANT.	VHA 9103	SCHWARZBECK	91031946	2010.12.21	2012.12.21
☐ LOG-PERIODIC ANT.	UHALP 9108-A1	SCHWARZBECK	1098	2010.11.29	2012.11.29
☐ AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2011.03.07	2012.03.07