FCC CLASS B CONFORMITY REPORT

Product Name	**:**	Multimedia Projector
Model Number	**:**	PLC-XU116 LC-XB43N
FCC ID	**:**	WS309KC8AC00
Contains FCC ID(WLAN module)	**:**	NPK19B255
Report Number	**:**	SZEE091120298714-1
Date	**:**	Nov. 28, 2009

Standards	Results
☒ FCC Part 15: 2008	PASS

Prepared for:

Dongguan Huaqiang SANYO Electronics Co., Ltd
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Prepared by:

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Description Page

1. VERIFICATION OF CONFORMITY

Applicant & Address:	Dongguan Huaqiang SANYO Electronics Co., Ltd HongYe Industry Area, Tang Xia Town, Dongguan City, Guangdong Prov., CHINA		
Manufacturer & Address:	SANYO ELECTRIC CO LTD 1-1 SANYO-CHO DAITO-SHI, OSAKA 574-8534 JAPAN		
Type of Test:	FCC Part 15B		
FCC ID:	WS309KC8AC00		
Contains FCC ID(WLAN module):	NPK19B255		
Equipment Under Test:	Multimedia Projector		
Test Model:	PLC-XU116	**Trade Name:**	SANYO
Additional Model:	LC-XB43N	**Trade Name:**	EIKI
Model Deviation:	The two models above are identical except the printings and trade marks for different buyers. The test model is PLC-XU116, and all the test results are applicable to LC-XB43N.		
Serial Number:	N/A		
Date of test:	Nov. 22, 2009 to Nov. 28, 2009		
Condition of Test Sample:	Normal		

The above equipment was tested by Centre Testing International Corporation for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart B and the measurement procedure according to ANSI C63.4.
The test results of this report relate only to the tested sample identified in this report.

Prepared by : Christy Chen

Reviewed by : Louisa Lu

Approved by : Jim Zhang
Manager

Date : Nov. 28, 2009

2. TEST SUMMARY

The EUT has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remark**
FCC Part 15B	Conducted emission at AC power port	PASS	See clause 7 in this report
	Radiated emission	PASS	See clause 8 in this report

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement items	Value
Conducted emission	3.2 dB
Radiated emission	4.6 dB

4. PRODUCT INFORMATION

I/O Port of EUT

I/O Port Type	Quantity
USB	2
CONTROL PORT	1
COMPUTER IN1 / COMPONENT IN	1
COMPUTER IN2	1
VIDEO IN	1
AUDIO IN	3
AUDIO OUT (VARIABLE)	1
S-VIDEO	1
LAN	1

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

Centre Testing International Corporation

Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong, China

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.
The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Table 1: List of Test and Measurement Equipment

Equipment	Manufacturer	Model Number	Serial Number	Last Calibration Date	Next Calibration Date
Shielding Room No. 1 —AC Power Line Conducted Emissions Measurement					
Receiver	R&S	ESCI	100435	01/29/2009	01/28/2010
LISN	R&S	ENV216	100098	06/13/2009	06/12/2010
3M Semi-anechoic Chamber — Radio Test Site					
Spectrum Analyzer	Agilent	E4443A	MY45300910	09/07/2009	09/06/2010
Biconilog Antenna	A.H.System	SAS-521-2	487	06/05/2009	06/04/2010
Horn Antenna	ETS-LINDGREN	3117	00057407	07/30/2009	07/29/2010
3M Chamber & Accessories	ETS-LINDG REN	FACT-3	N/A	05/11/2009	05/10/2010

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by China National Accreditation Board for Laboratories (CNAS). Electromagnetic Interference tests according to ANSI C63.4 and CISPR 16 requirements.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

1. See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.
2. Make sure EUT work normally during the whole test.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	PC	IBM	8143	BD-241	--	Un-shielded 1.2M
2.	PC	lenovo	1818	76481-640-1479 176-23381	--	Un-shielded 1.2M
3.	Monitor	IBM	9205-AB6	VK-KZ133	Un-shielded 1M	Un-shielded 1 M
4.	Mouse	IBM	M028UOL	23-468157	Un-shielded 1.2M	--
5.	Mouse	lenovo	SN-232	--	Un-Shielded 1M	--

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

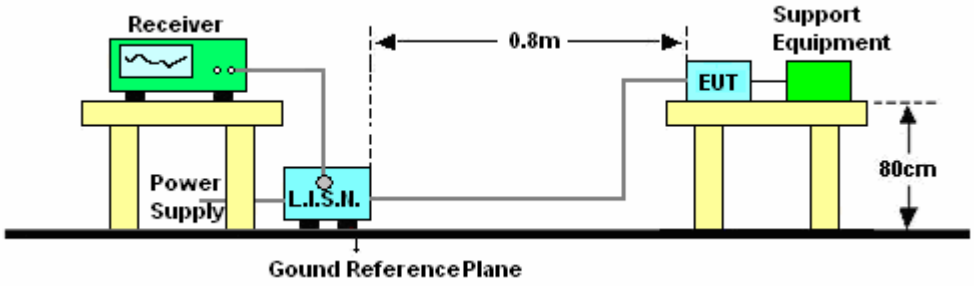
7. AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT

7.1 LIMITS

Frequency (MHz)	Conducted Limit (dBuV) – Class B Digital Device	
	Q.P. (dBuV)	Average (dBuV)
0.150 – 0.5	66-56	56-46
0.5 – 5	56	46
5 - 30	60	50

Note: the tighter limit applies at the band edges.

7.2 BLOCK DIAGRAM OF TEST SETUP



7.3 TEST PROCEDURE

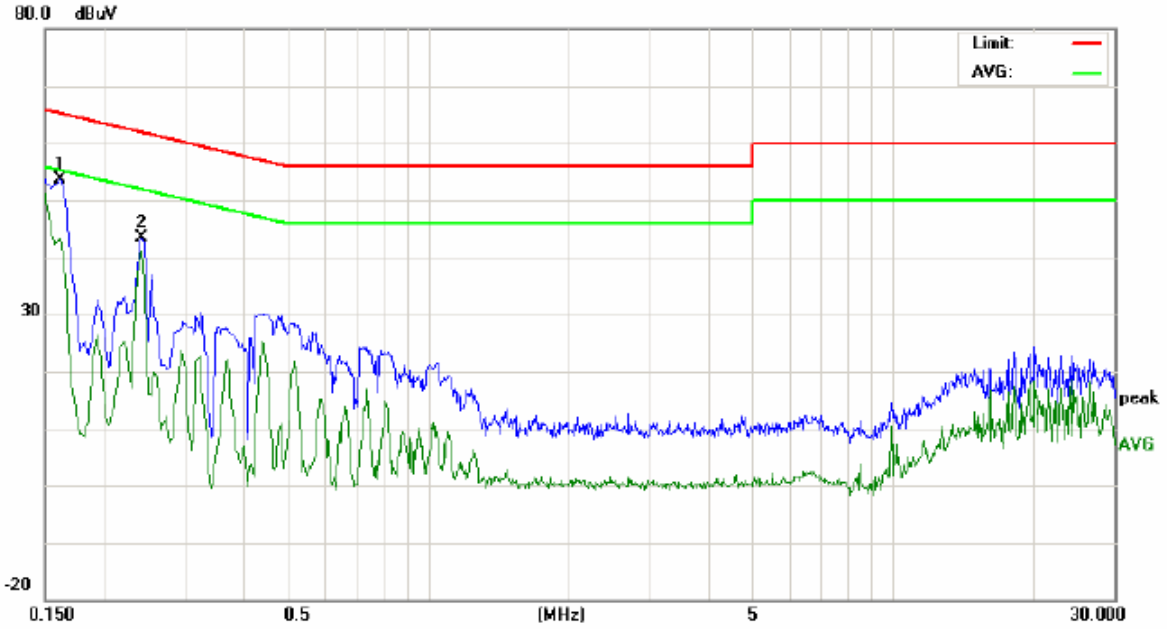
a. The EUT was placed on a non-conductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from EUT in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

7.4 TEST RESULT

Figure 1: Test figure of conducted emission, VGA input + LAN(ping) mode



Site site #1 Phase: L1 Temperature: 24

Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 53 %

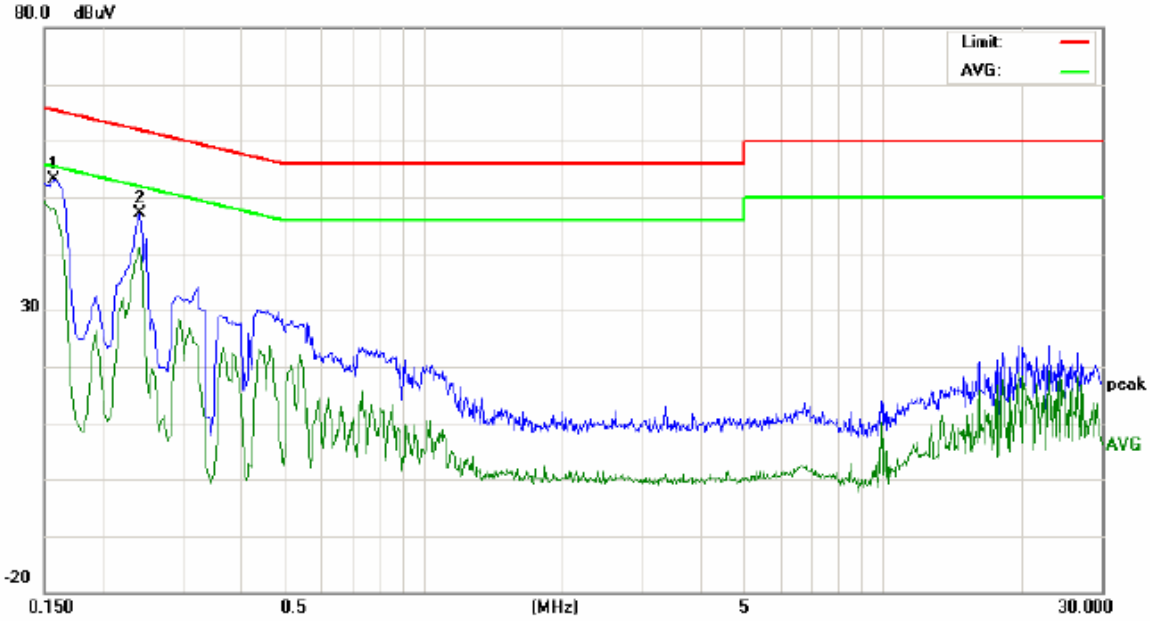
EUT: Multimedia Projector

M/N: PLC-XU116

Mode: VGA input + LAN(ping)

Note:

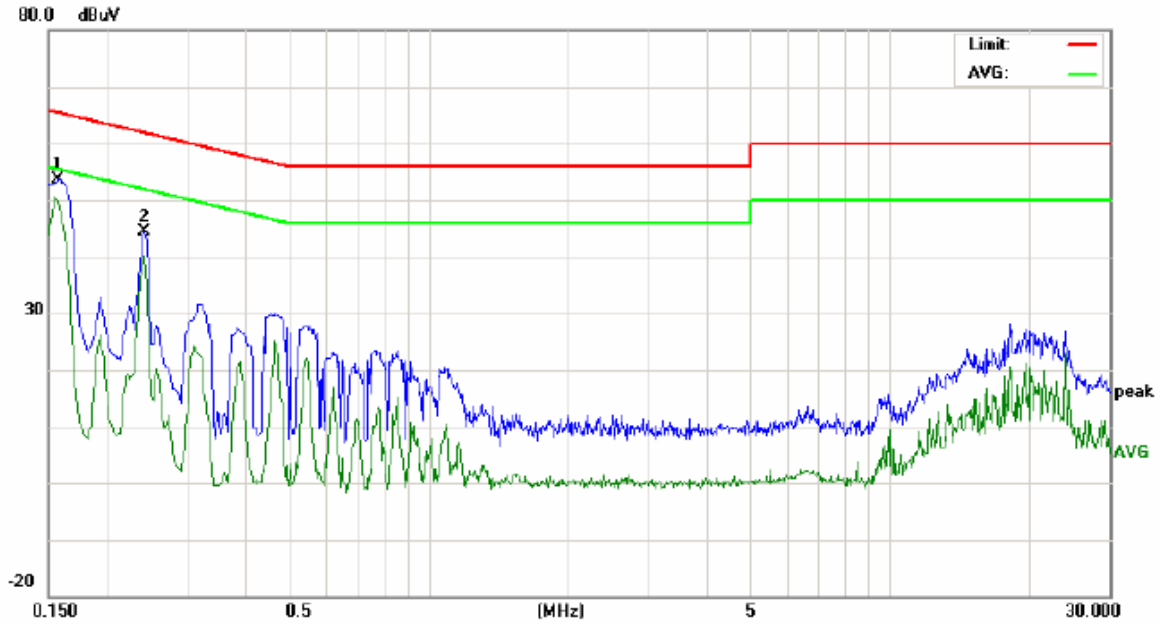
No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1620	43.72		33.45	9.96	53.68		43.41	65.36	55.36	-11.68	-11.95	P	
2	0.2420	33.47		31.15	9.94	43.41		41.09	62.03	52.03	-18.62	-10.94	P	



Site site #1 Phase: N Temperature: 24
Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 53 %
EUT: Multimedia Projector
M/N: PLC-XU116
Mode: VGA input + LAN(ping)
Note:

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1580	43.26		38.19	9.97	53.23		48.16	65.57	55.57	-12.34	-7.41	P	
2	0.2420	37.10		31.17	9.94	47.04		41.11	62.03	52.03	-14.99	-10.92	P	

Figure 2: Test figure of conducted emission, DVI input + LAN(ping) mode



Site site #1 Phase: *L1* Temperature: 24

Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 53 %

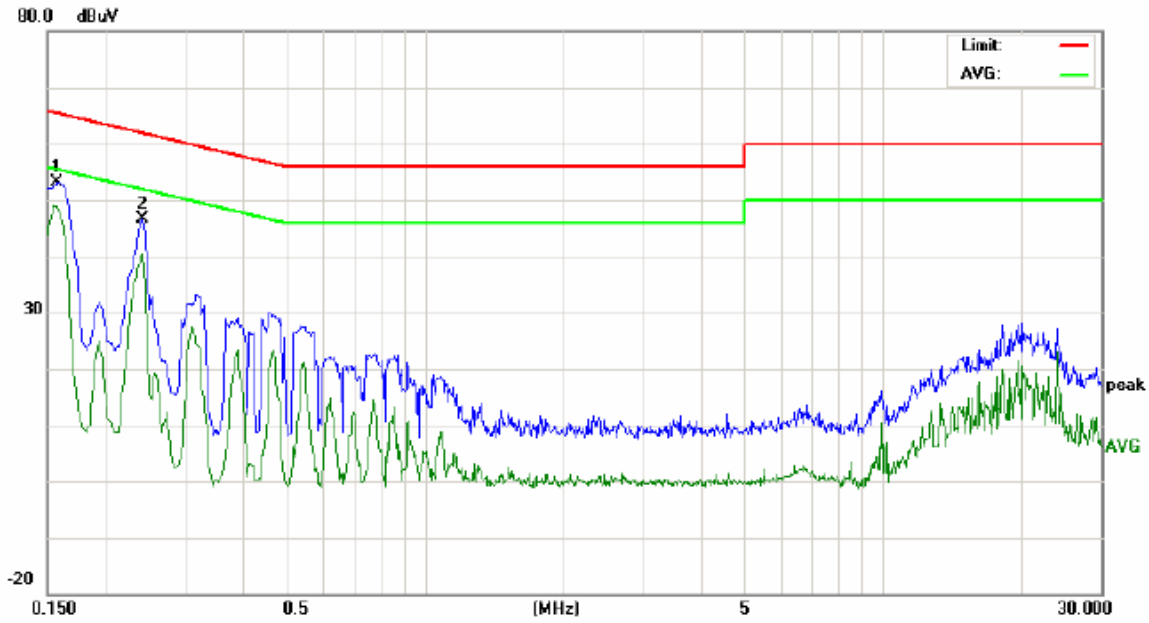
EUT: Multimedia Projector

M/N: PLC-XU116

Mode: DVI input + LAN(ping)

Note:

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1580	43.63		39.88	9.97	53.60		49.85	65.57	55.57	-11.97	-5.72	P	
2	0.2420	34.54		30.22	9.94	44.48		40.16	62.03	52.03	-17.55	-11.87	P	



Site site #1 Phase: N Temperature: 24

Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 53 %

EUT: Multimedia Projector

M/N: PLC-XU116

Mode: DVI input + LAN(ping)

Note:

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	0.1580	43.07		38.88	9.97	53.04		48.85	65.57	55.57	-12.53	-6.72	P	
2	0.2420	36.66		30.35	9.94	46.60		40.29	62.03	52.03	-15.43	-11.74	P	

8. RADIATED EMISSION TEST

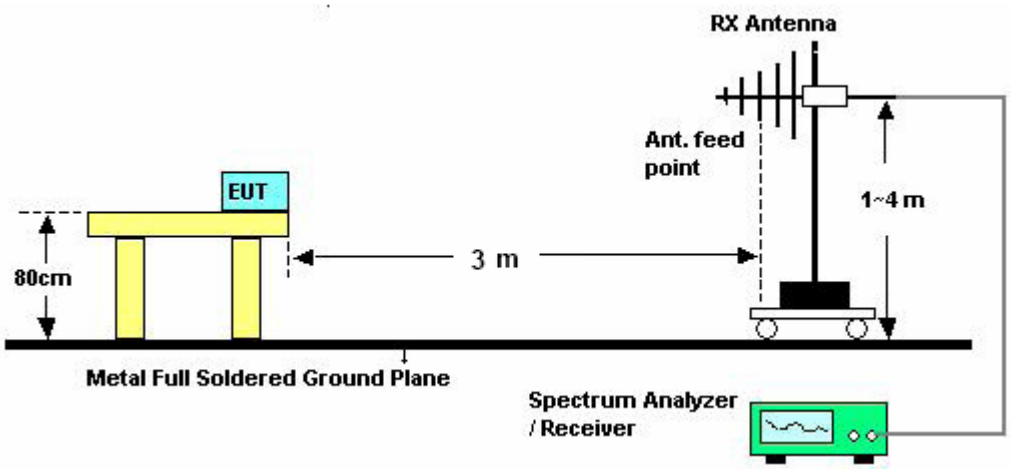
8.1 LIMITS

Frequency (MHz)	Field strength (μV/m)	Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

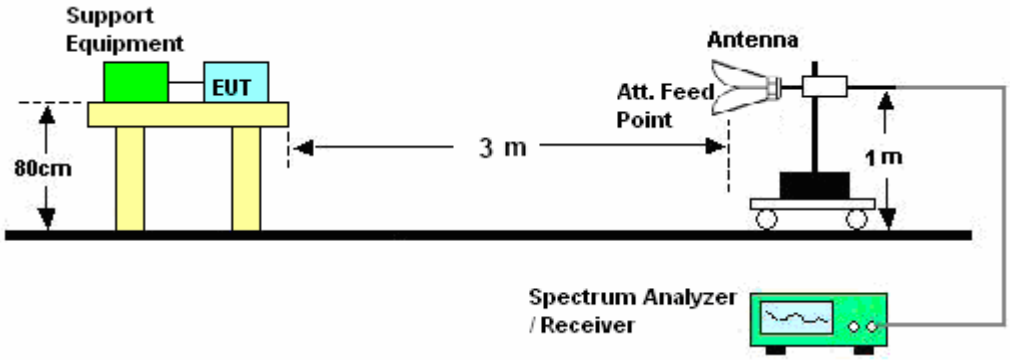
Note: the tighter limit applies at the band edges.

8.2 BLOCK DIAGRAM OF TEST SETUP

For radiated emissions from 30 - 1000MHz



For radiated emissions above 1GHz



8.3 PROCEDURE

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

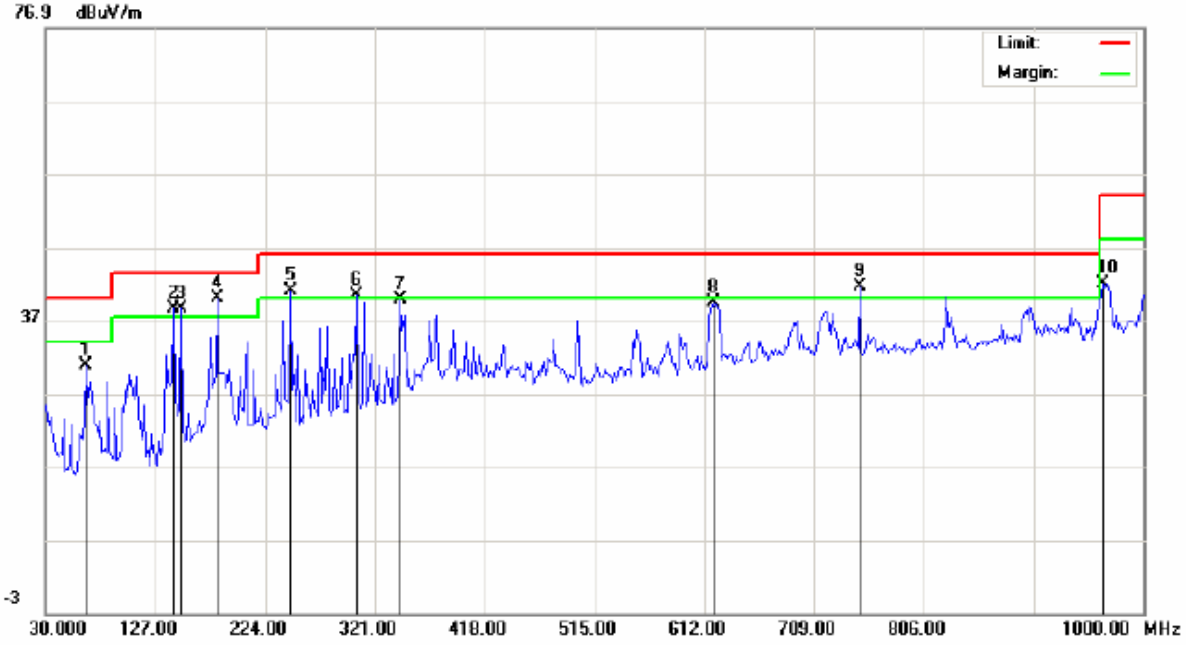
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz BW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

8.4 TEST RESULT OF RADIATED EMISSION TEST

Pass

Figure 3: Test figure of radiated emission, VGA input + LAN(ping) mode, below 1GHz

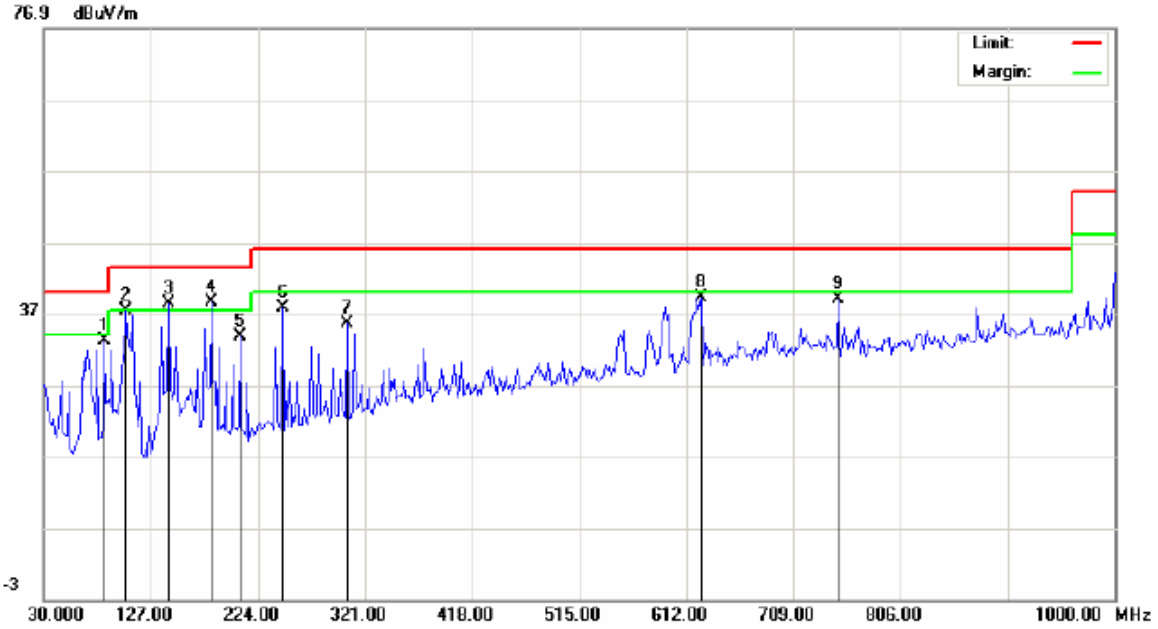


Site site #1
Limit: FCC Class B 3M Radiation
EUT: Multimedia Projector
M/N: PLC-XU116
Mode: VGA input + LAN(ping)
Note:

Polarization: *Horizontal*
Power: AC 120V/60Hz

Temperature: 23
Humidity: 60 %

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	65.5667	22.70			8.15	30.85			40.00		-9.15		P	
2	143.1667	28.64	27.02		9.96	38.60	36.98		43.50		-6.52		P	
3	149.6333	28.16	27.02		10.50	38.66	37.52		43.50		-5.98		P	
4	181.9667	28.26	26.56		11.79	40.05	38.35		43.50		-5.15		P	
5	246.6333	26.99	25.12		14.02	41.01	39.14		46.00		-6.86		P	
6	304.8333	24.42	23.12		16.03	40.45	39.15		46.00		-6.85		P	
7	343.6333	22.40			17.41	39.81			46.00		-6.19		P	
8	620.0833	16.37			23.05	39.42			46.00		-6.58		P	
9	749.4167	16.89	15.00		24.67	41.56	39.67		46.00		-6.33		P	
10	964.4333	14.89			27.09	41.98			54.00		-12.02		P	



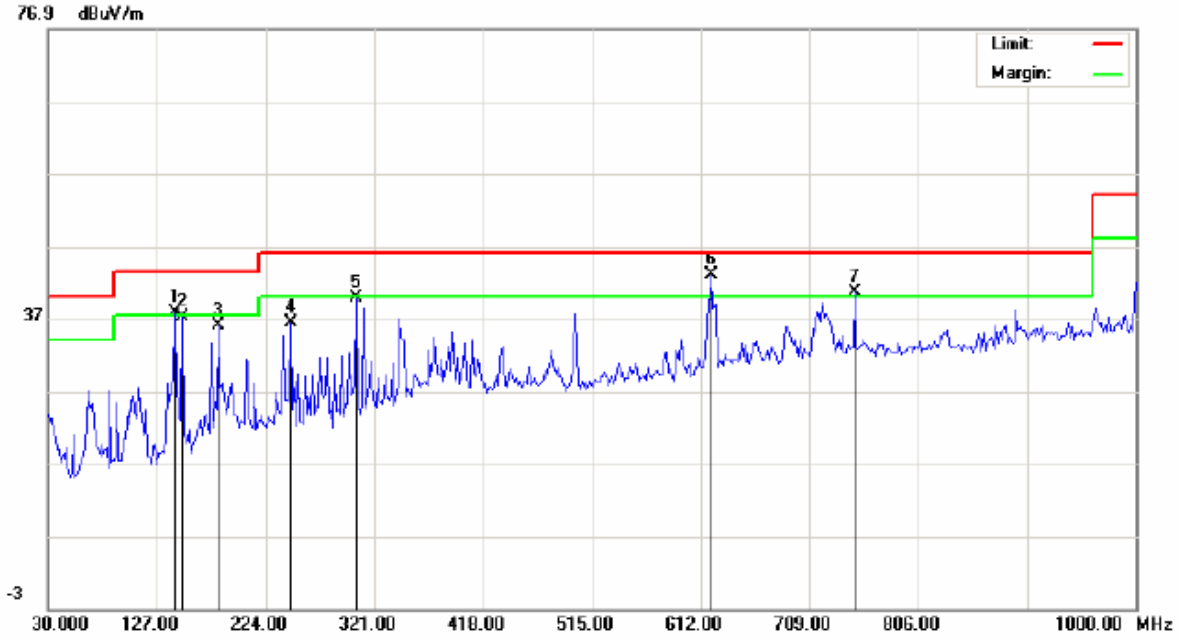
Site site #1
Limit: FCC Class B 3M Radiation
EUT: Multimedia Projector
M/N: PLC-XU116
Mode: VGA input + LAN(ping)
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 23
Humidity: 60 %

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	84.9666	23.70			9.46	33.16			40.00		-6.84		P	
2	104.3667	27.28			10.13	37.41			43.50		-6.09		P	
3	143.1667	28.40	26.32		9.96	38.36	36.28		43.50		-7.22		P	
4	181.9667	26.79	24.63		11.79	38.58	36.42		43.50		-7.08		P	
5	207.8333	21.56			12.28	33.84			43.50		-9.66		P	
6	246.6333	23.77			14.02	37.79			46.00		-8.21		P	
7	304.8333	19.52			16.03	35.55			46.00		-10.45		P	
8	624.9333	16.02			23.26	39.28			46.00		-6.72		P	
9	749.4167	14.41			24.67	39.08			46.00		-6.92		P	

Figure 4: Test figure of radiated emission, DVI input + LAN(ping) mode, below 1GHz



Site site #1 Polarization: *Horizontal* Temperature: 23

Limit: FCC Class B 3M Radiation Power: AC 120V/60Hz Humidity: 60 %

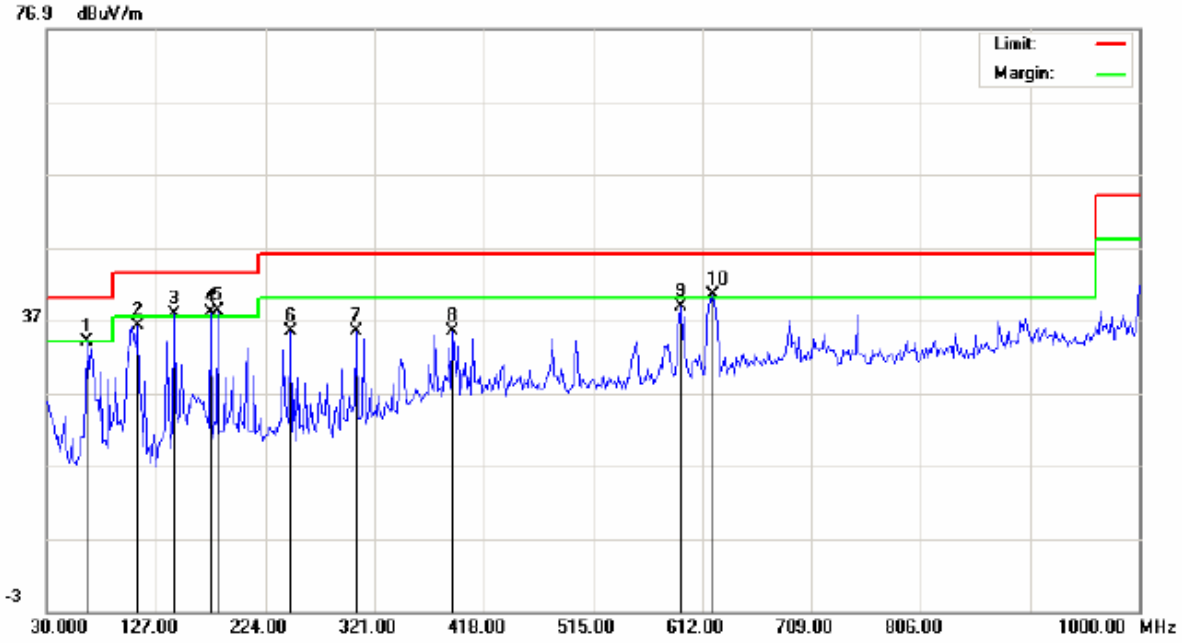
EUT: Multimedia Projector

M/N: PLC-XU116

Mode: DVI input + LAN(ping)

Note:

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	143.1667	27.75	25.63		9.96	37.71	35.59		43.50		-7.91		P	
2	149.6333	26.76			10.50	37.26			43.50		-6.24		P	
3	181.9667	24.16			11.79	35.95			43.50		-7.55		P	
4	246.6333	22.31			14.02	36.33			46.00		-9.67		P	
5	304.8333	23.77			16.03	39.80			46.00		-6.20		P	
6	621.7000	19.79	18.12		23.12	42.91	41.24		46.00		-4.76		P	
7	749.4167	15.97			24.67	40.64			46.00		-5.36		P	



Site site #1
Limit: FCC Class B 3M Radiation
EUT: Multimedia Projector
M/N: PLC-XU116
Mode: DVI input + LAN(ping)
Note:

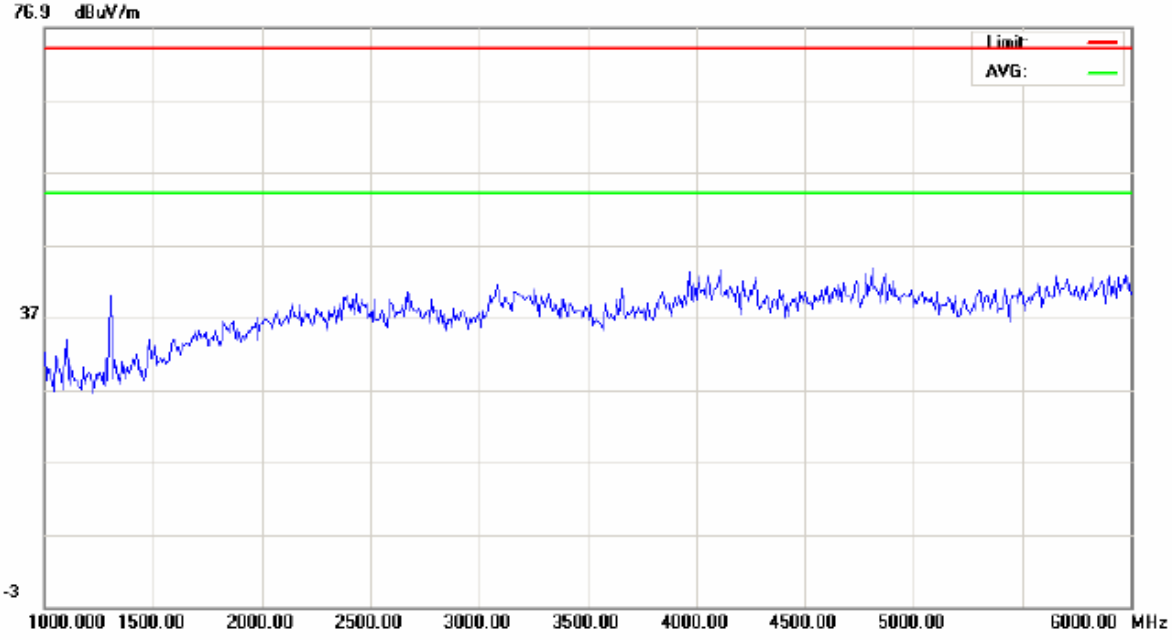
Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 23
Humidity: 60 %

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment
1	65.5667	25.82			8.15	33.97			40.00		-6.03		P	
2	110.8333	26.57			9.71	36.28			43.50		-7.22		P	
3	143.1667	27.81	26.01		9.96	37.77	35.97		43.50		-7.53		P	
4	175.5000	26.48	24.23		11.52	38.00	35.75		43.50		-7.75		P	
5	181.9667	26.35	25.01		11.79	38.14	36.80		43.50		-6.70		P	
6	246.6333	21.40			14.02	35.42			46.00		-10.58		P	
7	304.8333	19.31			16.03	35.34			46.00		-10.66		P	
8	390.5167	17.21			18.26	35.47			46.00		-10.53		P	
9	592.6000	16.74			21.97	38.71			46.00		-7.29		P	
10	621.7000	17.23	16.22		23.12	40.35	39.34		46.00		-6.66		P	

According to test data, all radiated emission at VGA input + LAN(ping) and DVI input + LAN(ping) mode are almost the same above 1GHz, and the test data of VGA input + LAN(ping) mode was worst, so it was chosen as representative for the test.

Figure 5: Test figure of Radiated emission, VGA input + LAN(ping) mode, above 1GHz

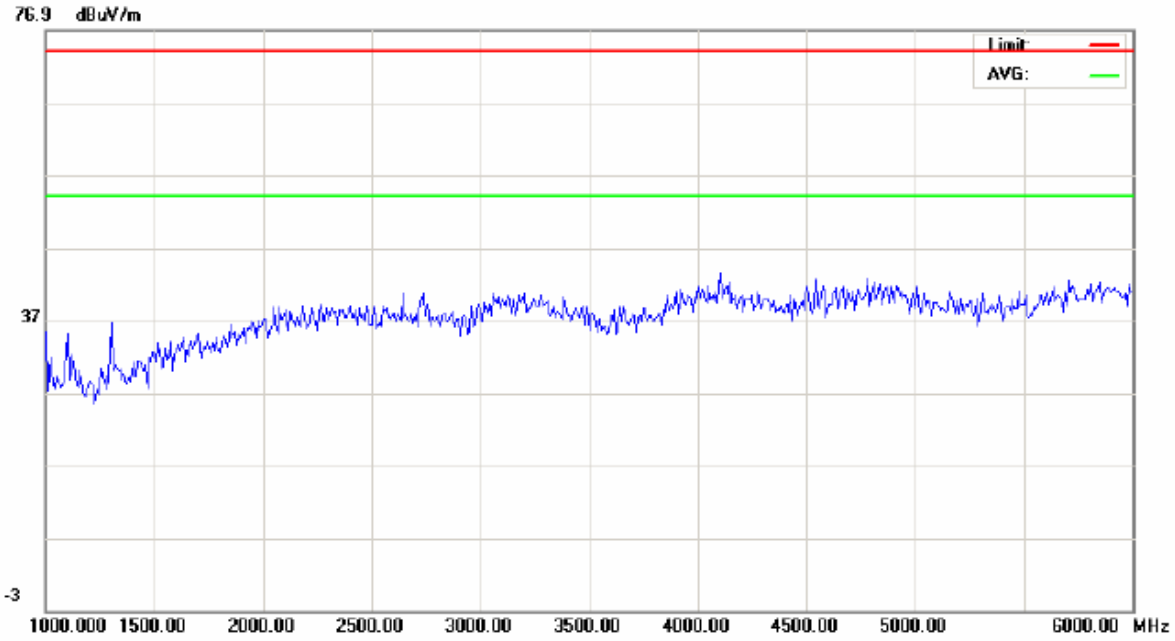


Site site #1	Polarization: *Horizontal*	Temperature: 26
Limit: FCC Class B 3M Radiation	Power: AC 120V/60Hz	Humidity: 60 %
EUT: Multimedia Projector		
M/N: PLC-XU116		
Mode: VGA input + LAN(ping)		
Note:		

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment

Remark:

There are no signals found above 6GHz, so the graphs and data above 6GHz are not recorded.



Site site #1
Limit: FCC Class B 3M Radiation
EUT: Multimedia Projector
M/N: PLC-XU116
Mode: VGA input + LAN(ping)
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Freq.	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)			
	MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment

Remark:

There are no signals found above 6GHz, so the graphs and data above 6GHz are not recorded.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

TEST SETUP OF CONDUCTED EMISSION

TEST SETUP OF RADIATED EMISSION (30MHz-1GHz)

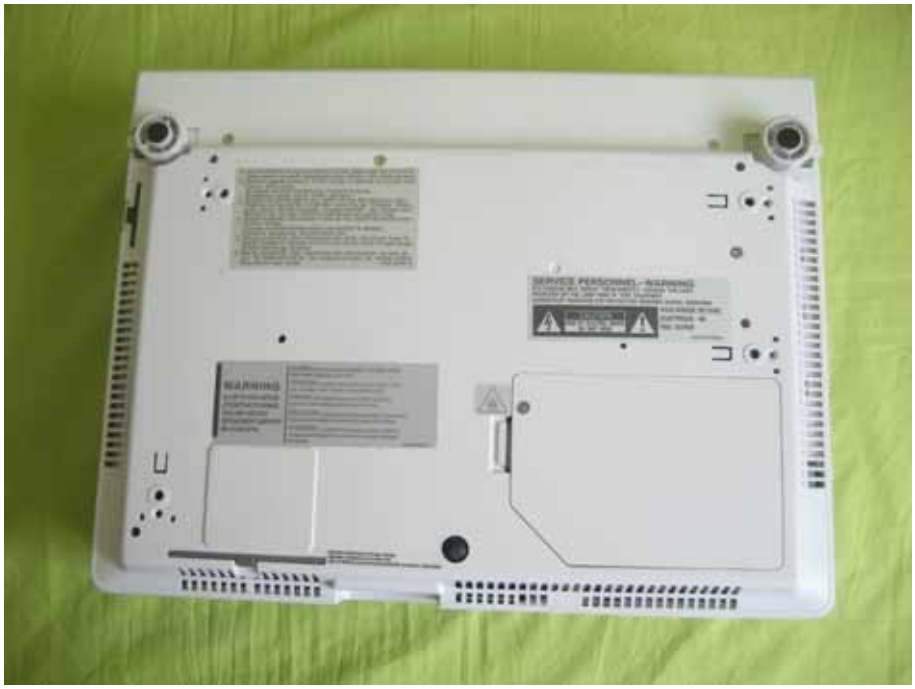
TEST SETUP OF RADIATED EMISSION (above 1GHz)

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT

View of EUT-1

View of EUT-2

View of EUT-3



View of EUT-4

View of EUT-5

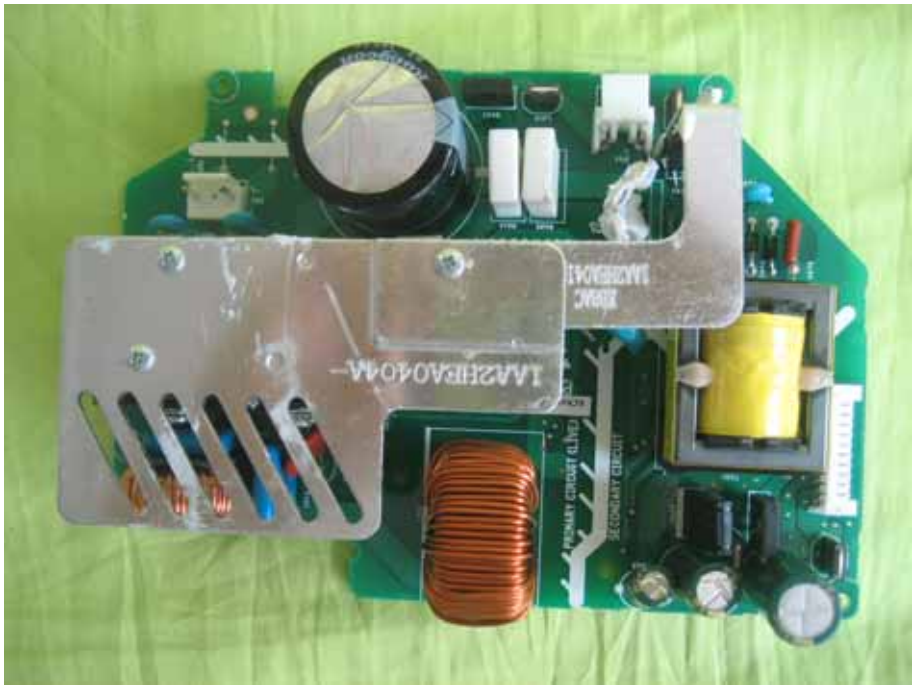
View of EUT-6

APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT

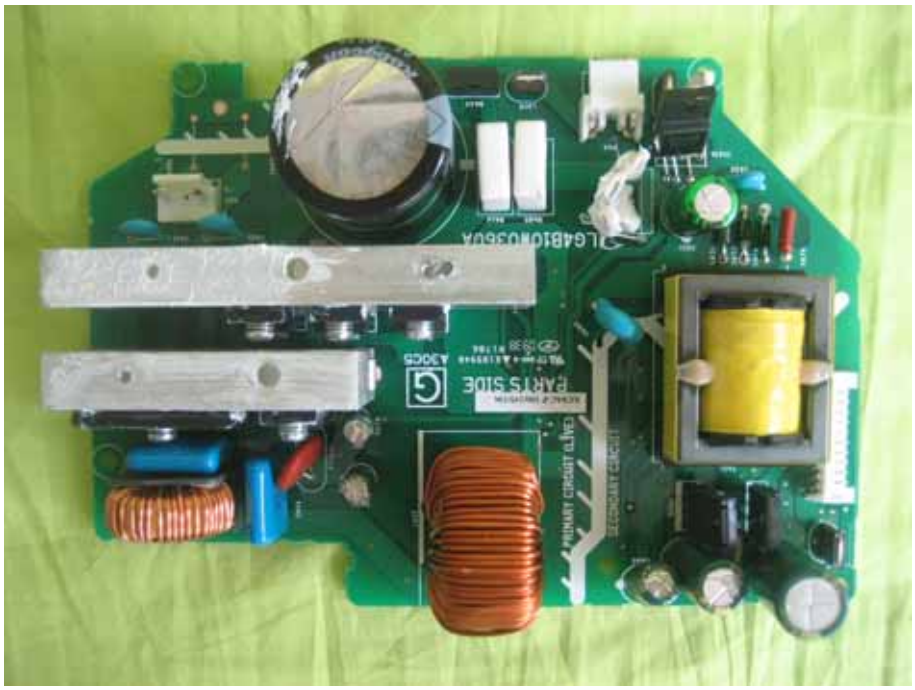
Internal View of EUT-1

Internal View of EUT-2

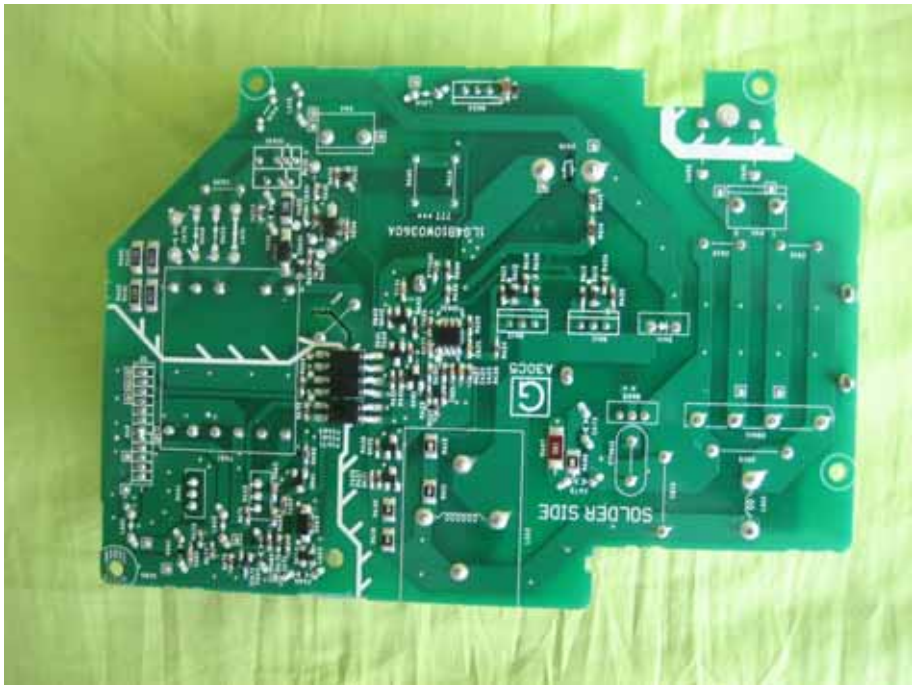
Internal View of EUT-3



Internal View of EUT-4



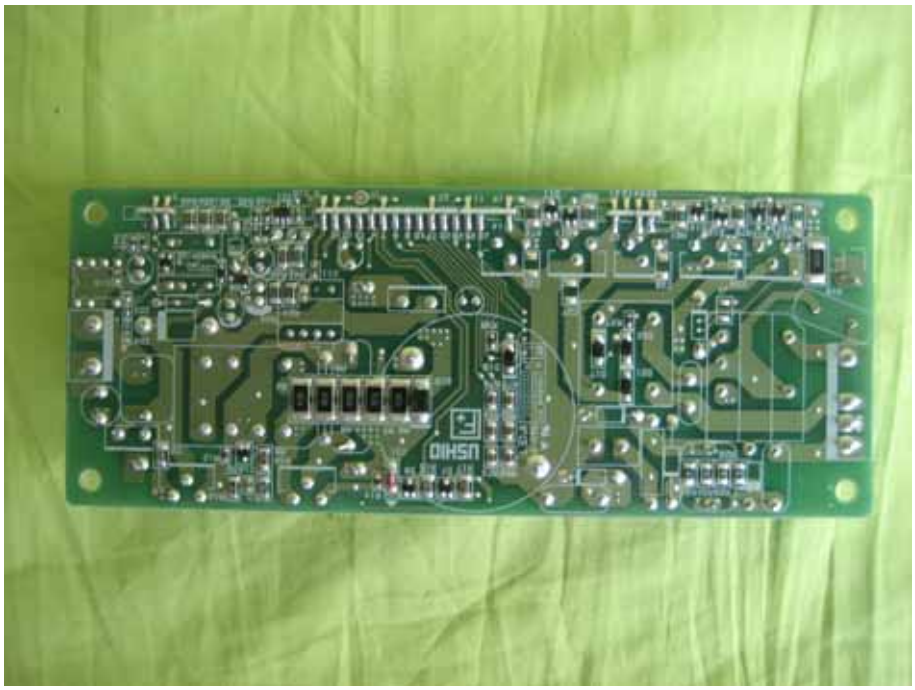
Internal View of EUT-5



Internal View of EUT-6

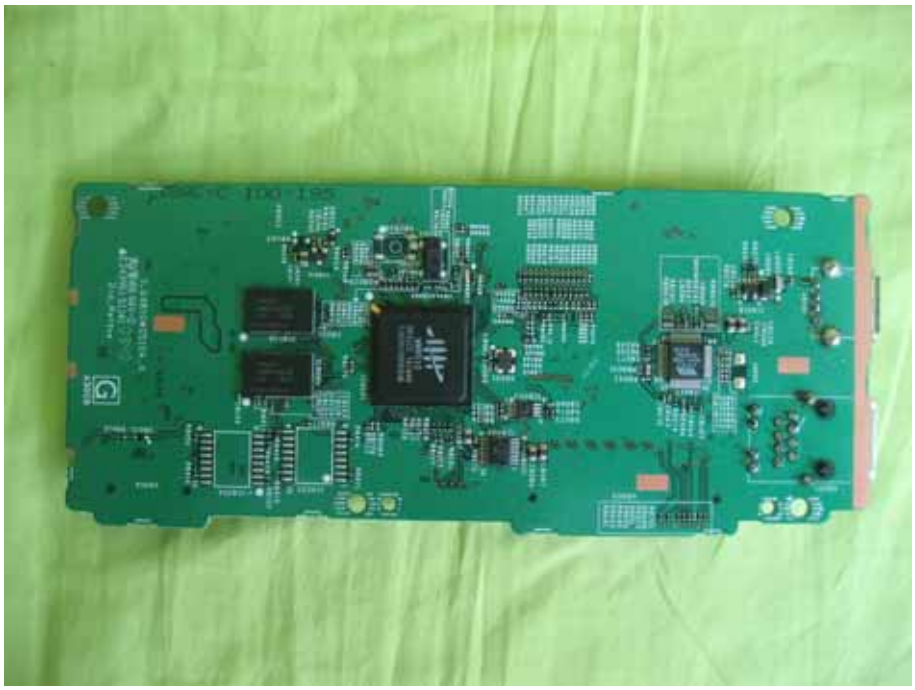
Internal View of EUT-7

Internal View of EUT-8



Internal View of EUT-9

Internal View of EUT-9



Internal View of EUT-10

------- End of report -------