



FCC ID: WS310KA2AC00

APPLICATION FOR CERTIFICATION
On Behalf of

SANYO Electronics (DONG GUAN) CO.,LTD.

LCD Projector

Model No.: PLC-XU4000, PLC-XU4000K, PLC-XK4000K,
PLC-XU4010C, PLC-XU4050C, LP-XU4000

FCC ID: WS310KA2AC00

Prepared for : SANYO Electronics (DONG GUAN) CO.,LTD.
Hong Ye Industry Area, TangXia Town, DongGuan City,
Guangdong Prov., China

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Report Number : ACS-F10303
Date of Test : Nov.03, 2010
Date of Report : Nov.10, 2010

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
1. SUMMARY OF STANDARDS AND RESULTS	1-1
1.1. Description of Standards and Results.....	1-1
2. GENERAL INFORMATION	2-1
2.1. Description of Device (EUT)	2-1
2.2. Tested Supporting System Details	2-2
2.3. Block Diagram of connection between EUT and simulators	2-3
2.4. Test Facility	2-4
2.5. Test Uncertainty (95% confidence levels, k=2)	2-4
3. POWER LINE CONDUCTED EMISSION TEST	3-1
3.1. Test Equipments	3-1
3.2. Block Diagram of Test Setup	3-1
3.3. Power Line Conducted Emission Test Limits	3-1
3.4. Configuration of EUT on Test	3-2
3.5. Operating Condition of EUT	3-2
3.6. Test Procedure	3-2
3.7. Power Line Conducted Emission Test Results	3-3
4. RADIATED EMISSION TEST	4-1
4.1. Test Equipment	4-1
4.2. Block Diagram of Test Setup	4-1
4.3. Radiated Emission Limit	4-2
4.4. EUT Configuration on Test	4-2
4.5. Operating Condition of EUT	4-2
4.6. Test Procedure	4-3
4.7. Radiated Emission Test Results	4-3
5. DEVIATION TO TEST SPECIFICATIONS	5-1
6. PHOTOGRAPH OF TEST	6-1
6.1. Photos of Power Line Conducted Emission Test	6-1
6.2. Photos of Radiated Emission Test for 30~1000MHz	6-2
6.3. Photos of Radiated Emission Test for above 1GHz	6-3
7. PHOTOGRAPH OF EUT	7-1

FCC ID: WS310KA2AC00

TEST REPORT CERTIFICATION

Applicant : SANYO Electronics (DONG GUAN) CO.,LTD.
Manufacturer : SANYO Electric Co., Ltd. Digital System Company
EUT Description : LCD Projector
FCC ID : WS310KA2AC00
(A)MODEL NO. : PLC-XU4000, PLC-XU4000K,
PLC-XK4000K, PLC-XU4010C,
PLC-XU4050C, LP-XU4000
(B)SERIAL NO. : N/A
(C)POWER SUPPLY : AC 100-240V, 50/60Hz
(D)TEST VOLTAGE : AC 120V/60Hz

Test standard and procedure used:

FCC Rules and Regulations Part 15 Subpart B Class B 2008, ANSI C63.4-2009

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B limits for radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : Nov.03,2010 Report of date: Nov.10,2010Prepared by : Annie Wu Reviewer by : Jamy Yu
Annie Wu/ Supervisor Jamy Yu / Supervisor

Approved & Authorized Signer :

Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15: 2008 ANSI C63.4: 2009	Class B	PASS
Radiated Emission Test	FCC Part 15: 2008 ANSI C63.4: 2009	Class B	PASS

2. GENERAL INFORMATION

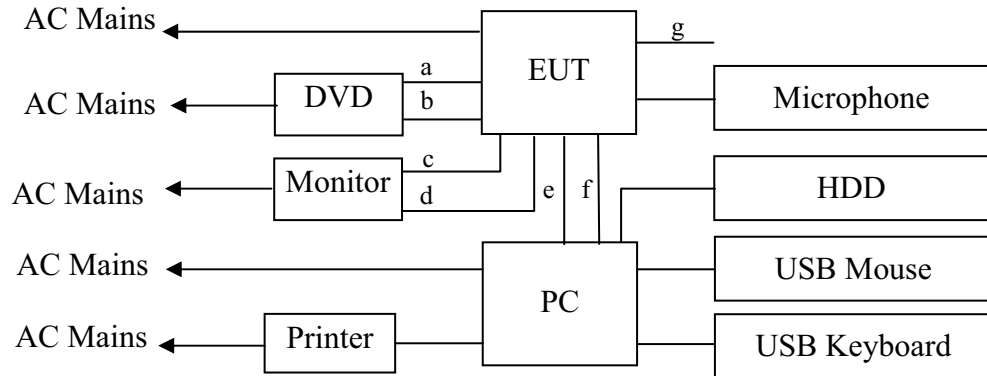
2.1. Description of Device (EUT)

Description	: LCD Projector
Model Number	: PLC-XU4000, PLC-XU4000K, PLC-XK4000K, PLC-XU4010C, PLC-XU4050C, LP-XU4000 Original model is PLC-XU4000, and PLC-XU4000K, PLC-XK4000K, PLC-XU4010C, PLC-XU4050C, LP-XU4000 are same as original model .The deference is just the model name.
Applicant	: SANYO Electronics (DONG GUAN) CO.,LTD. Hong Ye Industry Area, TangXia Town, DongGuan City, Guangdong Prov., China
Manufacturer	: SANYO Electric Co., Ltd. Digital System Company 1-1, Sanyo-cho, Daito-shi, Osaka, Japan.
Max. Work Frequency	: 166MHz
Date of Test	: Nov.03,2010
Date of Receipt	: Oct.23,2010
Sample Type	: Prototype production

2.2. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1.	Personal Computer	-	Lenovo	M46000	SS05730806	<input type="checkbox"/> FCC ID <input type="checkbox"/> BSMI ID
		Power Cord: Unshielded, Detachable, 1.8m Audio In Cable: Shielded, Detachable, 1.8m VGA Cable: Shielded, Detachable, 1.8m (with two cores) RS232 Cable: Shielded, Detachable, 1.5m				
2.	LCD Monitor	ACS-EMC-LM07R	DELL	3008WFPt	CN-0RW915-71618 -846-397L	<input checked="" type="checkbox"/> FCC DoC <input checked="" type="checkbox"/> BSMI ID: R3A002
		Power Cord: Unshielded, Detachable, 1.8m Audio out Cable: Shielded, Detachable, 1.8m VGA Cable: Shielded, Detachable, 1.8m (with two cores)				
3.	PS/2 Keyboard	ACS-EMC- K06R	HP	5219	BN44300914	<input checked="" type="checkbox"/> FCC ID: E5XKB5209 <input checked="" type="checkbox"/> BSMI ID: R31213
		Power Cord: shielded, Undetachable, 1.8m				
4.	PS/2 Mouse	ACS-EMC-M06R	HP	N3+ Optical	K043801559	<input checked="" type="checkbox"/> FCC DoC <input checked="" type="checkbox"/> BSMI ID: R31258
		Power Cord: shielded, Undetachable, 1.8m				
5.	Printer	ACS-EMC-PT04	HP	C9079A	-	<input type="checkbox"/> FCC ID <input checked="" type="checkbox"/> BSMI ID
		USB Cable: shielded, Detachable, 1.5m Power Cord: Unshielded, Detachable, 1.8m Power Adaptor: HP, 0957-2119, DC Cable: Unshielded, Detachable, 1.5m				
6.	HDD	ACS-EMC-HDD01	Terasys	F12-UF	A0100215-5390018	<input checked="" type="checkbox"/> FCC DoC <input checked="" type="checkbox"/> BSMI ID
		USB Cable: shielded, Detachable, 1.0m				
7.	DVD Player	ACS-EMC-DVD01	DENON	DVD-3910	4098400342E	<input type="checkbox"/> FCC ID <input type="checkbox"/> BSMI ID
		AV Cable: Unshielded, Detachable, 1.5m S-Video Cable: Unshielded, Detachable, 1.5m Power Cord: Unshielded, Detachable, 1.8m				
8.	Microphone	ACS-EMC-MIC01	SONCN	SM-300	N/A	<input checked="" type="checkbox"/> FCC DoC <input type="checkbox"/> BSMI ID
		Cable: Shielded, Undetachable, 1.7m				

2.3. Block Diagram of connection between EUT and simulators



a: AV Cable
b: S-Video Cable
c: Audio Out Cable
d: VGA Cable
e: Audio In Cable
f: VGA Cable
g: RS232 Cable

(EUT: LCD Projector)

2.4. Test Facility

Site Description

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block, Shenzhen
Science & Industrial Park, Nantou, Shenzhen,
Guangdong, China

3m Anechoic Chamber : Mar. 31, 2009 File on Federal Communication
Commission
Registration Number: 90454

3m & 10m Anechoic Chamber : Dec. 30, 2009 File on Federal Communication
Commission
Registration Number: 794232

EMC Lab. : Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Feb. 02, 2009

Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr.01, 2010

2.5. Test Uncertainty (95% confidence levels, k=2)

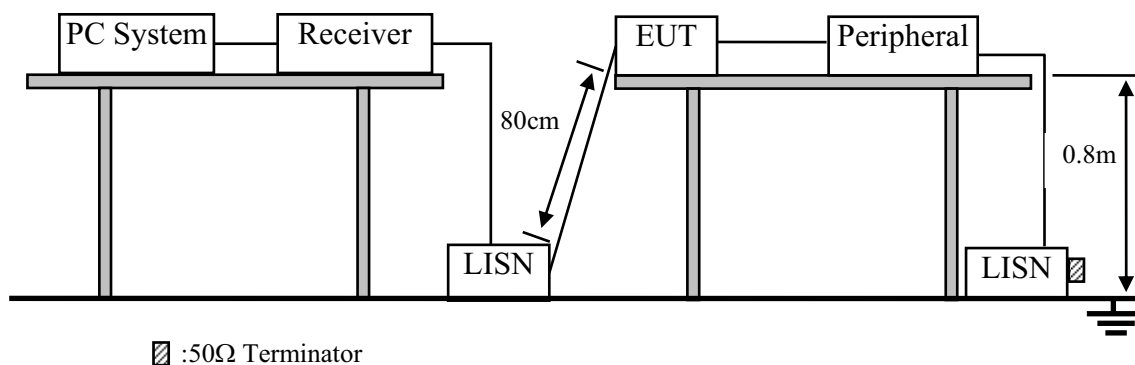
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 2 Conduction	3.64 dB (9kHz to 150kHz)
	3.22 dB(150kHz to 30MHz)
Uncertainty for Radiation Emission test in 10m chamber (Distance: 10m)	4.86 dB (30~200MHz, Polarize: H)
	4.98dB (30~200MHz, Polarize: V)
	4.98dB (200M~1GHz, Polarize: H)
	4.98dB (200M~1GHz, Polarize: V)
Uncertainty for Radiation Emission test in 10m chamber (1GHz-18GHz)	3.12 dB (Distance: 3m Polarize: V)
	3.74 dB (Distance: 3m Polarize: H)
Uncertainty for SVSWR in 10m Chamber	2.42 dB (Distance: 3m Polarize: V)
	2.44 dB (Distance: 3m Polarize: H)
Uncertainty for test site temperature and humidity	0.3℃
	2%

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.18, 09	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Mar.30, 10	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 10	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 10	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 10	1Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 10	1 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 10	1 Year

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. LCD Projector (EUT)

Model Number : PLC-XU4000
Serial Number : N/A

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 2.2.

3.5.2. Turn on the power of all equipment.

3.5.3. PC mode: PC ran "BurnIntest.exe" program and sent "H" character to EUT through VGA cable, and EUT will display it, and EUT will also output this "H" character to monitor. PC also playing 1KHz audio signal and input to EUT.

3.5.4. AV In/S-Video Mode: DVD player playing color bar signal with 1KHz audio signal and input to EUT to display it.

3.5.5. The other peripheral devices were driven and operated in turn during all testing.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4-2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked. The test results are reported and test results for Conducted Disturbance Test on Section 3.7.

3.7. Power Line Conducted Emission Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

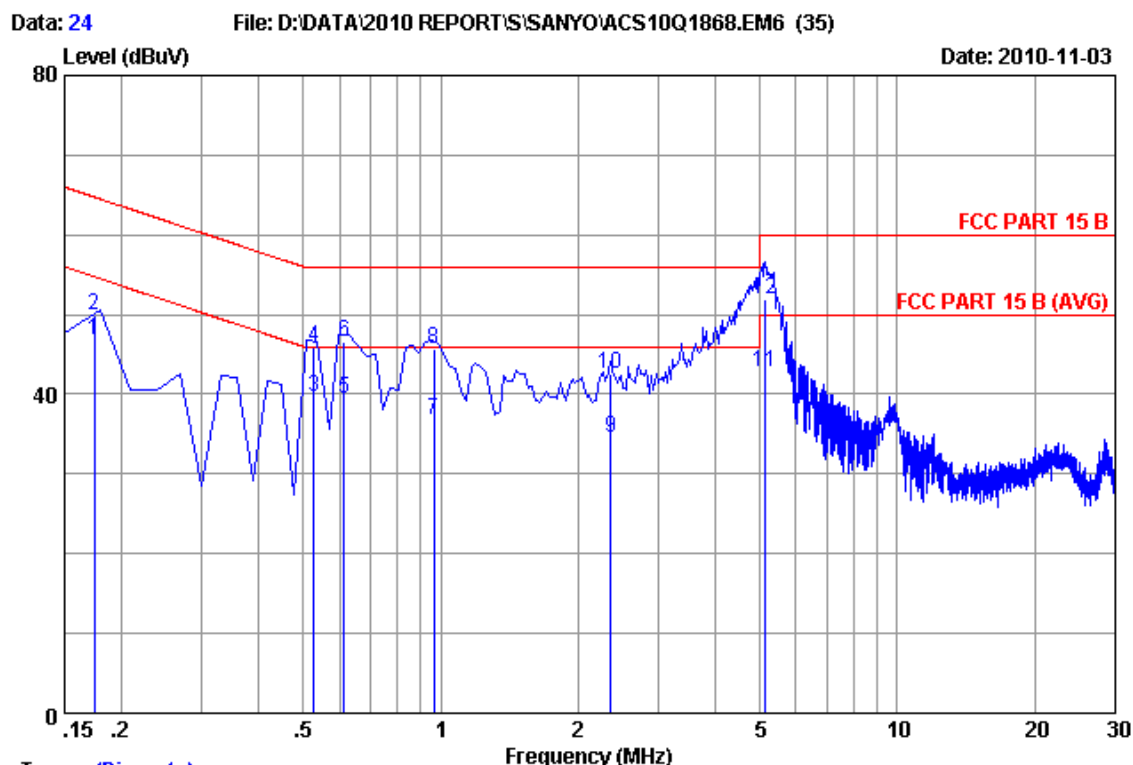
EUT: LCD Projector Model No. : PLC-XU4000

The EUT with the following test modes were tested and selected to read Q.P values, all the test results are listed in next pages.

Test Date: Nov.03,2010 Temperature: 23℃ Humidity: 54%

The details of test modes are as follows :

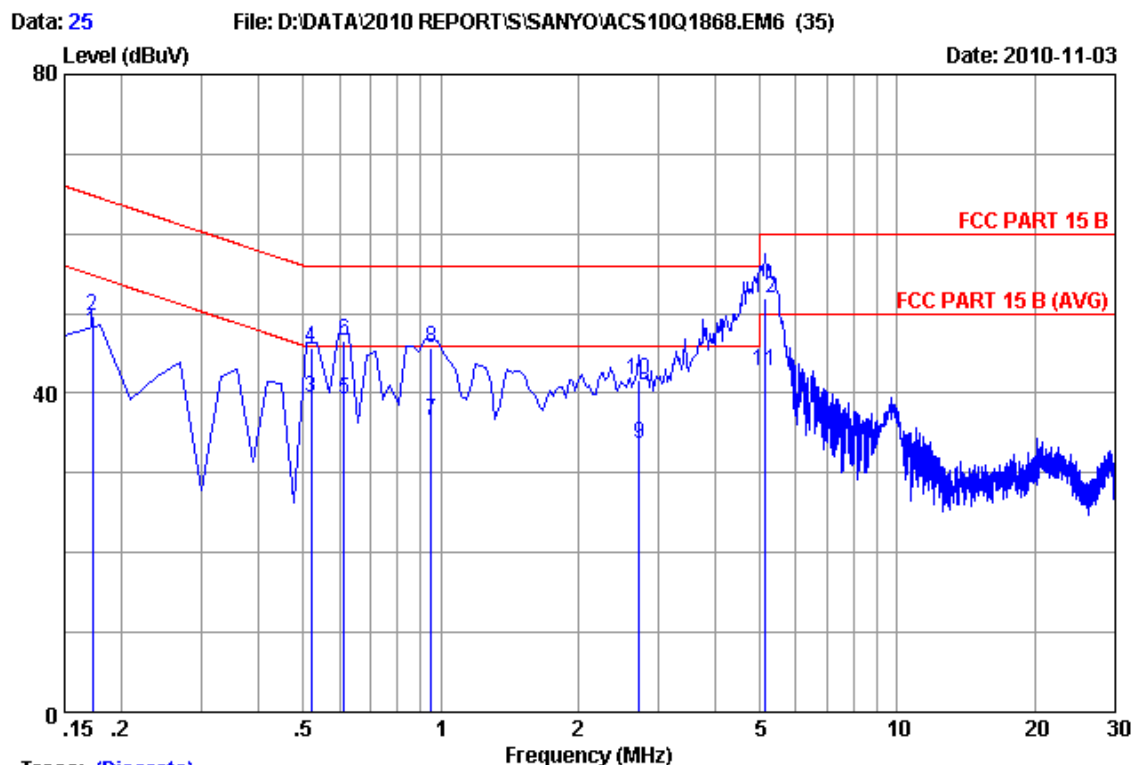
NO.	Test Mode	Reference Test Data No.	
		LINE	NEUTRAL
1.	PC mode	#24	#25
2.	AV In Mode (Play Color Bar)	#27	#26
3.	S-Video Mode (Play Color Bar)	#28	#29


Trace: (Discrete)

Site no :1#conduction Data No :24
 Dis./Ant. :** 2010 ESH2-Z5 LINE
 Limit :FCC PART 15 B
 Env./Ins. :29.5°C/55% Engineer :Jolly_Xu
 EUT :LCD Projector M/N:PLC-XU4000
 Power Rating :AC 120V/60Hz
 Test Mode :PC Mode
 :Running "H" Pattern and Play 1KHz signal

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17400	0.22	9.88	36.70	46.80	54.77	7.97	Average
2	0.17400	0.22	9.88	39.80	49.90	64.77	14.87	QP
3	0.52700	0.24	9.88	29.50	39.62	46.00	6.38	Average
4	0.52700	0.24	9.88	35.70	45.82	56.00	10.18	QP
5	0.61300	0.25	9.88	29.30	39.43	46.00	6.57	Average
6	0.61300	0.25	9.88	36.50	46.63	56.00	9.37	QP
7	0.96400	0.22	9.89	26.60	36.71	46.00	9.29	Average
8	0.96400	0.22	9.89	35.60	45.71	56.00	10.29	QP
9	2.359	0.25	9.92	24.30	34.47	46.00	11.53	Average
10	2.359	0.25	9.92	32.30	42.47	56.00	13.53	QP
11	5.146	0.27	9.94	32.60	42.81	50.00	7.19	Average
12	5.146	0.27	9.94	41.80	52.01	60.00	7.99	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.
 2.If the average limit is met when using a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

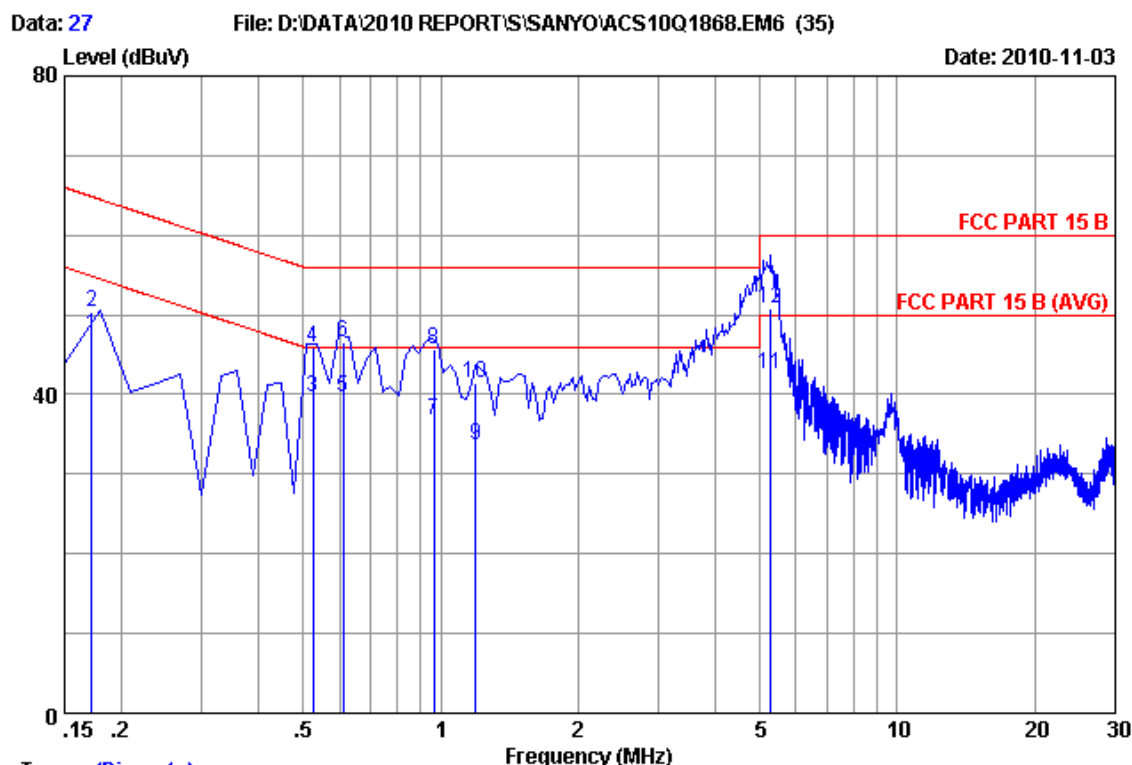


Trace: (Discrete)

Site no : 1#conduction Data No : 25
 Dis./Ant. : ** 2010 ESH2-Z5 NEUTRAL
 Limit : FCC PART 15 B
 Env./Ins. : 29.5°C/55% Engineer : Jolly_Xu
 EUT : LCD Projector M/N: PLC-XU4000
 Power Rating : AC 120V/60Hz
 Test Mode : PC Mode
 : Running "H" Pattern and Play 1KHz signal

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17300	0.21	9.88	37.50	47.59	54.82	7.23	Average
2	0.17300	0.21	9.88	39.50	49.59	64.82	15.23	QP
3	0.52000	0.22	9.88	29.40	39.50	46.00	6.50	Average
4	0.52000	0.22	9.88	35.60	45.70	56.00	10.30	QP
5	0.61300	0.23	9.88	29.11	39.22	46.00	6.78	Average
6	0.61300	0.23	9.88	36.41	46.52	56.00	9.48	QP
7	0.95500	0.25	9.89	26.30	36.44	46.00	9.56	Average
8	0.95500	0.25	9.89	35.60	45.74	56.00	10.26	QP
9	2.717	0.26	9.93	23.40	33.59	46.00	12.41	Average
10	2.717	0.26	9.93	31.50	41.69	56.00	14.31	QP
11	5.145	0.28	9.94	32.50	42.72	50.00	7.28	Average
12	5.145	0.28	9.94	41.70	51.92	60.00	8.08	QP

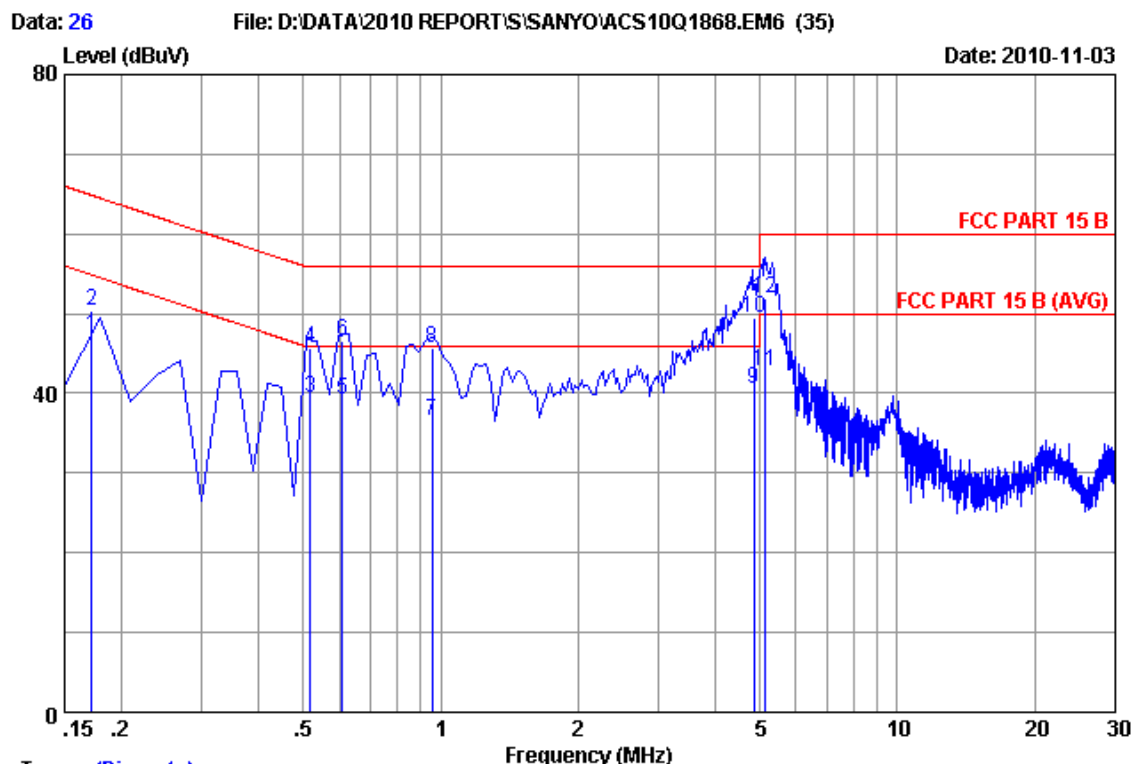
Remarks: 1. Emission Level = LISN Factor + Cable Loss (Include 10dB pulse limit) + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.


Trace: (Discrete)

Site no : 1#conduction Data No : 27
 Dis./Ant. : ** 2010 ESH2-Z5 LINE
 Limit : FCC PART 15 B
 Env./Ins. : 29.5°C/55% Engineer : Jolly_Xu
 EUT : LCD Projector M/N: PLC-XU4000
 Power Rating : AC 120V/60Hz
 Test Mode : AV IN Mode(Play Color Bar)
 :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17200	0.23	9.88	37.29	47.40	54.86	7.46	Average
2	0.17200	0.23	9.88	40.19	50.30	64.86	14.56	QP
3	0.52400	0.24	9.88	29.50	39.62	46.00	6.38	Average
4	0.52400	0.24	9.88	35.70	45.82	56.00	10.18	QP
5	0.61100	0.25	9.88	29.50	39.63	46.00	6.37	Average
6	0.61100	0.25	9.88	36.40	46.53	56.00	9.47	QP
7	0.96600	0.22	9.89	26.70	36.81	46.00	9.19	Average
8	0.96600	0.22	9.89	35.50	45.61	56.00	10.39	QP
9	1.195	0.22	9.89	23.51	33.62	46.00	12.38	Average
10	1.195	0.22	9.89	31.41	41.52	56.00	14.48	QP
11	5.286	0.27	9.94	32.41	42.62	50.00	7.38	Average
12	5.286	0.27	9.94	40.51	50.72	60.00	9.28	QP

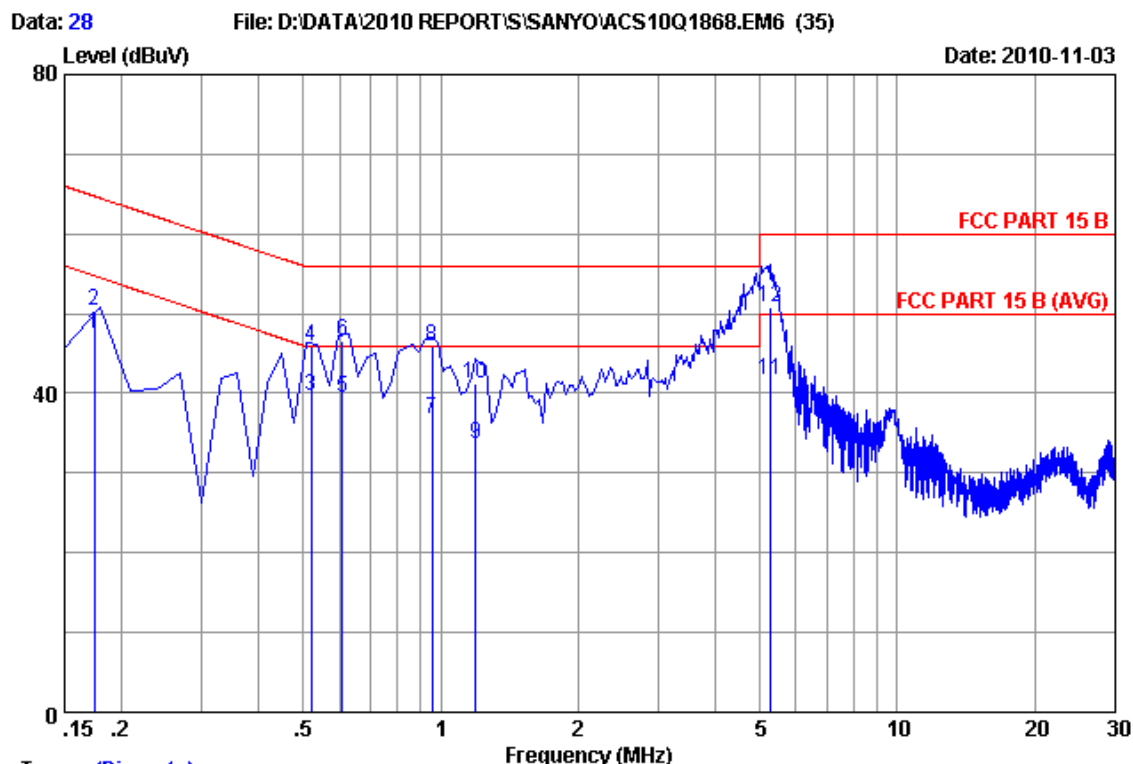
Remarks: 1. Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.


Trace: (Discrete)

Site no : 1#conduction Data No : 26
Dis./Ant. : ** 2010 ESH2-Z5 NEUTRAL
Limit : FCC PART 15 B
Env./Ins. : 29.5°C/55% Engineer : Jolly_Xu
EUT : LCD Projector M/N: PLC-XU4000
Power Rating : AC 120V/60Hz
Test Mode : AV IN Mode(Play Color Bar)
:

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.17200	0.21	9.88	37.10	47.19	54.86	7.67	Average
2	0.17200	0.21	9.88	40.20	50.29	64.86	14.57	QP
3	0.51700	0.22	9.88	29.40	39.50	46.00	6.50	Average
4	0.51700	0.22	9.88	35.50	45.60	56.00	10.40	QP
5	0.60900	0.23	9.88	29.21	39.32	46.00	6.68	Average
6	0.60900	0.23	9.88	36.41	46.52	56.00	9.48	QP
7	0.95900	0.25	9.89	26.50	36.64	46.00	9.36	Average
8	0.95900	0.25	9.89	35.60	45.74	56.00	10.26	QP
9	4.844	0.28	9.94	30.40	40.62	46.00	5.38	Average
10	4.844	0.28	9.94	39.20	49.42	56.00	6.58	QP
11	5.141	0.28	9.94	32.50	42.72	50.00	7.28	Average
12	5.141	0.28	9.94	41.60	51.82	60.00	8.18	QP

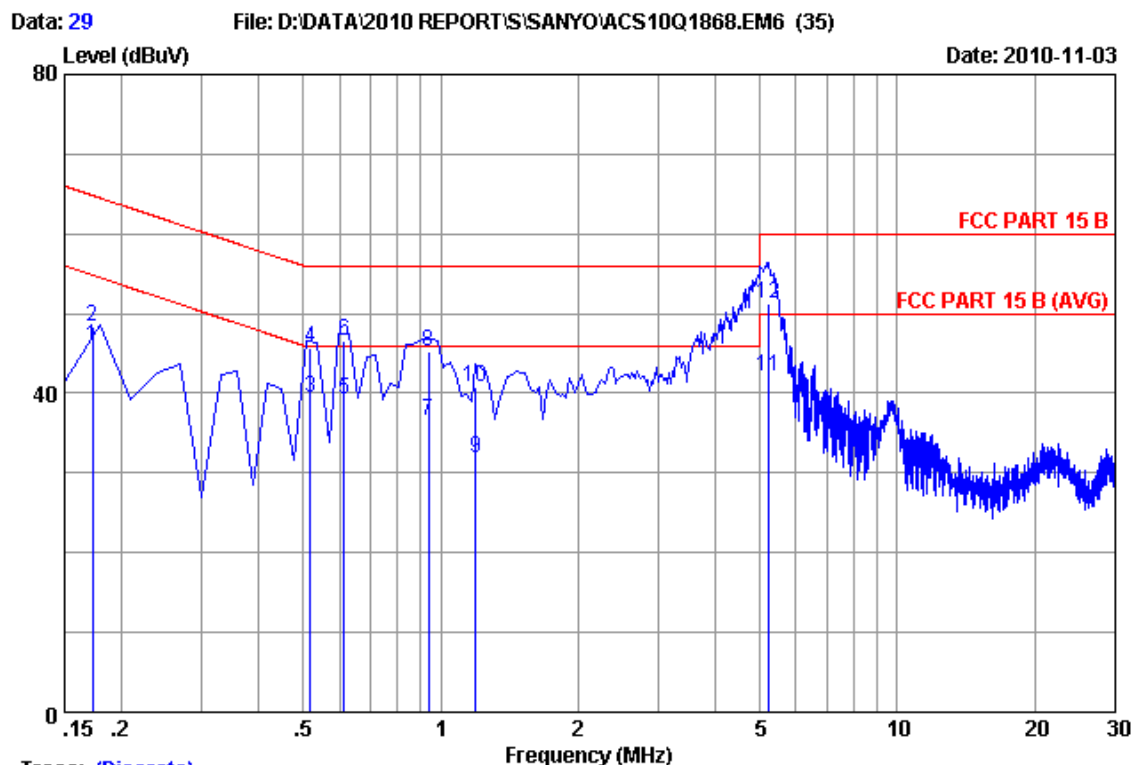
Remarks: 1. Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.


Trace: (Discrete)

Site no : 1#conduction Data No : 28
 Dis./Ant. : ** 2010 ESH2-Z5 LINE
 Limit : FCC PART 15 B
 Env./Ins. : 29.5°C/55% Engineer : Jolly_Xu
 EUT : LCD Projector M/N: PLC-XU4000
 Power Rating : AC 120V/60Hz
 Test Mode : S-Video IN Mode (Play Color Bar)
 :

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17400	0.22	9.88	37.30	47.40	54.77	7.37	Average
2	0.17400	0.22	9.88	40.20	50.30	64.77	14.47	QP
3	0.52000	0.24	9.88	29.50	39.62	46.00	6.38	Average
4	0.52000	0.24	9.88	35.70	45.82	56.00	10.18	QP
5	0.61000	0.25	9.88	29.40	39.53	46.00	6.47	Average
6	0.61000	0.25	9.88	36.50	46.63	56.00	9.37	QP
7	0.95700	0.22	9.89	26.70	36.81	46.00	9.19	Average
8	0.95700	0.22	9.89	35.70	45.81	56.00	10.19	QP
9	1.195	0.22	9.89	23.51	33.62	46.00	12.38	Average
10	1.195	0.22	9.89	31.11	41.22	56.00	14.78	QP
11	5.285	0.27	9.94	31.51	41.72	50.00	8.28	Average
12	5.285	0.27	9.94	40.51	50.72	60.00	9.28	QP

Remarks: 1. Emission Level = LISN Factor + Cable Loss (Include 10dB pulse limit) + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Trace: (Discrete)

Site no : 1#conduction Data No : 29
Dis./Ant. : ** 2010 ESH2-Z5 NEUTRAL
Limit : FCC PART 15 B
Env./Ins. : 29.5°C/55% Engineer : Jolly_Xu
EUT : LCD Projector M/N: PLC-XU4000
Power Rating : AC 120V/60Hz
Test Mode : S-Video IN Mode(Play Color Bar)
:

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17300	0.21	9.88	35.80	45.89	54.82	8.93	Average
2	0.17300	0.21	9.88	38.30	48.39	64.82	16.43	QP
3	0.51900	0.22	9.88	29.30	39.40	46.00	6.60	Average
4	0.51900	0.22	9.88	35.60	45.70	56.00	10.30	QP
5	0.61400	0.23	9.88	29.11	39.22	46.00	6.78	Average
6	0.61400	0.23	9.88	36.41	46.52	56.00	9.48	QP
7	0.94000	0.25	9.89	26.30	36.44	46.00	9.56	Average
8	0.94000	0.25	9.89	35.20	45.34	56.00	10.66	QP
9	1.195	0.25	9.89	21.80	31.94	46.00	14.06	Average
10	1.195	0.25	9.89	30.60	40.74	56.00	15.26	QP
11	5.228	0.28	9.94	31.80	42.02	50.00	7.98	Average
12	5.228	0.28	9.94	41.00	51.22	60.00	8.78	QP

Remarks: 1. Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)+Reading.
2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency rang: 30~1000MHz

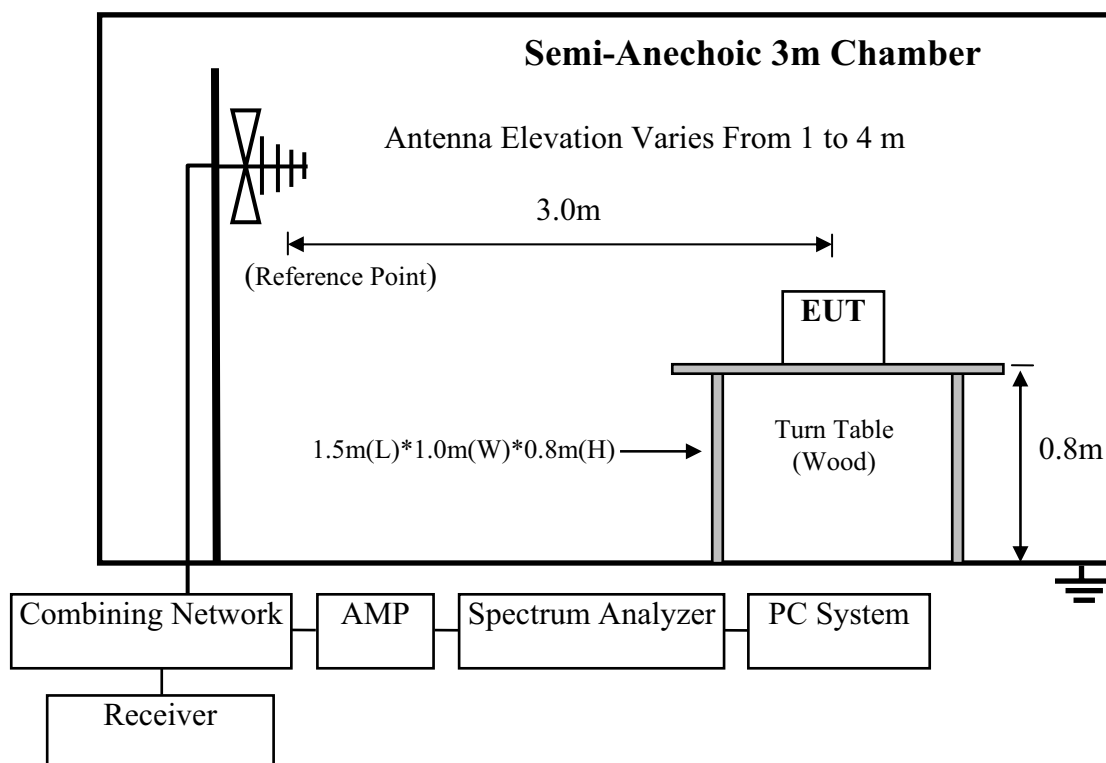
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 10	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 10	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 10	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 09	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 10	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 10	1 Year

Frequency rang: above 1000MHz

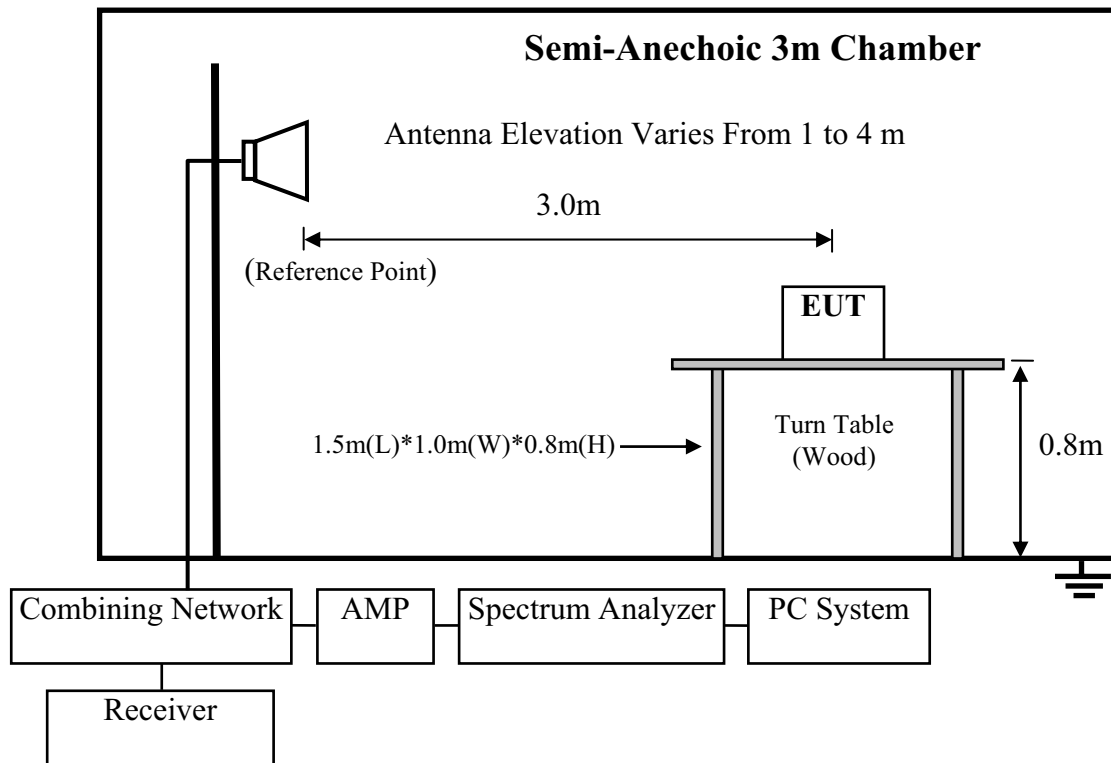
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	Nov.19, 09	1.5 Year
3	Horn Antenna	EMCO	3116	00060089	Nov.25, 09	1.5 Year
4	Amplifier	Agilent	8449B	3008A00863	May.08, 10	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 10	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,10	1 Year
7	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,10	1 Year

4.2. Block Diagram of Test Setup

4.2.1. Anechoic Chamber Setup Diagram (30-1000MHz)



4.2.2. In Anechoic Chamber Test Setup Diagram for above 1GHz



4.3. Radiated Emission Limit

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
Above 1000	3	74(Peak)54(Average)

Remark: (1) Emission level = Antenna Factor + Cable Loss + Reading

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Test

The configurations of EUT are listed in Section 3.5.

4.5. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 4.2.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission Test.

According FCC Part15A:15.32 requirements, test was performed with device installed in a typical enclosure, and both with enclosure's cover removed and installed. Test also performed with enclosure in vertical and horizontal position.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

4.7. Radiated Emission Test Results

PASS.

EUT: LCD Projector Model No. : PLC-XU4000

For frequency range 30MHz~1000MHz

The EUT with the following test modes were tested and selected to read Q.P values, all the test results listed in next pages.

Test Date: Nov.03,2010

Temperature: 24℃

Humidity: 56%

The details of test mode are as follows :

NO.	Test Mode	Reference Test Data No.	
		Horizontal	Vertical
1.	PC Mode	#8	#7
2.	AV In Mode (Play Color Bar)	#9	#10
3.	S-Video Mode (Play Color Bar)	#12	#11

For frequency range 1GHz~2GHz

The EUT with below test mode were measured within Anechoic Chamber and the test results listed in next pages

Note: For all the emissions above 1GHz, the peak measured level comply with average limit, so the average level were deemed to comply with average limit.

Test Date: Nov.03, 2010 Temperature: 24℃ Humidity: 56%

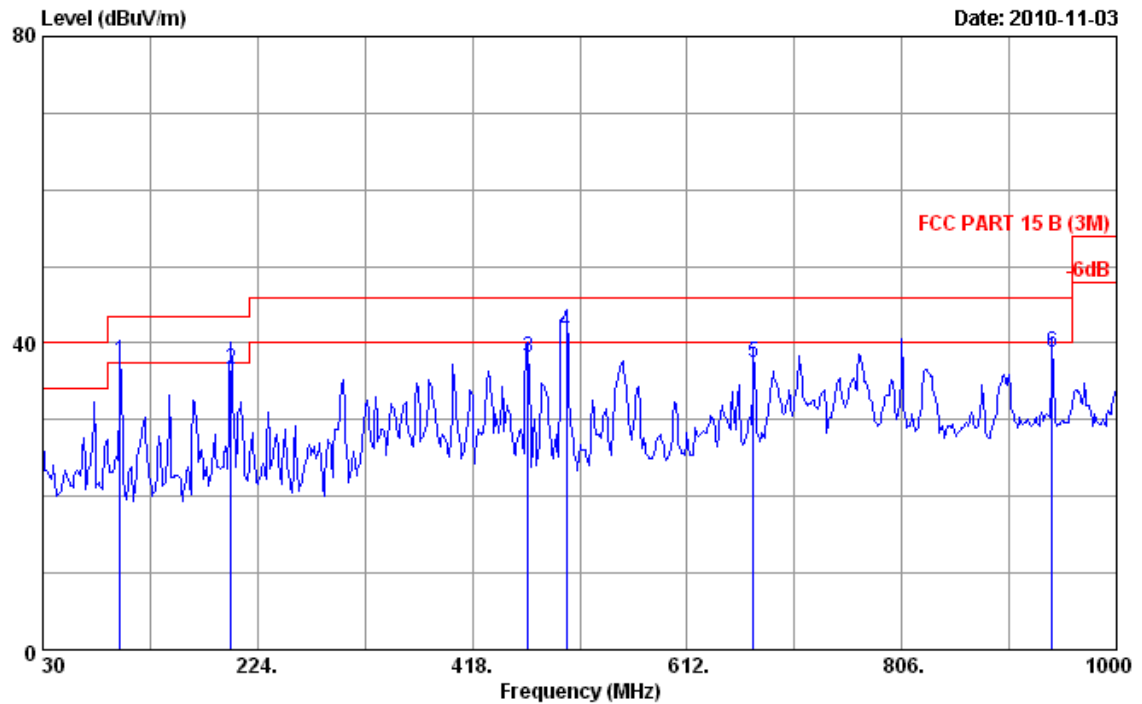
NO.	Test Mode	Reference Test Data No.	
		Horizontal	Vertical
1.	PC mode	#2	#1
2.	AV In Mode (Play Color Bar)	#6	#5
3.	S-Video Mode (Play Color Bar)	#3	#4

Test Frequency: 30MHz-1000MHz

Data: 2

File: E:\2010 Report Data\SI\SANYO\ACS10Q1868.EM6 (6)

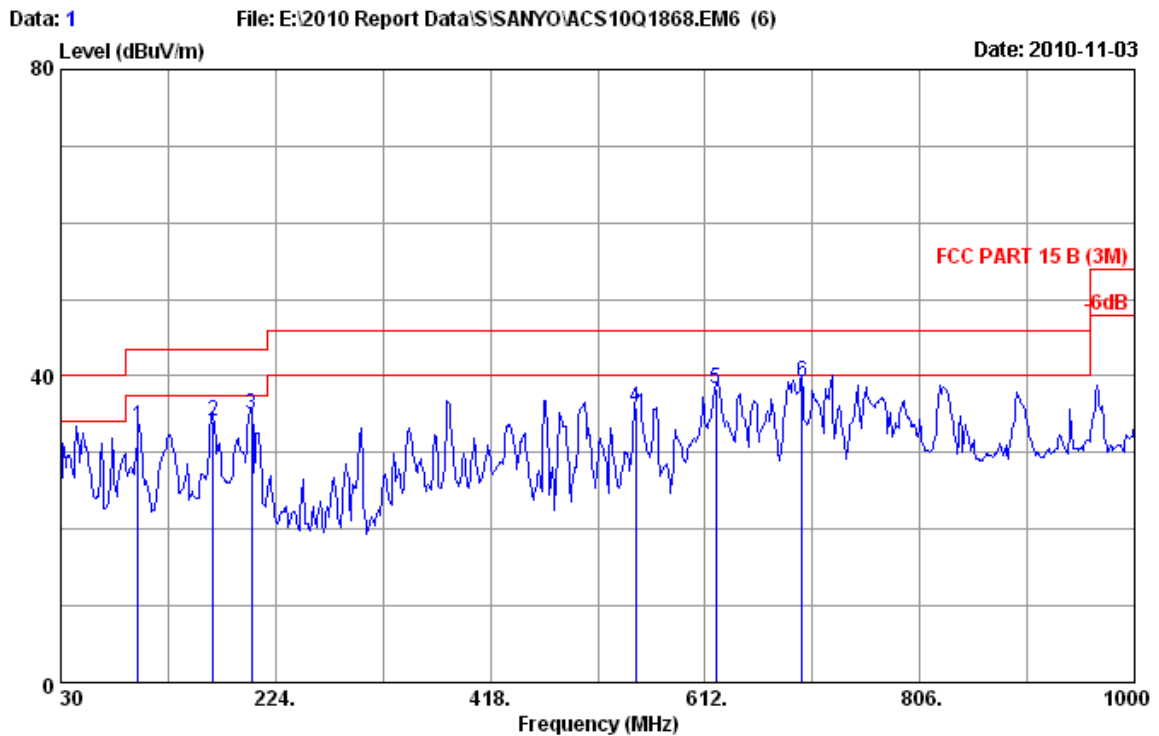
Date: 2010-11-03



Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : PC Mode
 Running 'H' Pattern and Play 1KHz Signal

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	99.840	10.40	1.12	26.08	37.60	43.50	5.90	QP
2	200.000	10.00	1.72	24.80	36.52	43.50	6.98	QP
3	468.440	17.51	3.35	17.30	38.16	46.00	7.84	QP
4	503.360	18.30	3.57	19.55	41.42	46.00	4.58	QP
5	672.140	20.78	4.39	12.26	37.43	46.00	8.57	QP
6	941.800	23.86	5.36	9.45	38.67	46.00	7.33	QP

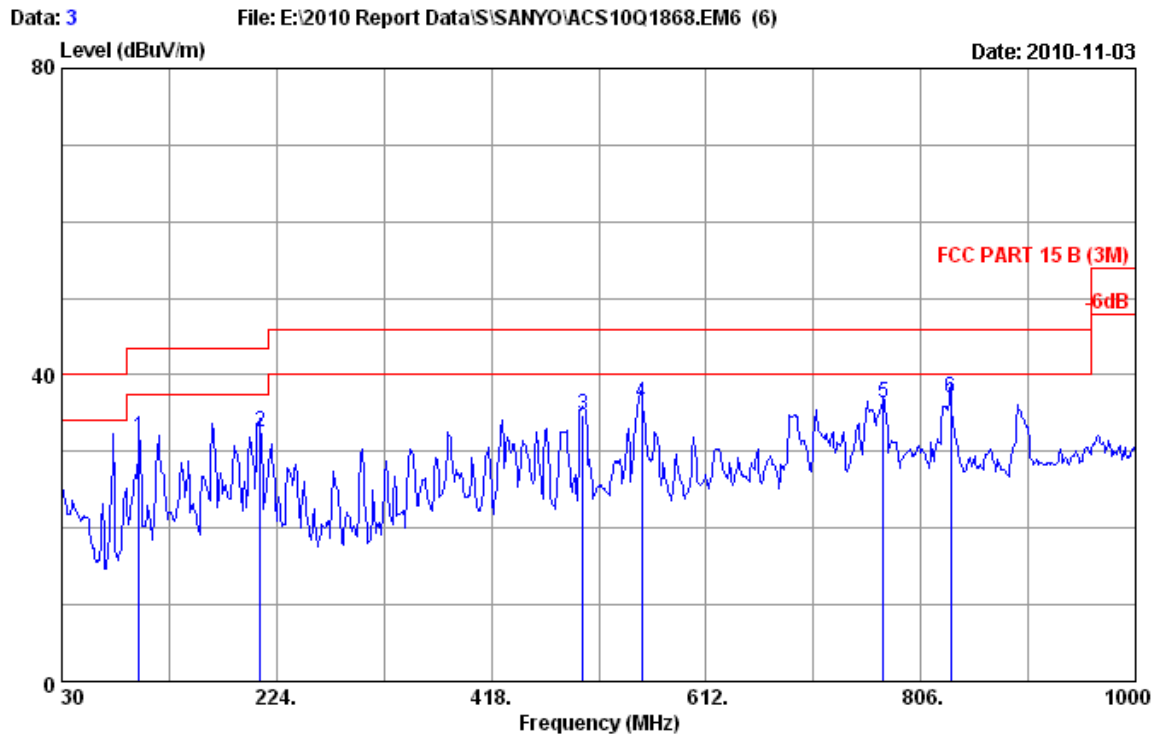
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : PC Mode
 Running 'H' Pattern and Play 1KHz Signal

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	99.840	10.40	1.12	21.90	33.42	43.50	10.08	QP
2	167.740	10.40	1.34	22.39	34.13	43.50	9.37	QP
3	202.660	10.06	1.75	23.15	34.96	43.50	8.54	QP
4	548.950	19.10	3.83	12.85	35.78	46.00	10.22	QP
5	621.700	20.04	4.20	14.05	38.29	46.00	7.71	QP
6	699.300	20.80	4.50	13.92	39.22	46.00	6.78	QP

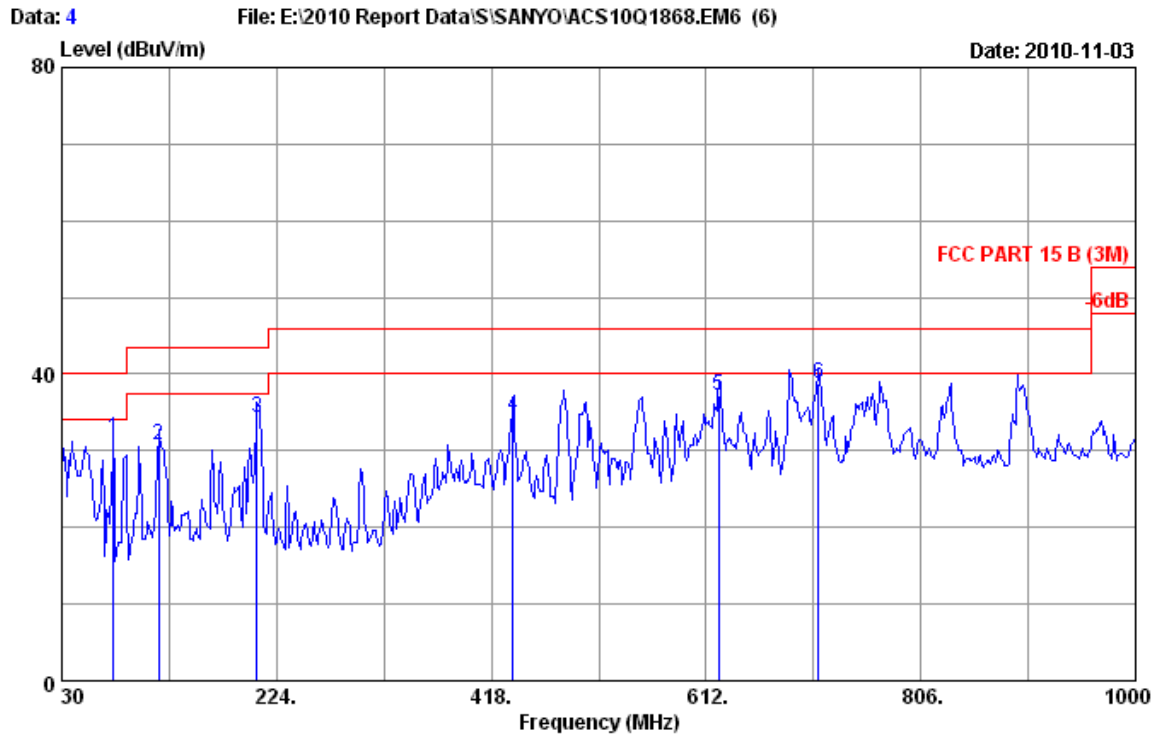
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : AV IN Mode (Playing Color Bar)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	99.840	10.40	1.12	20.36	31.88	43.50	11.62	QP
2	209.450	10.10	1.81	20.52	32.43	43.50	11.07	QP
3	500.450	18.30	3.55	13.01	34.86	46.00	11.14	QP
4	553.800	19.32	3.85	13.18	36.35	46.00	9.65	QP
5	772.050	22.10	4.79	9.42	36.31	46.00	9.69	QP
6	833.160	22.26	5.00	9.63	36.89	46.00	9.11	QP

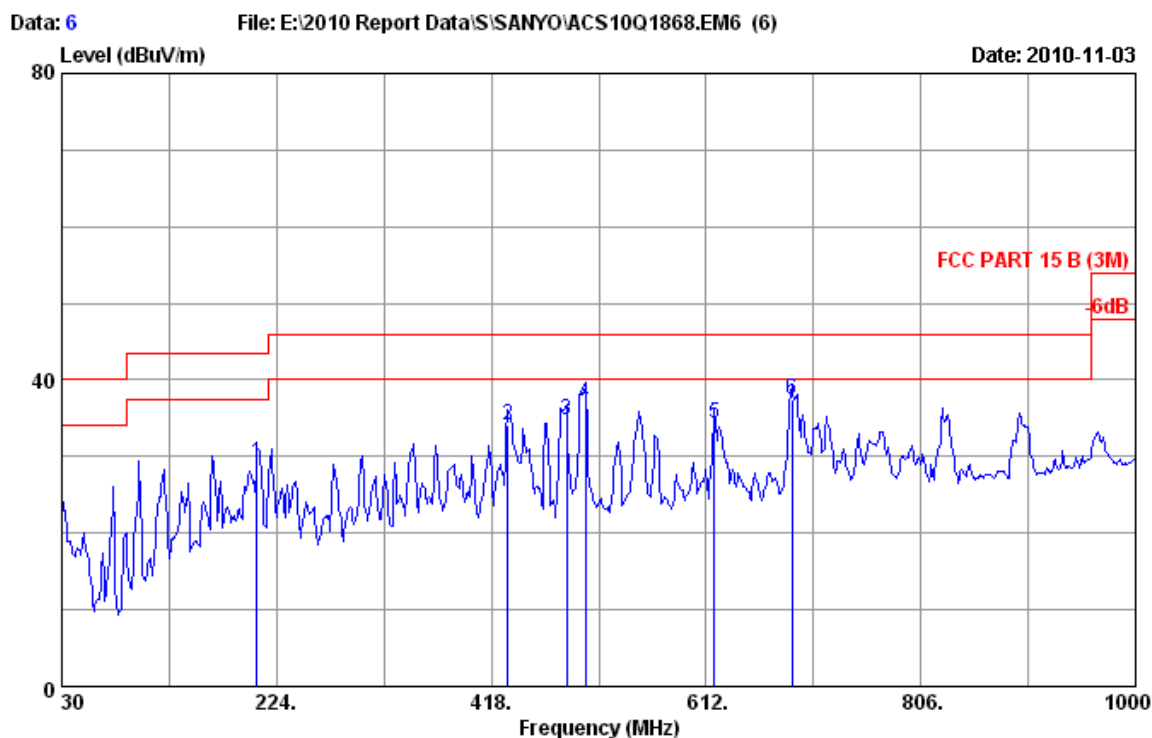
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : AV IN Mode (Playing Color Bar)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	76.560	7.47	0.97	23.30	31.74	40.00	8.26	QP
2	117.300	11.78	1.13	17.91	30.82	43.50	12.68	QP
3	206.540	10.10	1.78	22.34	34.22	43.50	9.28	QP
4	437.400	17.28	3.15	14.17	34.60	46.00	11.40	QP
5	623.640	20.07	4.21	12.82	37.10	46.00	8.90	QP
6	713.850	20.74	4.55	13.41	38.70	46.00	7.30	QP

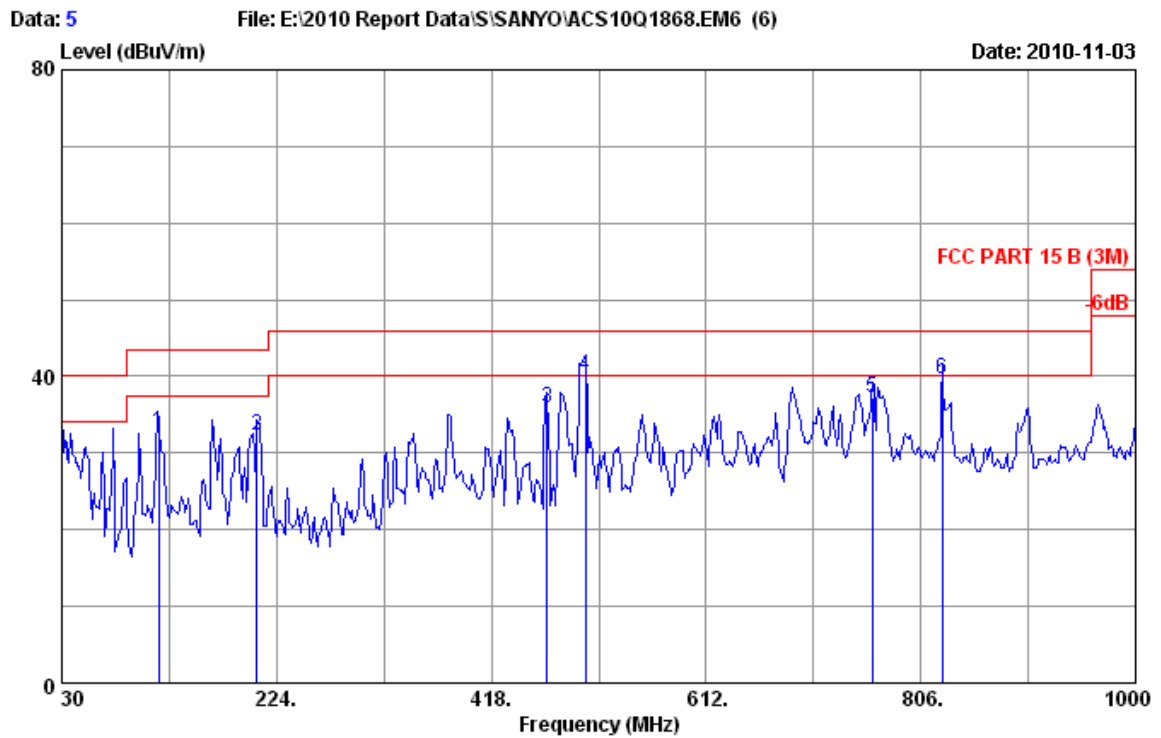
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : S-Video Mode (Playing Color Bar)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	206.540	10.10	1.78	17.20	29.08	43.50	14.42	QP
2	432.550	17.42	3.12	13.50	34.04	46.00	11.96	QP
3	485.900	18.16	3.46	13.22	34.84	46.00	11.16	QP
4	503.360	18.30	3.57	15.09	36.96	46.00	9.04	QP
5	619.760	20.00	4.19	10.20	34.39	46.00	11.61	QP
6	689.600	20.80	4.46	12.18	37.44	46.00	8.56	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

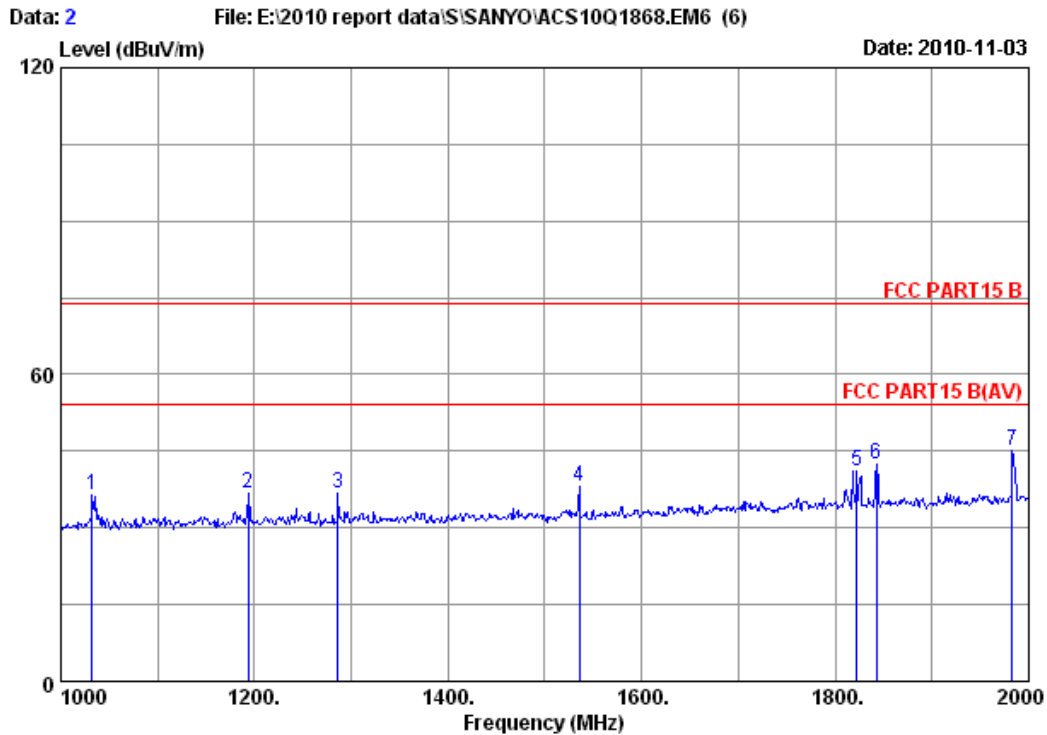


Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 2010 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 24°C/56% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power rating : AC 120V/60HZ
 Test Mode : S-Video Mode (Playing Color Bar)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	117.300	11.78	1.13	47.81	32.80	43.50	10.70	QP
2	206.540	10.10	1.78	48.55	32.27	43.50	11.23	QP
3	468.440	17.51	3.35	43.78	35.84	46.00	10.16	QP
4	503.360	18.30	3.57	47.05	40.09	46.00	5.91	QP
5	762.350	22.02	4.75	38.79	37.19	46.00	8.81	QP
6	825.400	22.20	4.98	40.60	39.59	46.00	6.41	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Test Frequency: Above 1GHz

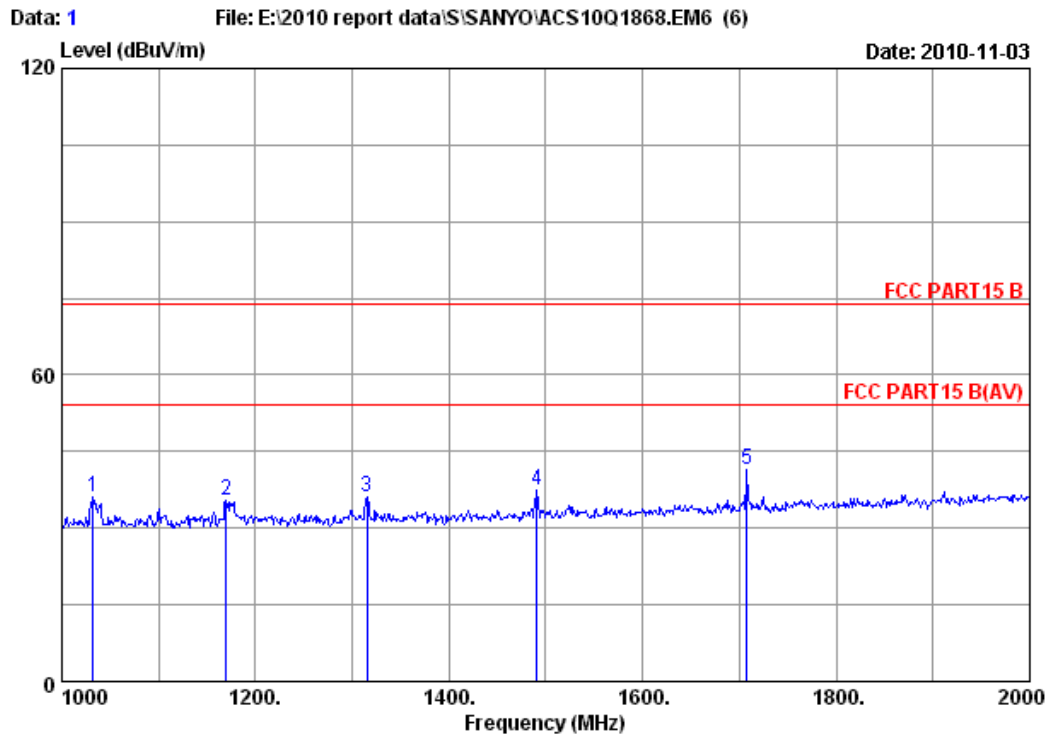


Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
Limit : FCC PART15 B
Env. / Ins. : 24°C/66% Engineer : Leo-Li
EUT : LCD Projector M/N:PLC-XU4000
Power : AC 120V/60Hz
Test mode : PC Mode
Running "H" Pattern and Play 1KHz Signal

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	1032.000	25.47	4.82	37.33	43.62	36.58	74.00	37.42	Peak
2	1194.000	25.78	5.12	36.95	42.98	36.93	74.00	37.07	Peak
3	1286.000	25.99	5.31	36.77	42.17	36.70	74.00	37.30	Peak
4	1536.000	26.68	5.76	36.30	41.83	37.97	74.00	36.03	Peak
5	1822.000	28.17	6.33	36.34	43.06	41.22	74.00	32.78	Peak
6	1843.000	28.36	6.37	36.23	43.86	42.36	74.00	31.64	Peak
7	1983.000	29.11	6.63	36.06	45.49	45.17	74.00	28.83	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

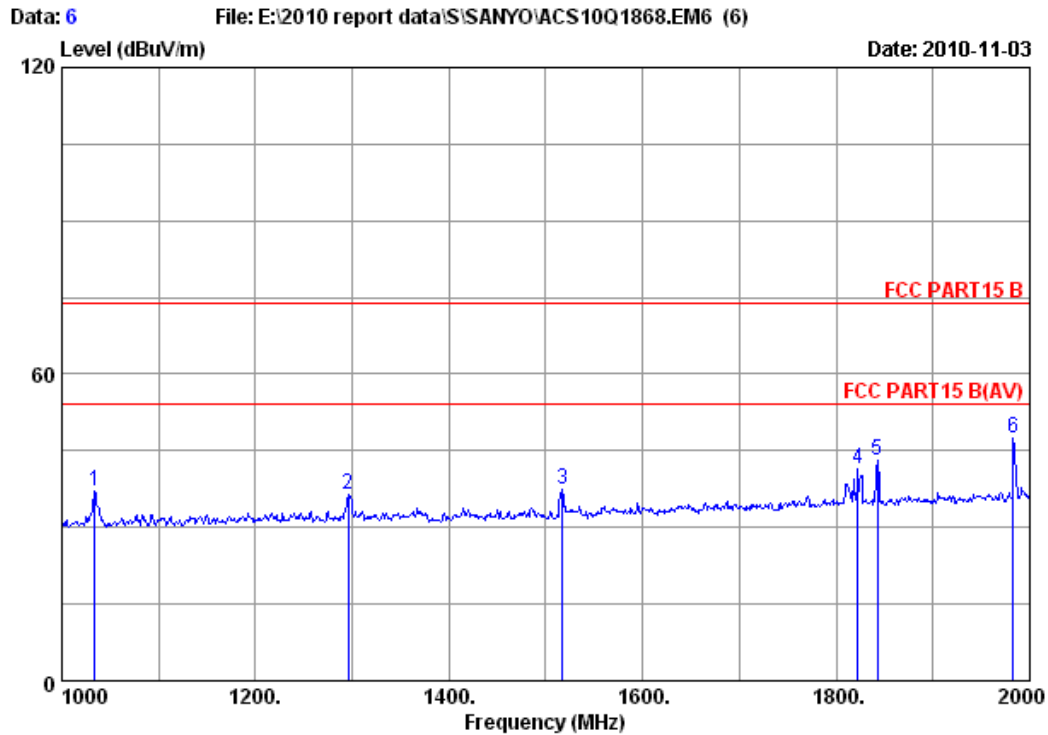


Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART15 B
 Env. / Ins. : 24°C/66% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power : AC 120V/60Hz
 Test mode : PC Mode
 M/N : Running "H" Pattern and Play 1KHz Signal

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 1032.000	25.47	4.82	37.33	43.17	36.13	74.00	37.87	Peak	
2 1170.000	25.74	5.08	36.92	41.41	35.31	74.00	38.69	Peak	
3 1315.000	26.06	5.35	36.58	41.11	35.94	74.00	38.06	Peak	
4 1491.000	26.40	5.69	36.57	41.82	37.34	74.00	36.66	Peak	
5 1708.000	27.61	6.10	36.30	44.15	41.56	74.00	32.44	Peak	

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

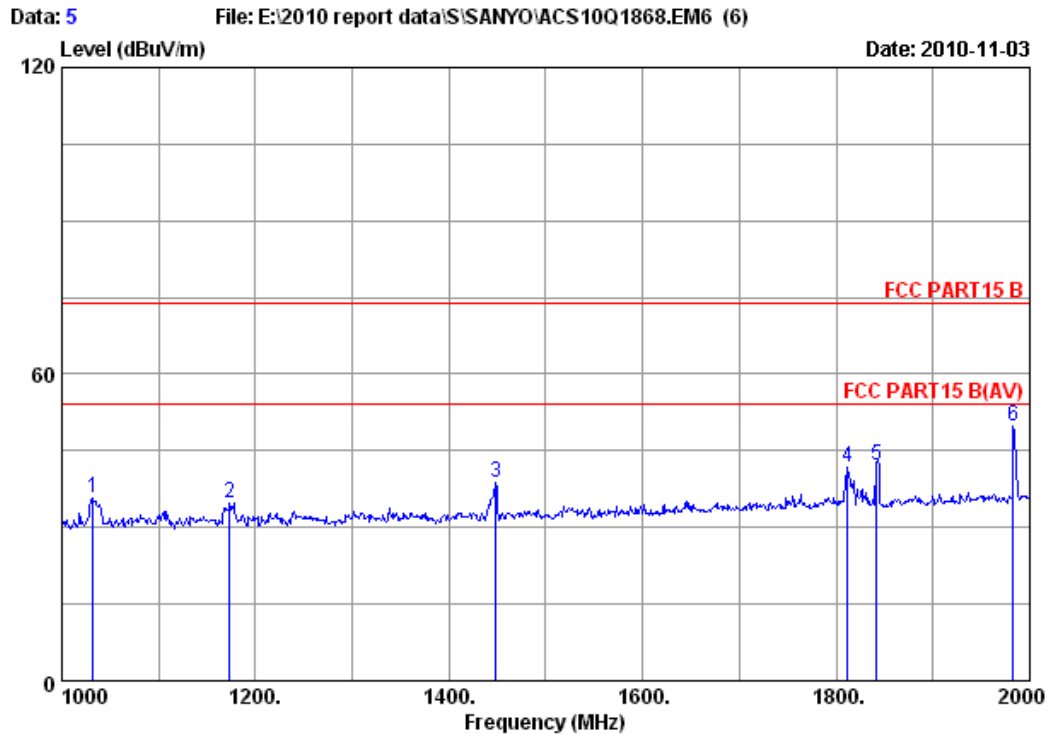


Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART15 B
 Env. / Ins. : 24°C/66% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power : AC 120V/60Hz
 Test mode : AV IN Mode (Play Color Bar)

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1034.000	25.47	4.82	37.33	44.09	37.05	74.00	36.95	Peak
2	1296.000	25.99	5.31	36.77	41.80	36.33	74.00	37.67	Peak
3	1517.000	26.49	5.73	36.61	41.75	37.36	74.00	36.64	Peak
4	1822.000	28.17	6.33	36.34	43.39	41.55	74.00	32.45	Peak
5	1843.000	28.36	6.37	36.23	44.55	43.05	74.00	30.95	Peak
6	1983.000	29.11	6.63	36.06	47.64	47.32	74.00	26.68	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

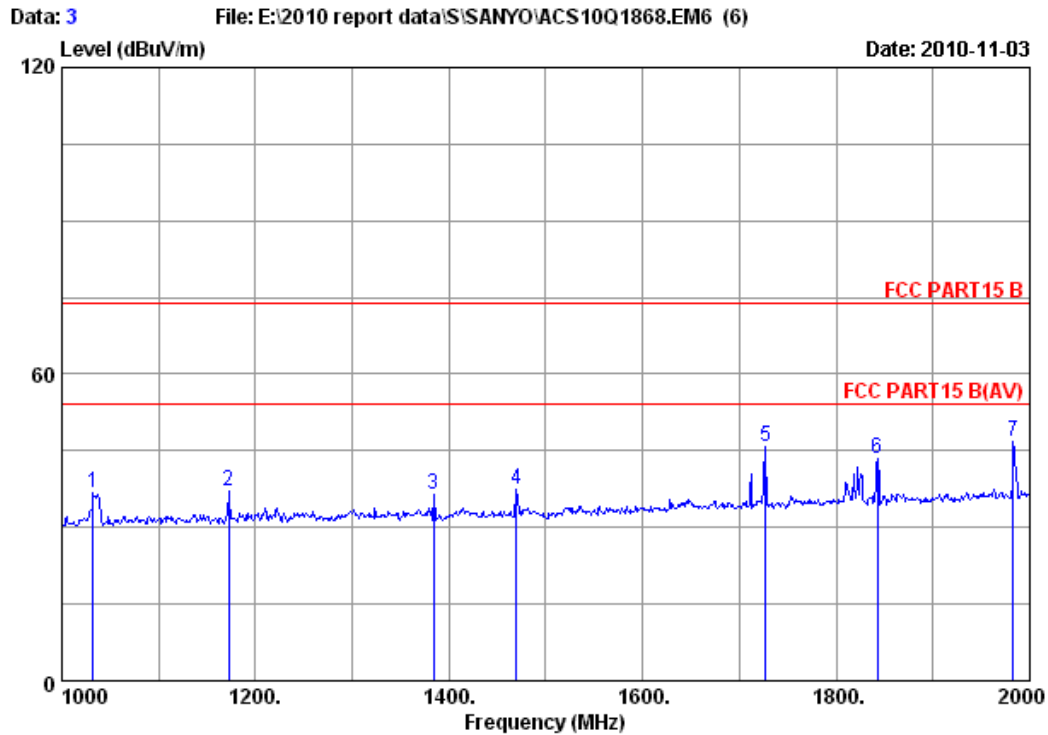


Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART15 B
 Env. / Ins. : 24°C/66% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power : AC 120V/60Hz
 Test mode : AV IN Mode (Play Color Bar)

	Ant.	Cable	Amp.			Emission			
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	1032.000	25.47	4.82	37.33	42.80	35.76	74.00	38.24	Peak
2	1173.000	25.74	5.08	36.92	40.98	34.88	74.00	39.12	Peak
3	1448.000	26.30	5.61	36.53	43.37	38.75	74.00	35.25	Peak
4	1812.000	28.17	6.29	36.34	43.56	41.68	74.00	32.32	Peak
5	1842.000	28.36	6.37	36.23	43.71	42.21	74.00	31.79	Peak
6	1983.000	29.11	6.63	36.06	50.06	49.74	74.00	24.26	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

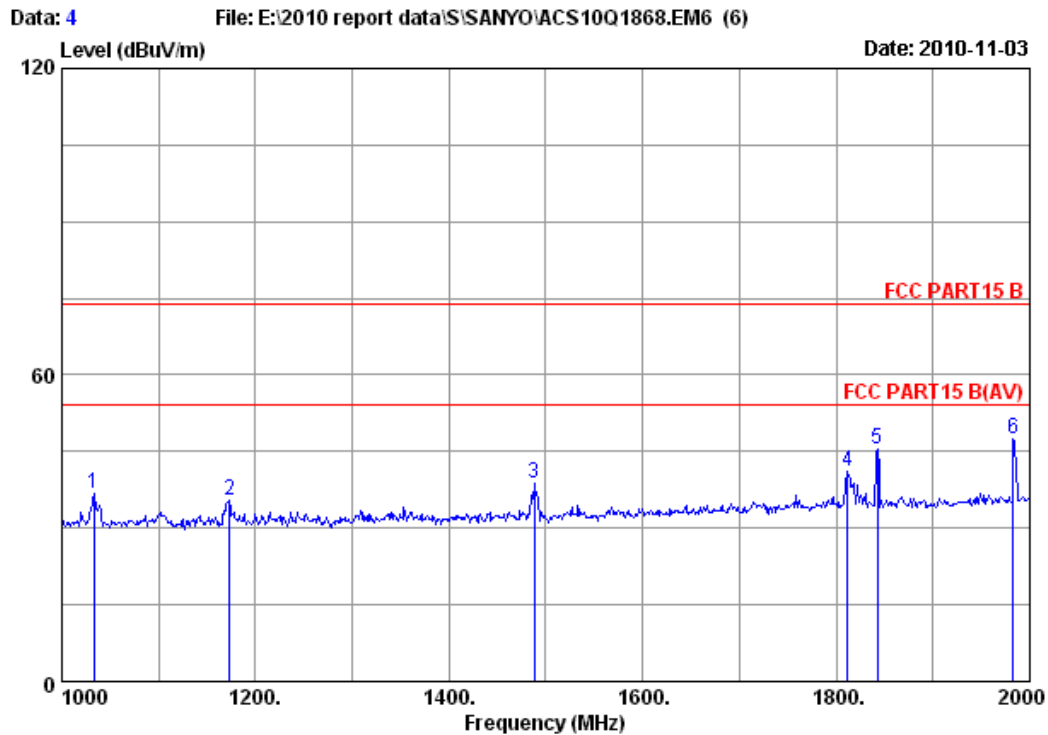


Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART15 B
 Env. / Ins. : 24°C/66% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power : AC 120V/60Hz
 Test mode : S-Video Mode (Play Color Bar)

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	1032.000	25.47	4.82	37.33	43.73	36.69	74.00	37.31	Peak
2	1172.000	25.74	5.08	36.92	43.14	37.04	74.00	36.96	Peak
3	1384.000	26.19	5.50	36.69	41.34	36.34	74.00	37.66	Peak
4	1470.000	26.37	5.65	36.53	41.90	37.39	74.00	36.61	Peak
5	1727.000	27.71	6.14	36.36	48.18	45.67	74.00	28.33	Peak
6	1843.000	28.36	6.37	36.23	44.89	43.39	74.00	30.61	Peak
7	1983.000	29.11	6.63	36.06	47.28	46.96	74.00	27.04	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART15 B
 Env. / Ins. : 24°C/66% Engineer : Leo-Li
 EUT : LCD Projector M/N:PLC-XU4000
 Power : AC 120V/60Hz
 Test mode : S-Video Mode (Play Color Bar)

	Ant.	Cable	Amp.		Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 1033.000	25.47	4.82	37.33	43.85	36.81	74.00	37.19	Peak	
2 1173.000	25.74	5.08	36.92	41.46	35.36	74.00	38.64	Peak	
3 1488.000	26.40	5.69	36.57	43.18	38.70	74.00	35.30	Peak	
4 1812.000	28.17	6.29	36.34	42.84	40.96	74.00	33.04	Peak	
5 1843.000	28.36	6.37	36.23	47.04	45.54	74.00	28.46	Peak	
6 1983.000	29.11	6.63	36.06	47.66	47.34	74.00	26.66	Peak	

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

5. DEVIATION TO TEST SPECIFICATIONS

[NONE]