

FCC TEST REPORT

Product Name : Multimedia Projector
Trade Name : SANYO
Model Name : PLC-WU3800A;LP-WU3800
FCC ID : WS311KY7AF00
Serial Number : N/A
Technical Data : AC 100-240V 50/60Hz
Report Number : EESZD05170007-2
Date : May 25, 2011
Regulations : See below

Test Standards	Results
<input checked="" type="checkbox"/> FCC Part 15 Subpart B: 2009	PASS

Prepared for:

SANYO Electronics(Dongguan)Co.,Ltd.
HongYe Industry Area, TangXia Town, Dongguan,
Guangdong 523000, CHINA

Prepared by:

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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant: SANYO Electronics(Dongguan)Co.,Ltd.
HongYe Industry Area, TangXia Town, Dongguan,
Guangdong 523000, CHINA

Manufacturer: SANYO ELECTRIC CO., LTD.
1-1 SANYO-CHO DAITO-SHI, OSAKA 574-8534 JAPAN

Type of Test: FCC Part 15B (Certification)

Product Name: Multimedia Projector

Trade Name: SANYO

Model Name: PLC-WU3800A;LP-WU3800

Serial Number: Not Applicable

FCC ID WS311KY7AF00

Report Number: EESZD05170007-2

Date of Test: May 17, 2011 to May 24, 2011

The results of this test report are only valid for the mentioned equipment under test. The test report with all its sub-reports, e.g. tables, photographs and drawings, is copyrighted. Unauthorized utilization, especially without permission of the test laboratory, is not allowed and punishable. For copying parts of the test report, a written permission by the test laboratory is needed.

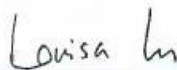
The test results of this report relate only to the tested sample identified in this report.

Prepared by :



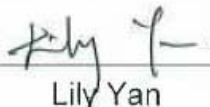
Saky Yan

Reviewed by :



Louisa Lu

Approved by :



Lily Yan
Supervisor

Date

May 25, 2011



2. TEST SUMMARY

The EUT has been tested according to the following specifications:

Standard	Test Item	Test
FCC 15.107	Conducted Emission	Yes
FCC 15.109	Radiated Emission	Yes

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 $k=2$.

Test item	Value (dB)
Conducted Emission	2.7
Radiated Emission	4.4

4. PRODUCT INFORMATION AND TEST SETUP

4.1. PRODUCT INFORMATION

Technical Data: AC 100-240V 50/60Hz

Model difference: The models of multimedia projector are PLC-WU3800A and LP-3800, the electrical circuit design, layout, components used and internal wiring for above models are identical. Only there are different in model number.
Label: PLC-WU3800A-----SANYO (North America, HK, EUR, BRAZIL, Asia)
LP-WU3800-----SANYO (Japan)
The test model is PLC-WU3800A, and all the test results are applicable to the others.

4.2. TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

4.3. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	PC	IBM	8143	BD-241	N/A	Un-shielded1.2M
2.	Mouse	IBM	M028UOL	23-468157	Un-shielded1.2M	N/A
3.	Keyboard	IBM	89P8300	02284699	Un-shielded1.2M	N/A

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.

5. FACILITIES AND ACCREDITATIONS

5.1. TEST FACILITY

All test facilities used to collect the test data are located at Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

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.

Equipment used during the tests:

Shielding Room No. 1 - Conducted disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100009	07/10/2011
LISN	R&S	ENV216	100098	07/10/2011

3M Semi-anechoic Chamber - Radiated disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/09/2012
Spectrum Analyzer	Agilent	E4440A	MY46185649	03/29/2012
Biconilog Antenna	ETS-LINGREN	3142C	00044562	07/31/2011
Multi device Controller	ETS-LINGREN	2090	00057230	N/A
Horn Antenna	ETS-LINGREN	3117	00057407	06/07/2011
Microwave Preamplifier	Agilent	8449B	3008A02425	N/A

5.3. LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. CONDUCTED EMISSION TEST

6.1. LIMITS

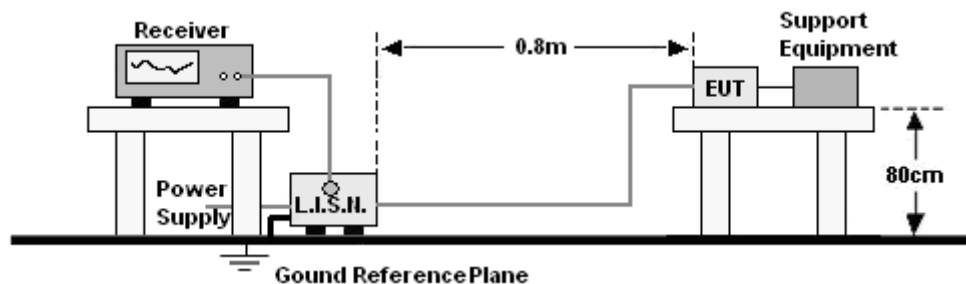
Limits for Class B digital devices

Frequency range (MHz)	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

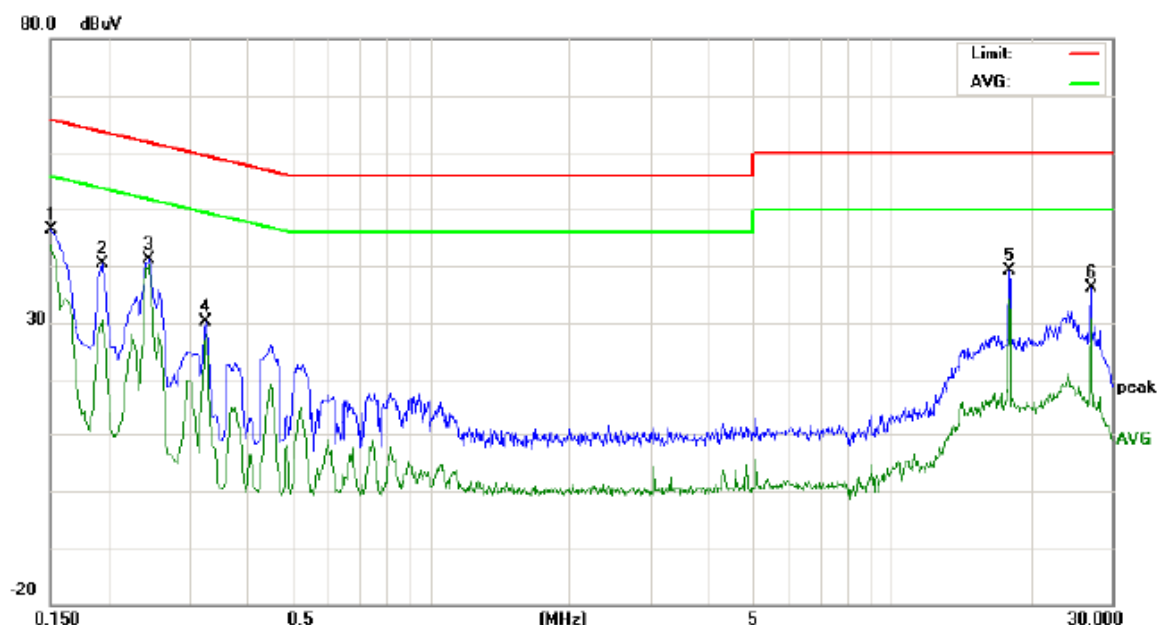
6.2. BLOCK DIAGRAM OF TEST SETUP



6.3. PROCEDURE OF CONDUCTED EMISSION TEST

- The EUT was placed on a nonconductive table 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).
- 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.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4. GRAPHS AND DATA



Site site #1

Limit: FCC Class B Conduction (QP)

EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

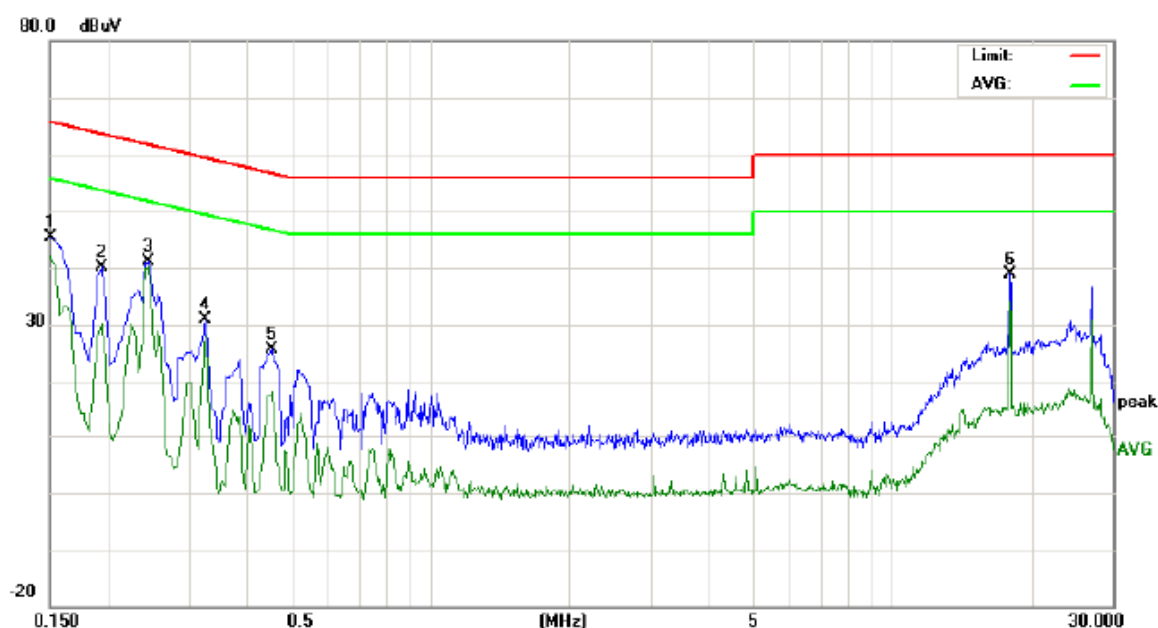
Phase: **L1**

Power: AC 120V/60Hz

Temperature: 25

Humidity: 54 %

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1500	36.49		33.84	9.79	46.28		43.63	65.99	55.99	-19.71	-12.36	P	
2	0.1940	30.65		20.55	9.81	40.46		30.36	63.86	53.86	-23.40	-23.50	P	
3	0.2460	31.21		30.28	9.81	41.02		40.09	61.89	51.89	-20.87	-11.80	P	
4	0.3260	20.42		18.15	9.81	30.23		27.96	59.55	49.55	-29.32	-21.59	P	
5	17.9860	29.01		23.95	10.10	39.11		34.05	60.00	50.00	-20.89	-15.95	P	
6	27.0100	25.87		20.30	10.35	36.22		30.65	60.00	50.00	-23.78	-19.35	P	



Site site #1

Phase: **N**

Temperature: 25

Limit: FCC Class B Conduction (QP)

Power: AC 120V/60Hz

Humidity: 54 %

EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1500	35.62		32.45	9.79	45.41		42.24	65.99	55.99	-20.58	-13.75	P	
2	0.1940	30.21		20.36	9.81	40.02		30.17	63.86	53.86	-23.84	-23.69	P	
3	0.2460	31.22		30.40	9.81	41.03		40.21	61.89	51.89	-20.86	-11.68	P	
4	0.3260	21.02		18.38	9.81	30.83		28.19	59.55	49.55	-28.72	-21.36	P	
5	0.4540	15.73		8.31	9.81	25.54		18.12	56.80	46.80	-31.26	-28.68	P	
6	17.9860	28.72		23.95	10.10	38.82		34.05	60.00	50.00	-21.18	-15.95	P	

7. RADIATED EMISSION TEST

7.1. LIMITS

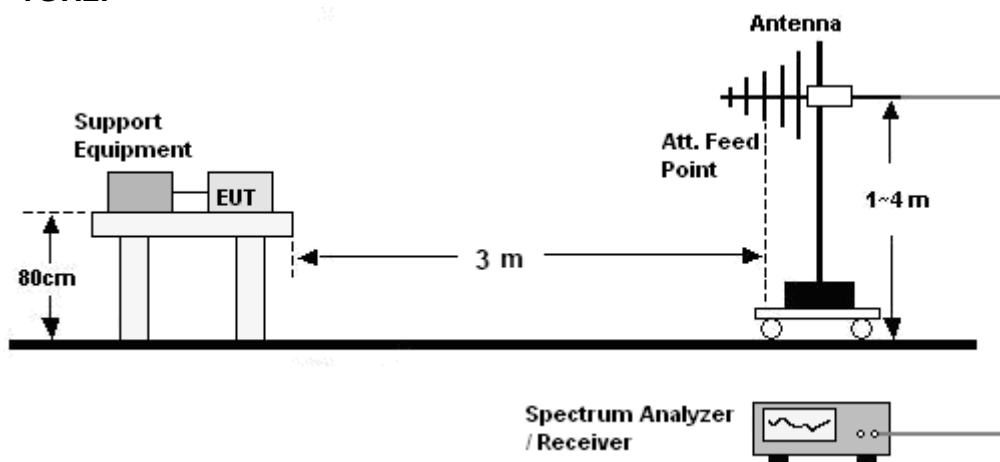
Limits for Class B digital devices

Frequency (MHz)	limits at 3m dB(μ V/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

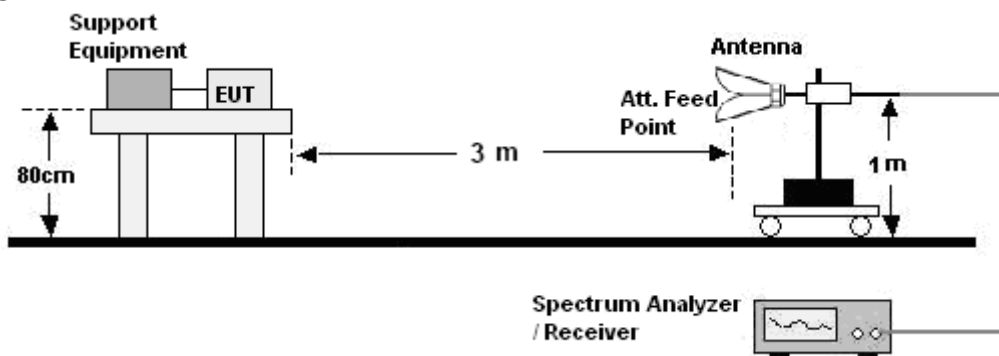
- NOTE:**
1. The lower limit shall apply at the transition frequency.
 2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
 3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

7.2. BLOCK DIAGRAM OF TEST SETUP

30MHz ~ 1GHz:



Above 1GHz:



7.3. PROCEDURE OF RADIATED EMISSION TEST

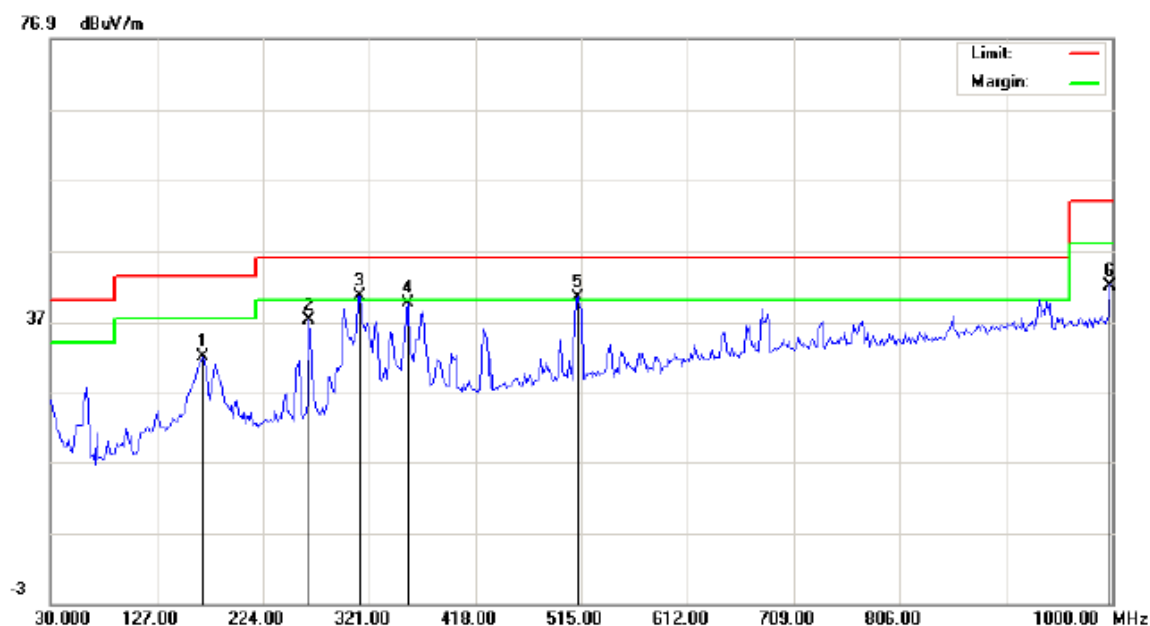
30MHz ~ 1GHz:

- a. The EUT was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

- a. The EUT was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

7.4. GRAPHS AND DATA



Site site #1

Limit: FCC Class B 3M Radiation

EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

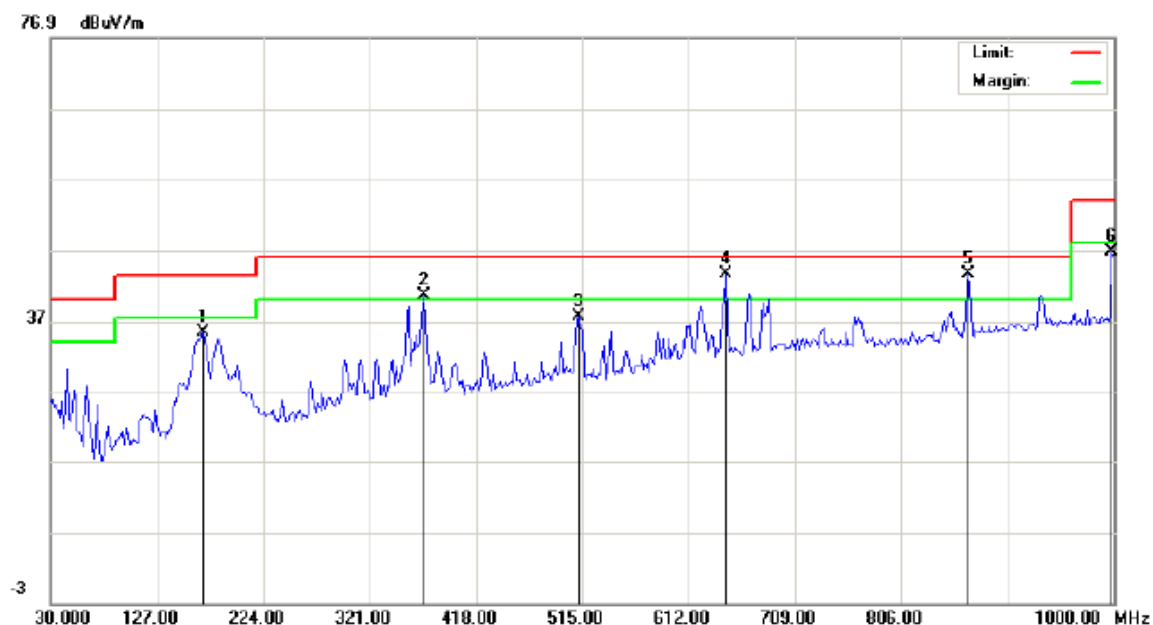
Polarization: **Horizontal**

Power: AC 120V/60Hz

Temperature: 25

Humidity: 53 %

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	169.0333	20.64			11.27	31.91			43.50		-11.59		P	
2	266.0333	22.75			14.47	37.22			46.00		-8.78		P	
3	312.9167	24.45			16.16	40.61			46.00		-5.39		P	
4	356.5667	22.25			17.28	39.53			46.00		-6.47		P	
5	511.7667	20.30			20.20	40.50			46.00		-5.50		P	
6	998.3833	14.32			27.78	42.10			54.00		-11.90		P	



Site site #1

Polarization: **Vertical**

Temperature: 25

Limit: FCC Class B 3M Radiation

Power: AC 120V/60Hz

Humidity: 53 %

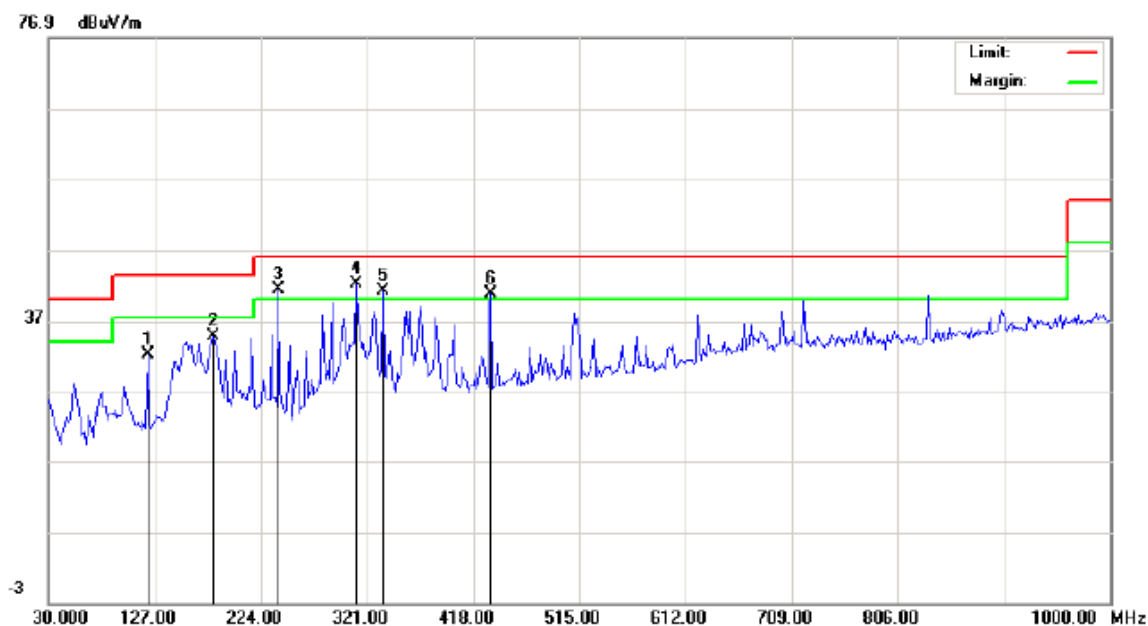
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	169.0333	24.06			11.27	35.33			43.50		-8.17		P	
2	371.1167	22.92			17.65	40.57			46.00		-5.43		P	
3	511.7667	17.41			20.20	37.61			46.00		-8.39		P	
4	645.9500	20.27	13.28		23.36	43.63	36.64		46.00		-9.36		P	
5	867.4333	17.51	12.15		26.15	43.66	38.30		46.00		-7.70		P	
6	998.3833	19.07			27.78	46.85			54.00		-7.15		P	



Site site #1

Polarization: **Horizontal**

Temperature: 25

Limit: FCC Class B 3M Radiation

Power: AC 120V/60Hz

Humidity: 53 %

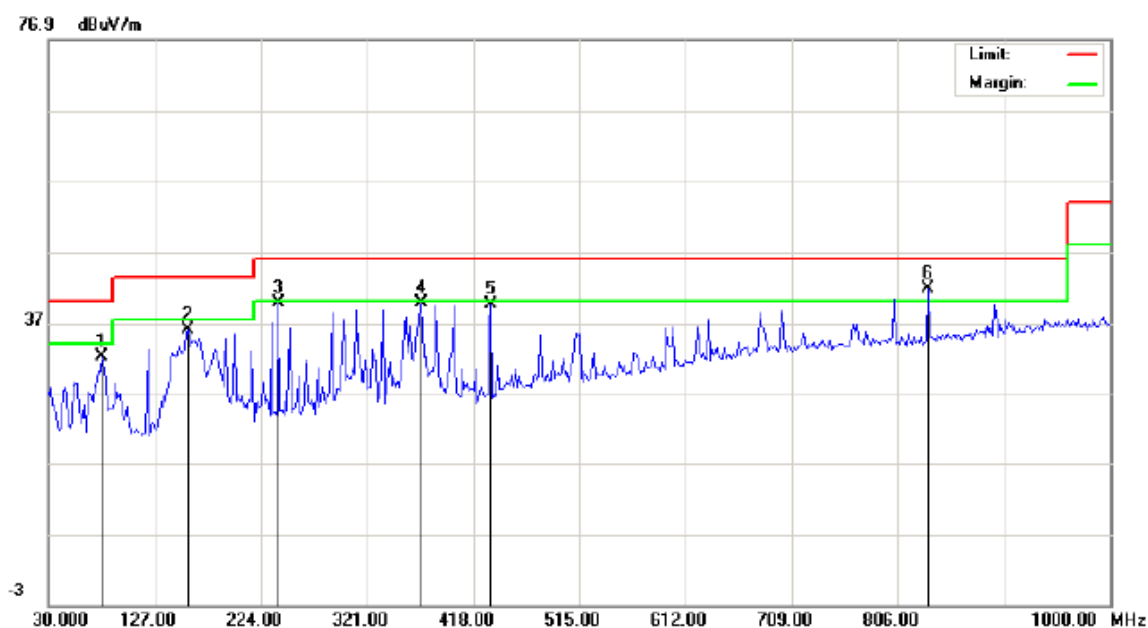
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: LAN Port

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	120.5333	23.06			9.19	32.25			43.50		-11.25		P	
2	180.3500	23.09			11.76	34.85			43.50		-8.65		P	
3	240.1667	27.93			13.44	41.37			46.00		-4.63		P	
4	311.3000	26.16			16.12	42.28			46.00		-3.72		P	
5	335.5500	24.56			16.74	41.30			46.00		-4.70		P	
6	434.1667	21.92			18.92	40.84			46.00		-5.16		P	



Site site #1

Polarization: **Vertical**

Temperature: 25

Limit: FCC Class B 3M Radiation

Power: AC 120V/60Hz

Humidity: 53 %

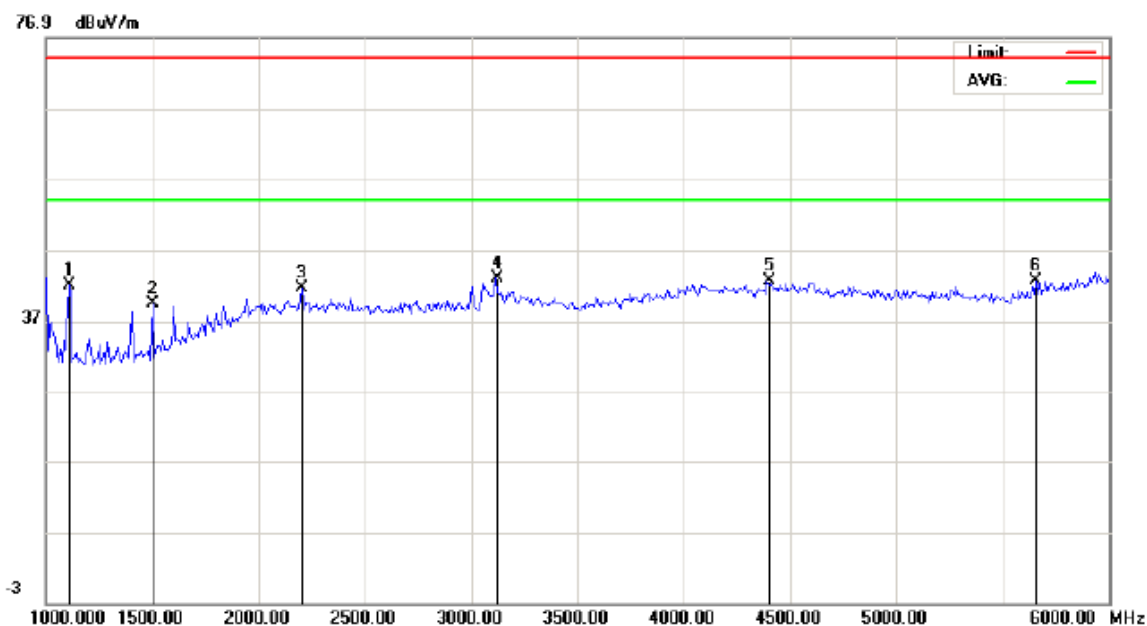
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: LAN Port

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	78.5000	23.46			8.80	32.26			40.00		-7.74		P	
2	157.7167	24.88			11.10	35.98			43.50		-7.52		P	
3	240.1667	26.43			13.44	39.87			46.00		-6.13		P	
4	371.1167	22.10			17.65	39.75			46.00		-6.25		P	
5	434.1667	20.62			18.92	39.54			46.00		-6.46		P	
6	833.4833	16.14	15.53		25.62	41.76	41.15		46.00		-4.85		P	



Site site #1

Polarization: **Horizontal**

Temperature: 25

Limit: FCC PART15B 3M ABOVE 1G PEAK

Power: AC 120V/60Hz

Humidity: 53 %

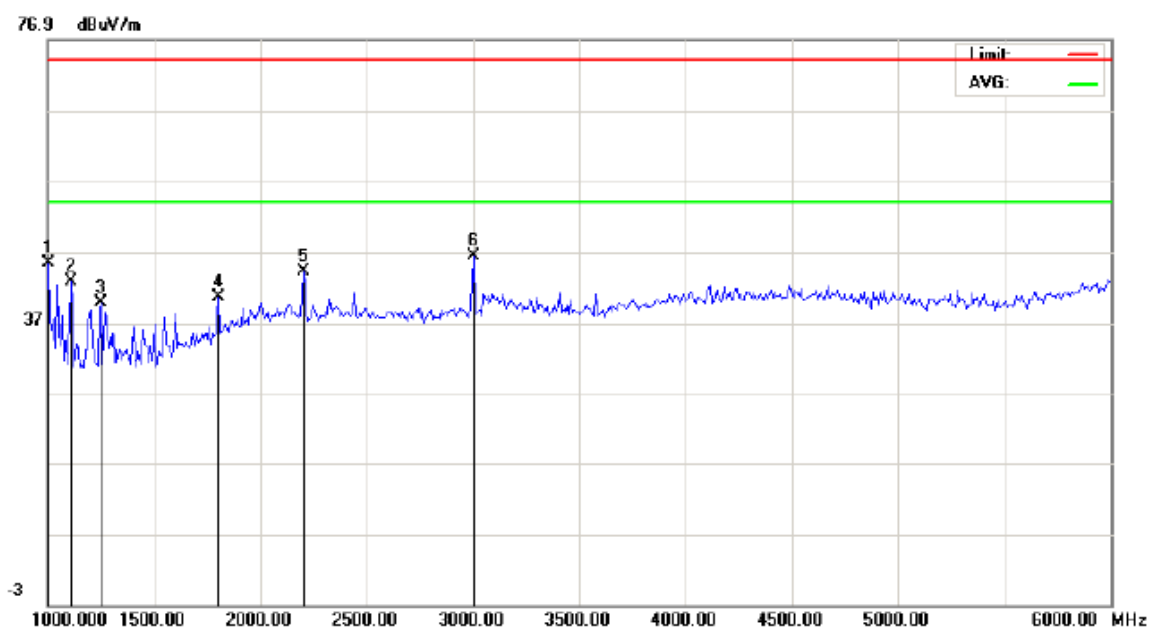
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	1108.333	45.59			-3.52	42.07			74.00	54.00	-31.93	-11.93	P	
2	1500.000	40.45			-1.01	39.44			74.00	54.00	-34.56	-14.56	P	
3	2200.000	34.45			7.15	41.60			74.00	54.00	-32.40	-12.40	P	
4	3116.667	34.36			8.60	42.96			74.00	54.00	-31.04	-11.04	P	
5	4391.667	31.84			10.67	42.51			74.00	54.00	-31.49	-11.49	P	
6	5658.333	31.05			11.63	42.68			74.00	54.00	-31.32	-11.32	P	



Site site #1

Polarization: **Vertical**

Temperature: 25

Limit: FCC PART15B 3M ABOVE 1G PEAK

Power: AC 120V/60Hz

Humidity: 53 %

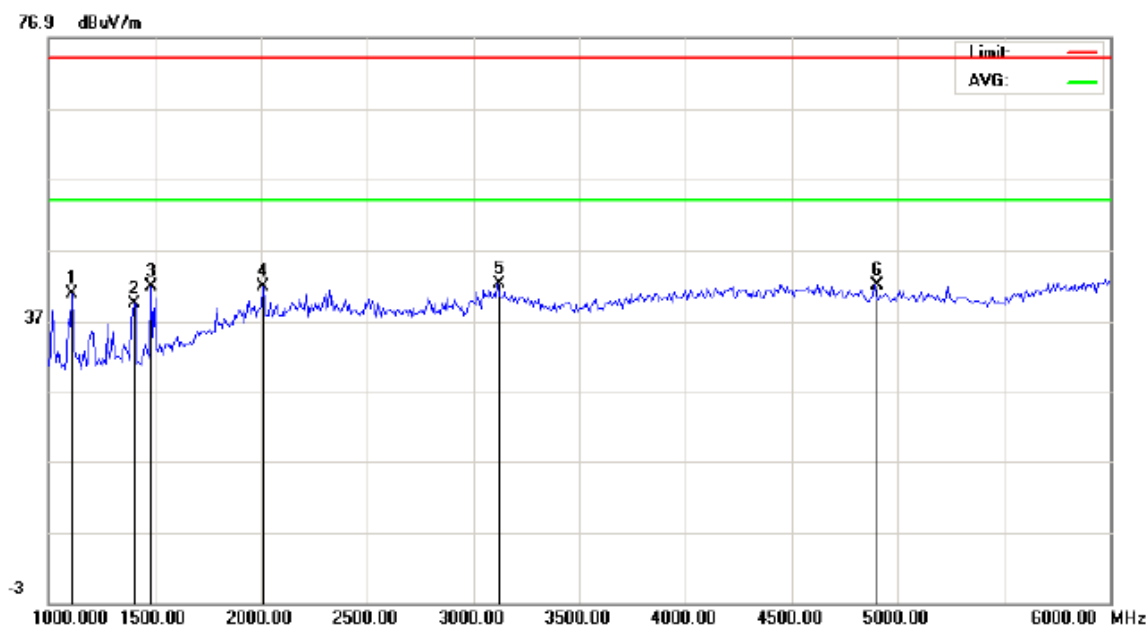
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: VGA

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	1000.000	49.60			-4.22	45.38			74.00	54.00	-28.62	-8.62	P	
2	1108.333	46.38			-3.52	42.86			74.00	54.00	-31.14	-11.14	P	
3	1250.000	42.50			-2.61	39.89			74.00	54.00	-34.11	-14.11	P	
4	1800.000	36.89			3.63	40.52			74.00	54.00	-33.48	-13.48	P	
5	2200.000	37.04			7.15	44.19			74.00	54.00	-29.81	-9.81	P	
6	3000.000	37.48			8.97	46.45			74.00	54.00	-27.55	-7.55	P	



Site site #1

Polarization: **Horizontal**

Temperature: 25

Limit: FCC PART15B 3M ABOVE 1G PEAK

Power: AC 120V/60Hz

Humidity: 53 %

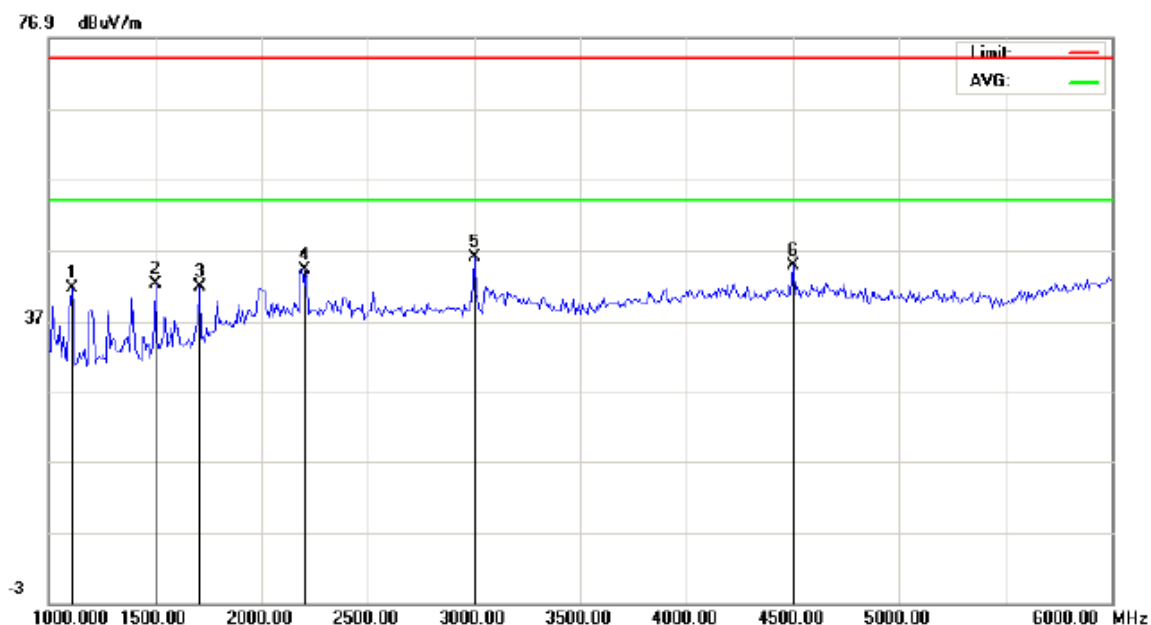
EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: LAN Port

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	1108.333	44.25			-3.52	40.73			74.00	54.00	-33.27	-13.27	P	
2	1400.000	41.09			-1.65	39.44			74.00	54.00	-34.56	-14.56	P	
3	1483.333	42.97			-1.12	41.85			74.00	54.00	-32.15	-12.15	P	
4	2008.333	35.14			6.75	41.89			74.00	54.00	-32.11	-12.11	P	
5	3116.667	33.62			8.60	42.22			74.00	54.00	-31.78	-11.78	P	
6	4891.667	31.00			10.99	41.99			74.00	54.00	-32.01	-12.01	P	



Site site #1

Polarization: **Vertical**

Temperature: 25

Limit: FCC PART15B 3M ABOVE 1G PEAK

Power: AC 120V/60Hz

Humidity: 53 %

EUT: Multimedia Projector

M/N: PLC-WU3800A

Mode: LAN Port

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	1108.333	45.10			-3.52	41.58			74.00	54.00	-32.42	-12.42	P	
2	1500.000	43.17			-1.01	42.16			74.00	54.00	-31.84	-11.84	P	
3	1708.333	39.63			2.21	41.84			74.00	54.00	-32.16	-12.16	P	
4	2191.667	36.99			7.14	44.13			74.00	54.00	-29.87	-9.87	P	
5	3000.000	37.00			8.97	45.97			74.00	54.00	-28.03	-8.03	P	
6	4500.000	33.92			10.83	44.75			74.00	54.00	-29.25	-9.25	P	

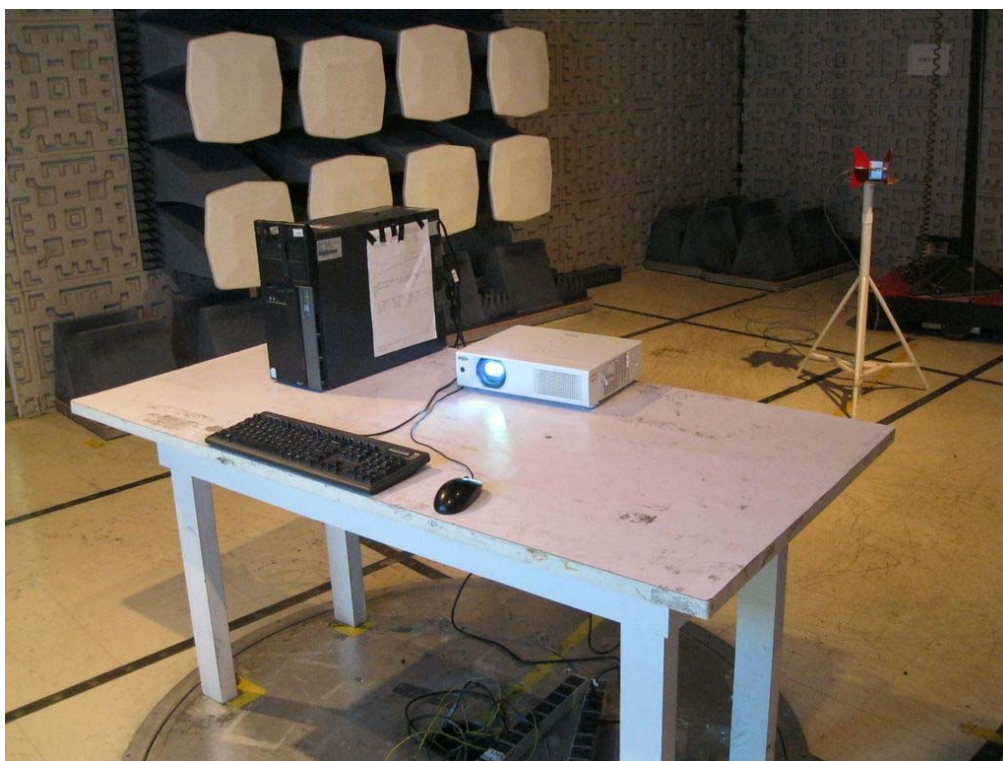
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



CONDUCTED EMISSION TEST SETUP



RADIATED EMISSION TEST SETUP (BELOW 1G)



RADIATED EMISSION TEST SETUP (ABOVE 1G)

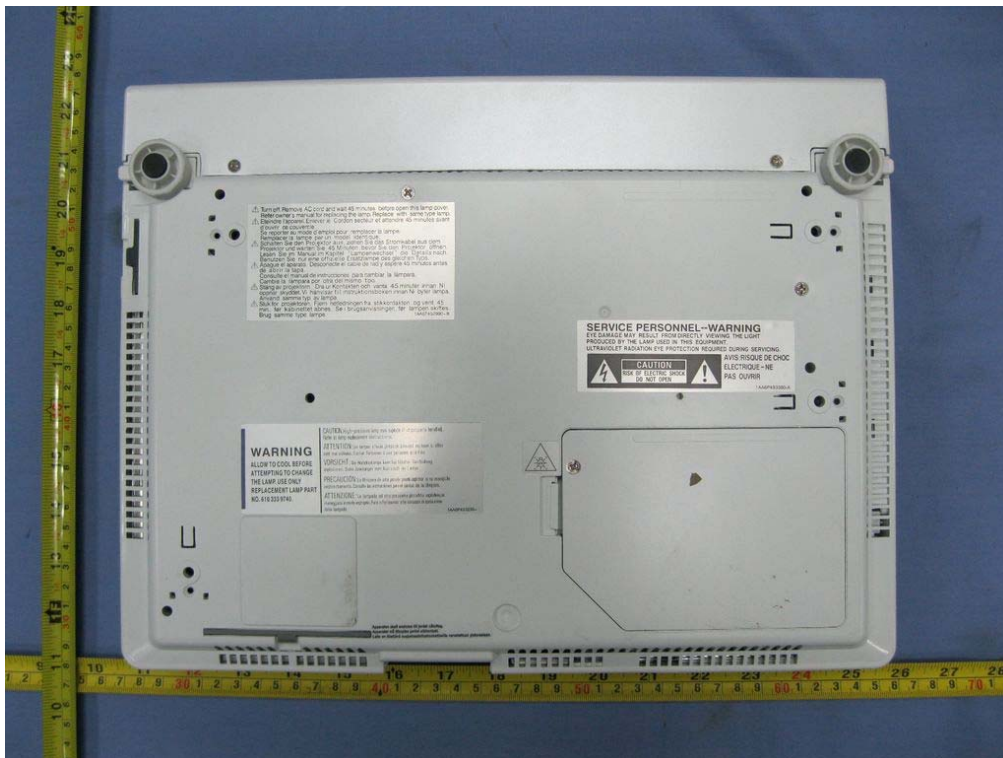
APPENDIX 2 PHOTOGRAPHS OF EUT



View of EUT-1



View of EUT-2



View of EUT-3



View of EUT-4



View of EUT-5



View of EUT-6



View of EUT-7

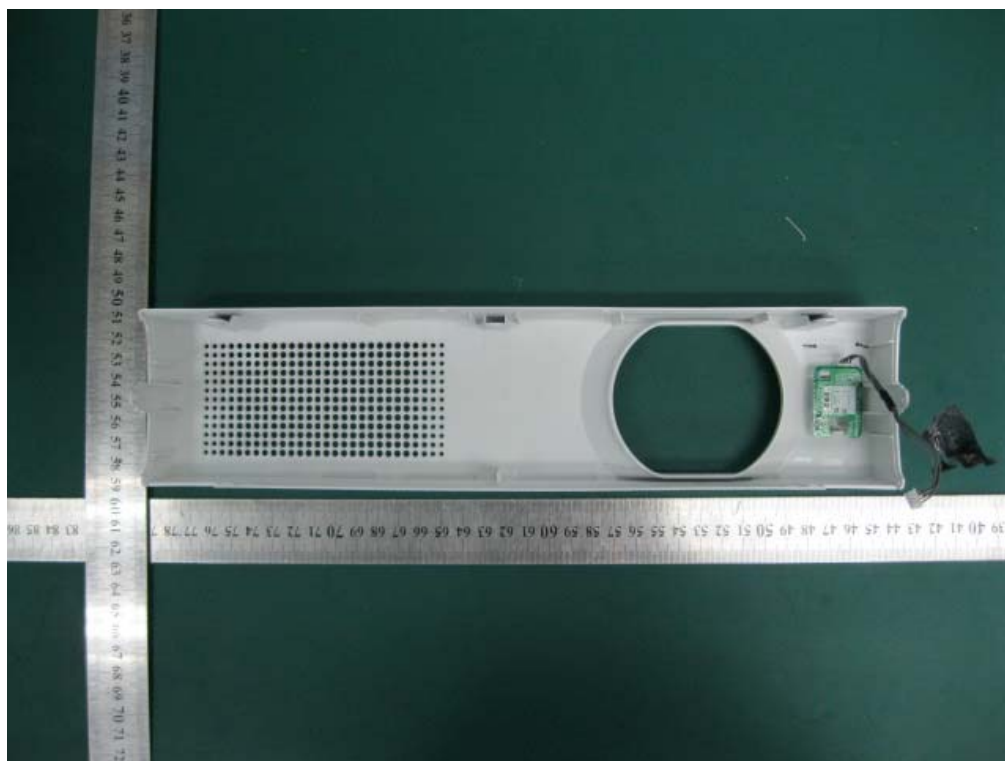
APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT



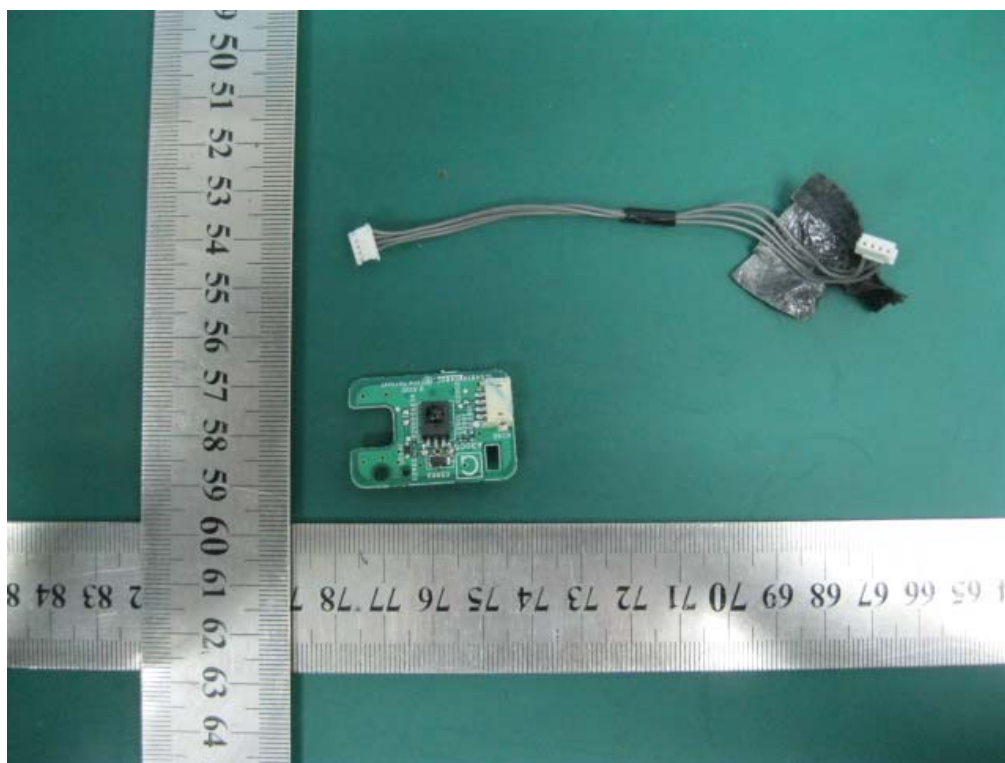
View of EUT-1



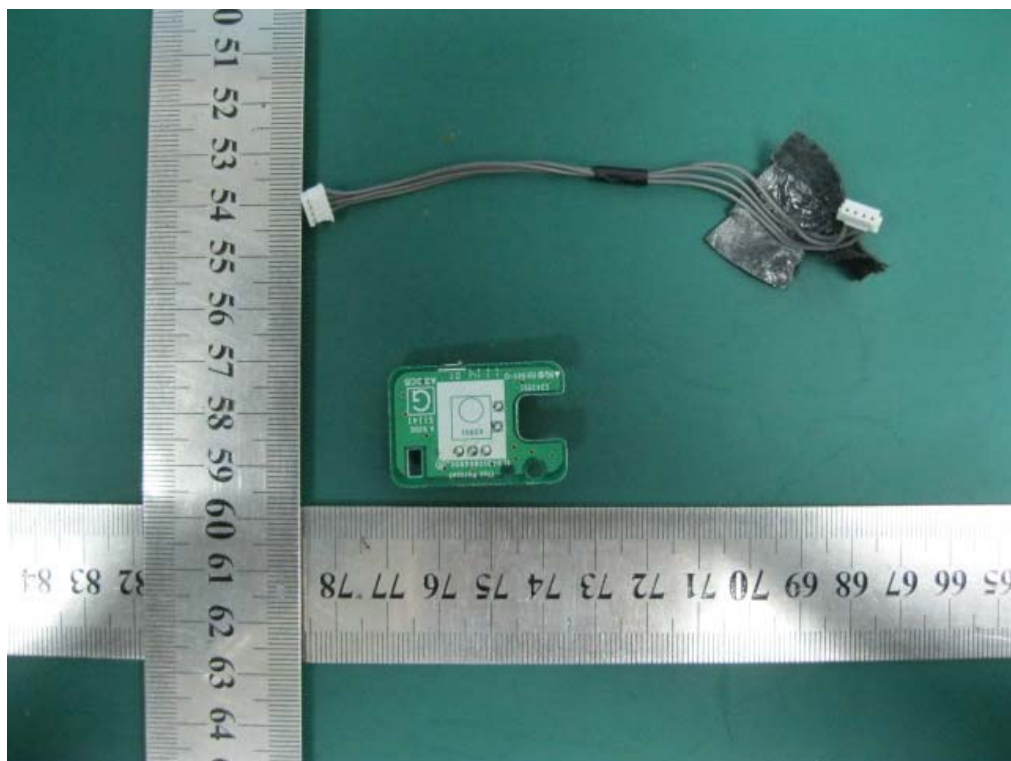
View of EUT-2



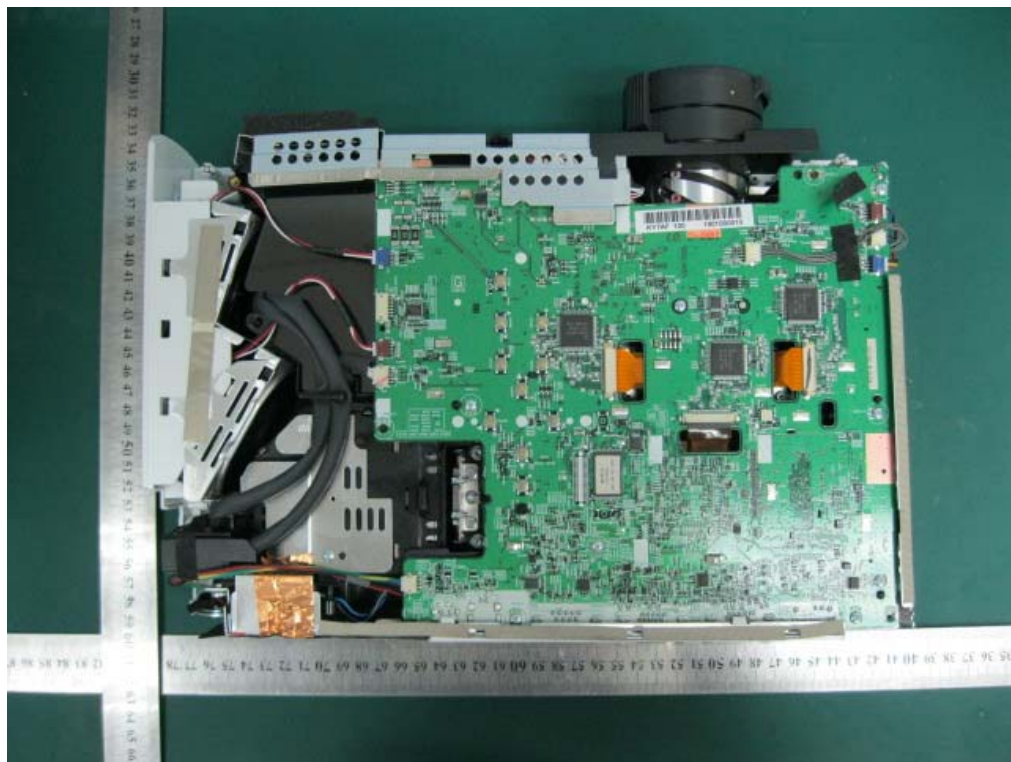
View of EUT-3



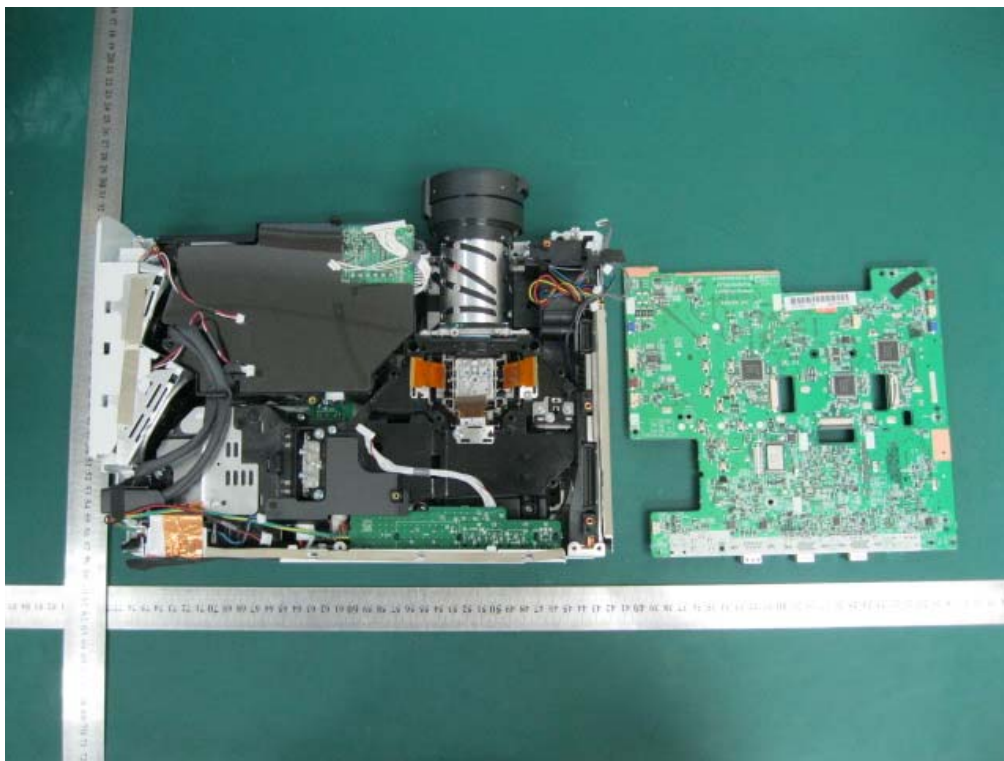
View of EUT-4



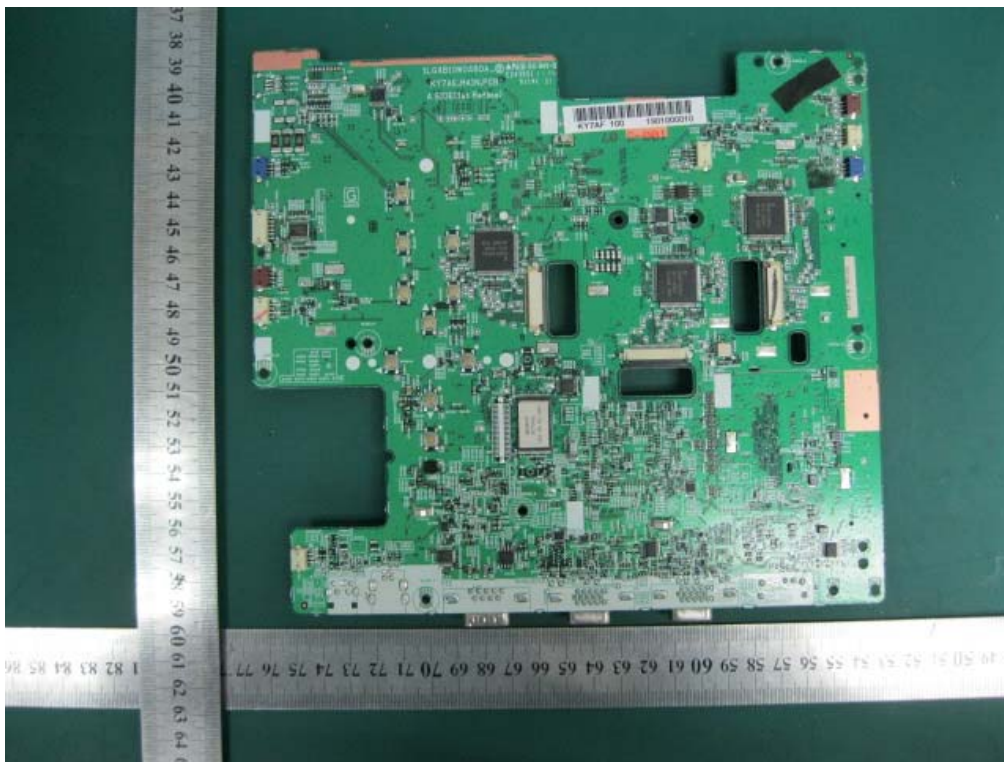
View of EUT-5



View of EUT-6



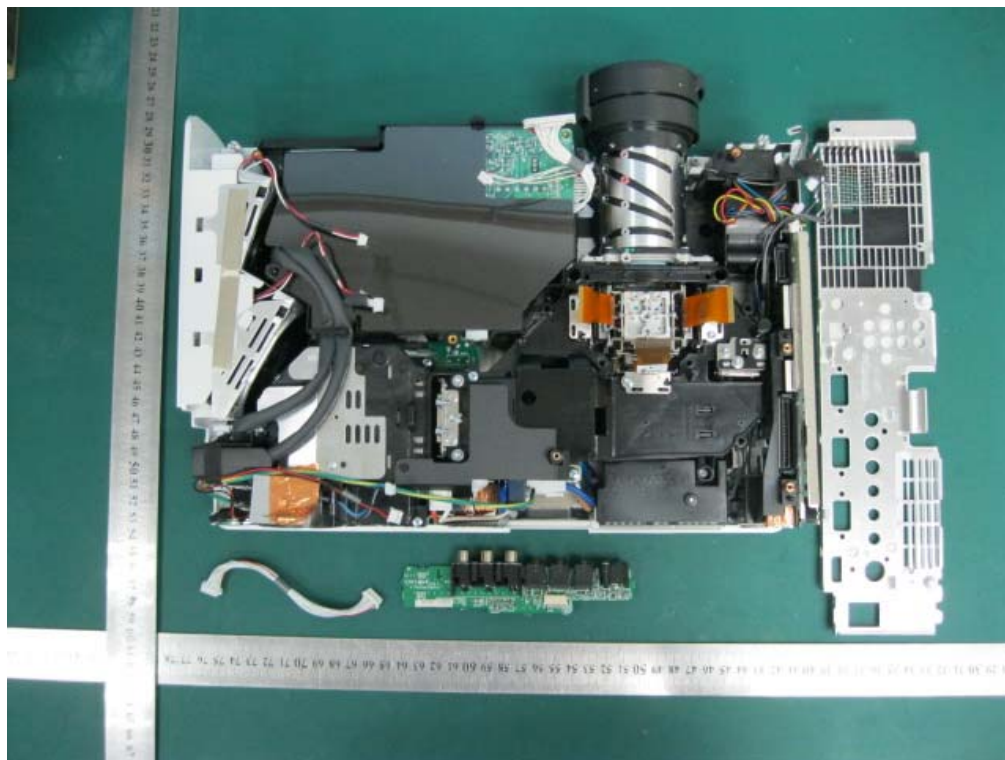
View of EUT-7



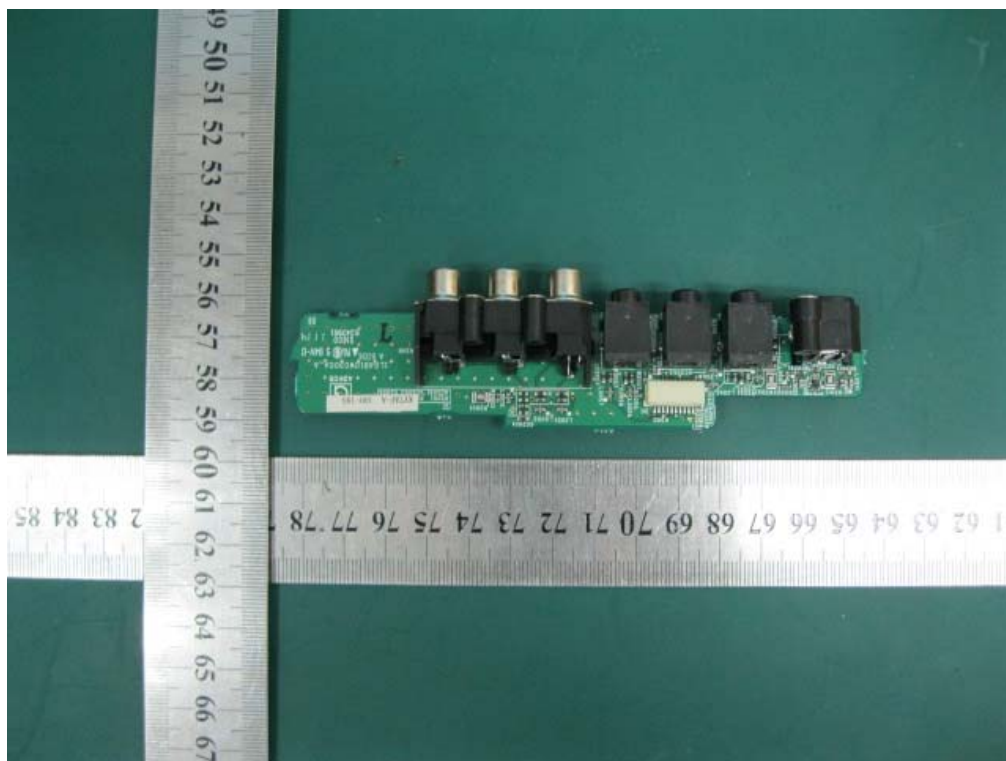
View of EUT-8



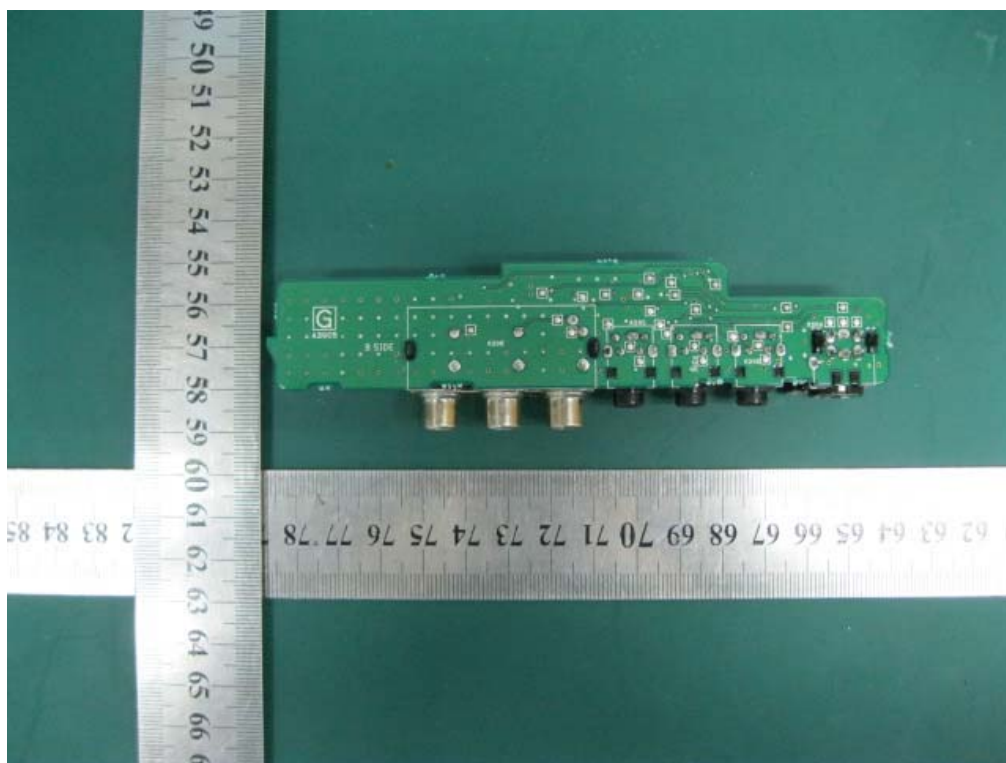
View of EUT-9



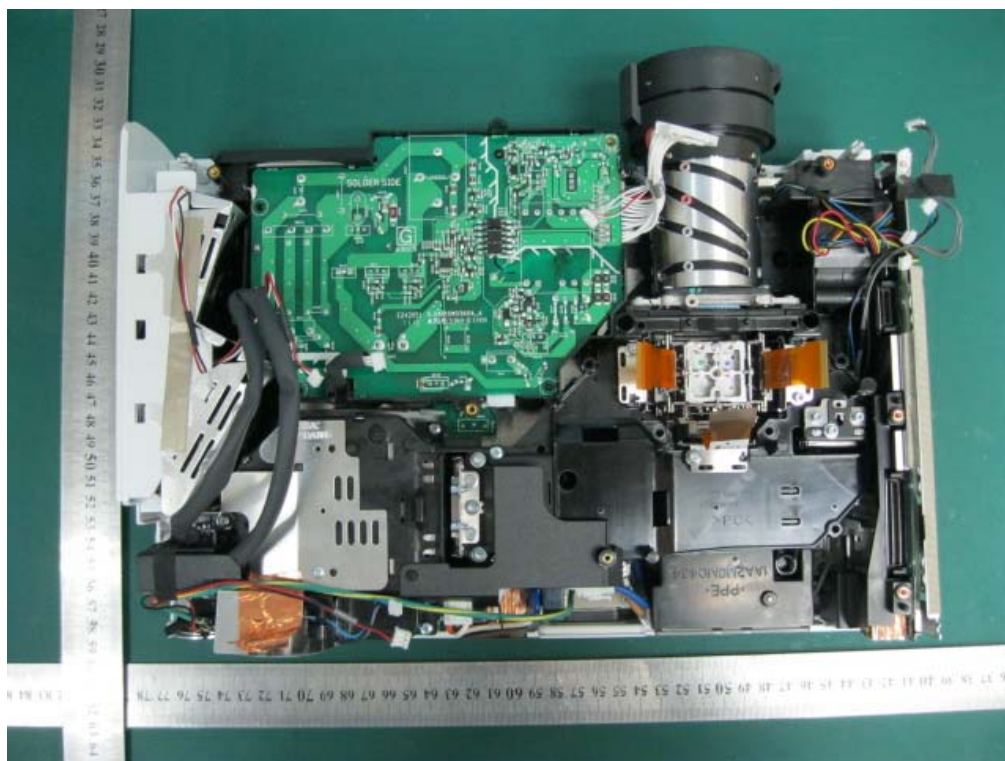
View of EUT-10



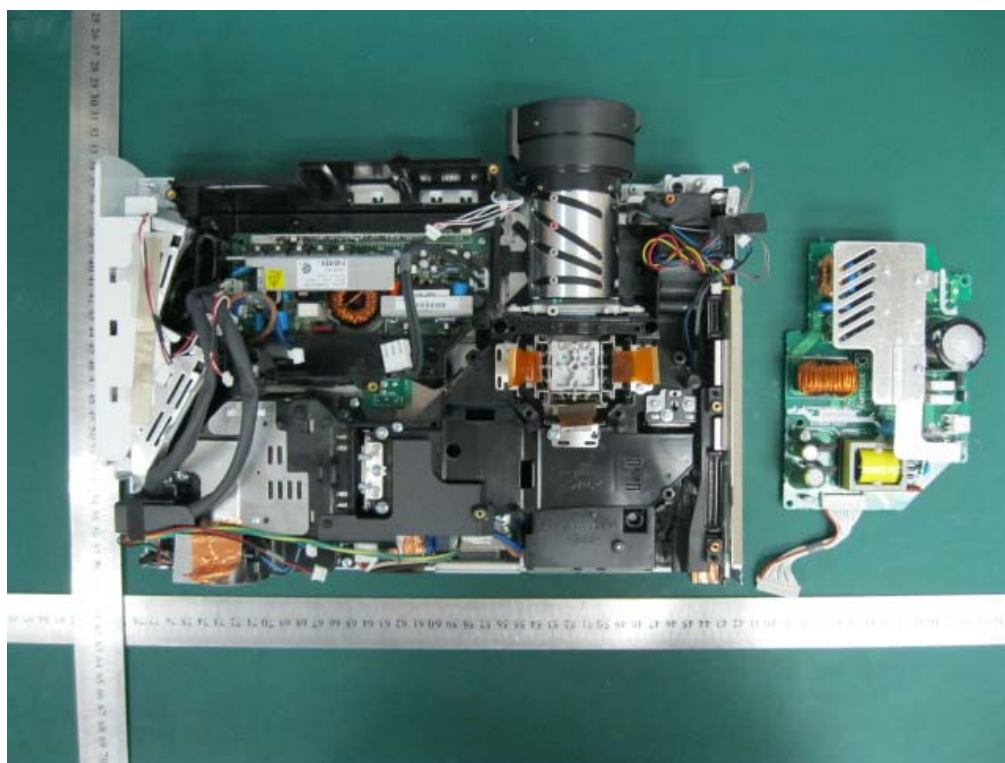
View of EUT-11



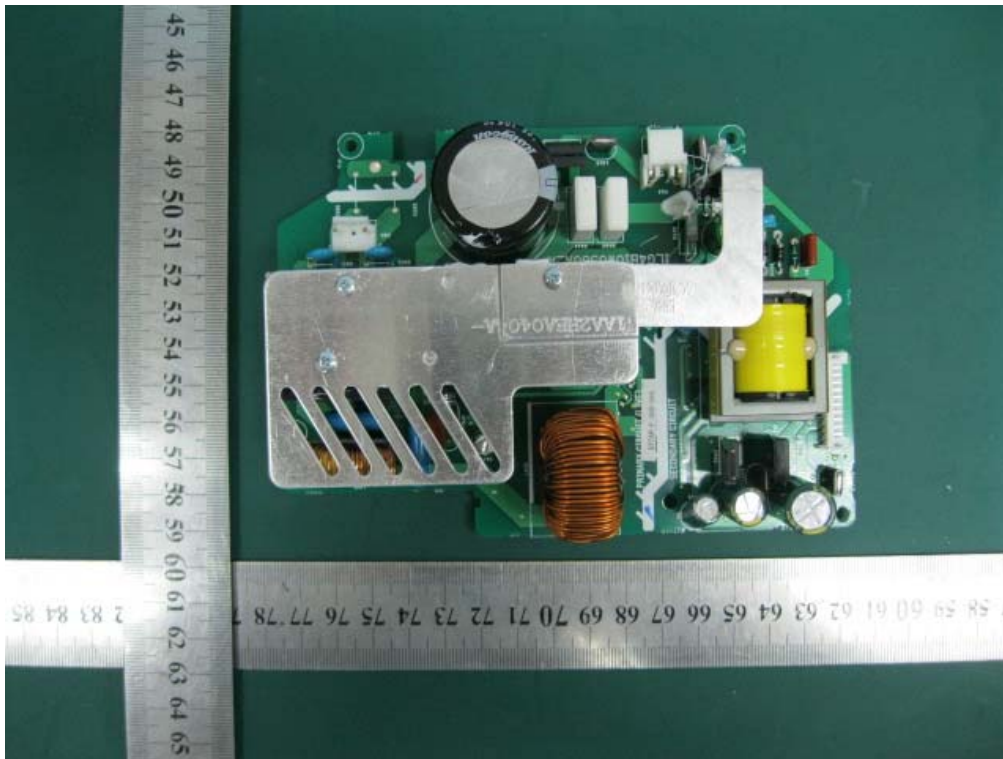
View of EUT-12



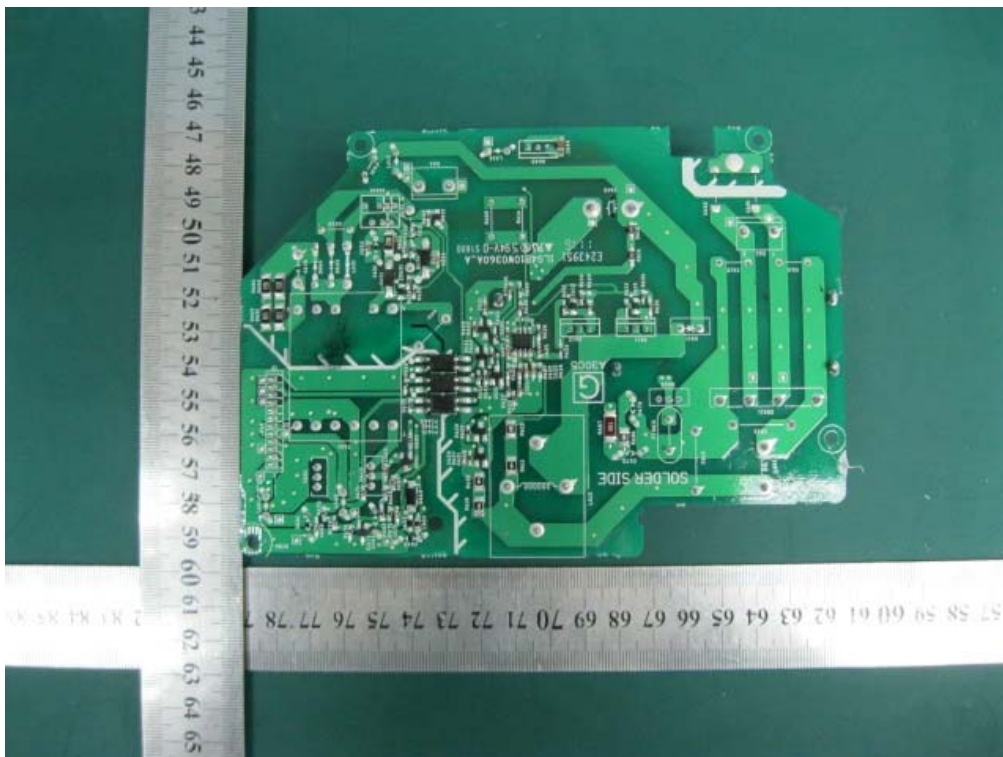
View of EUT-13



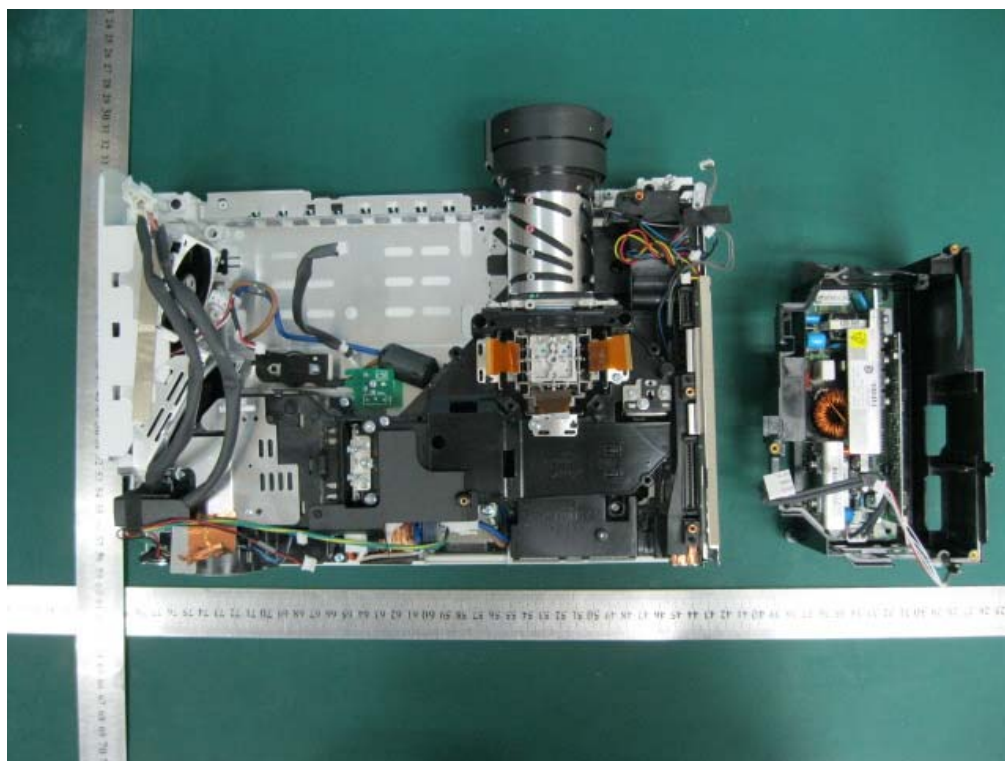
View of EUT-14



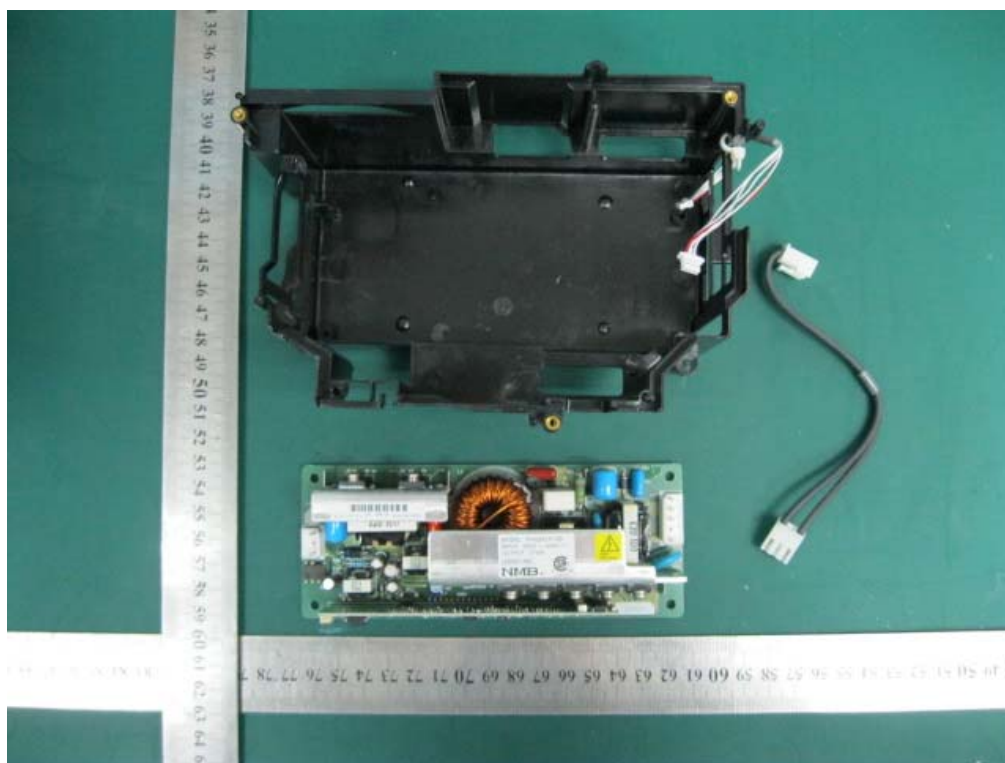
View of EUT-15



View of EUT-16



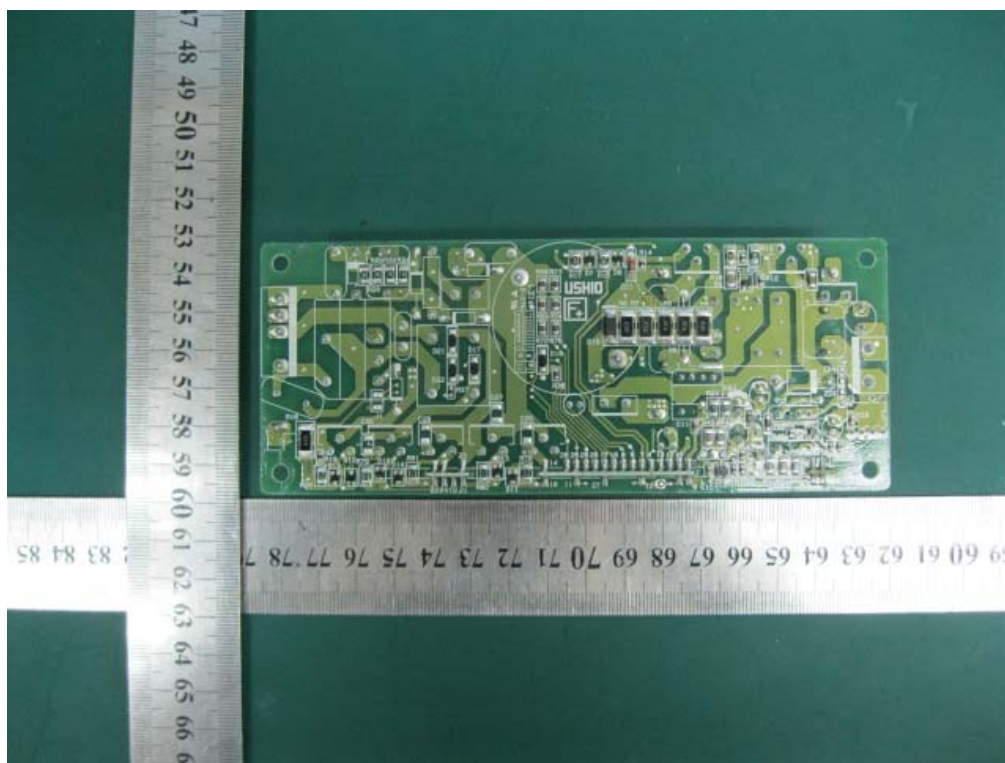
View of EUT-17



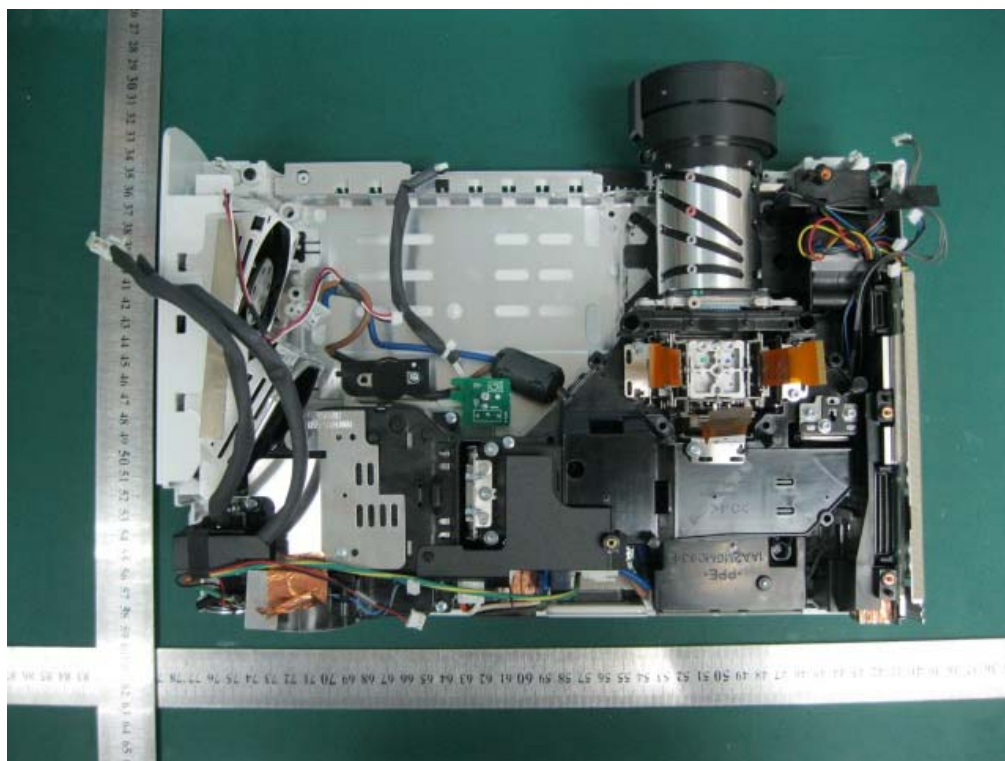
View of EUT-18



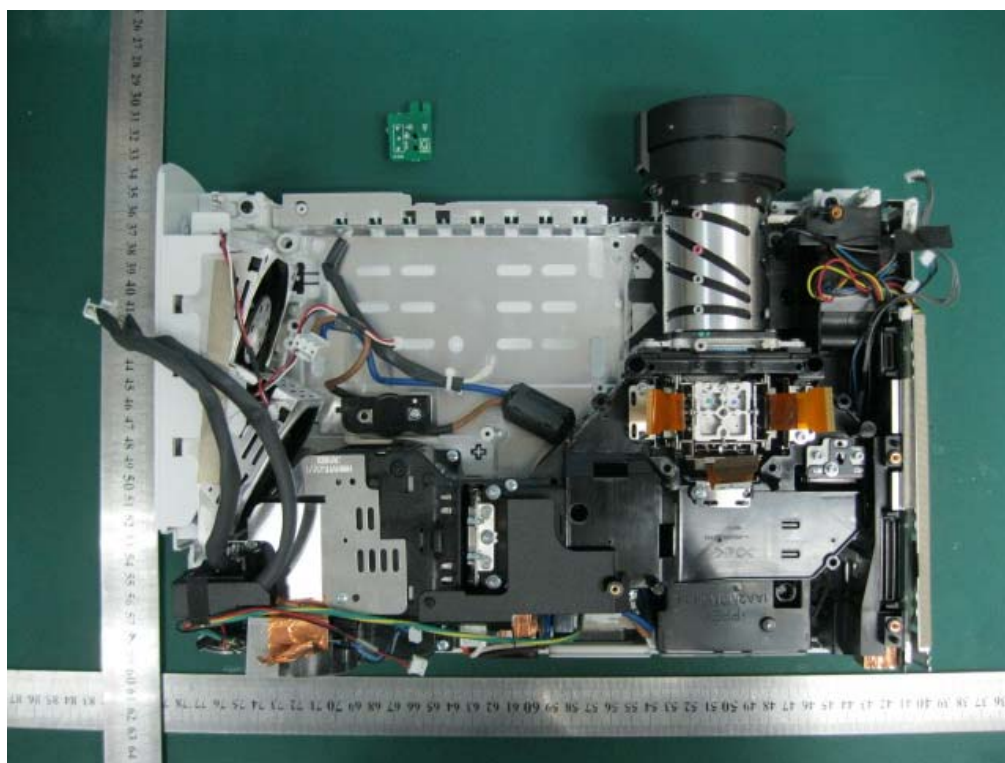
View of EUT-19



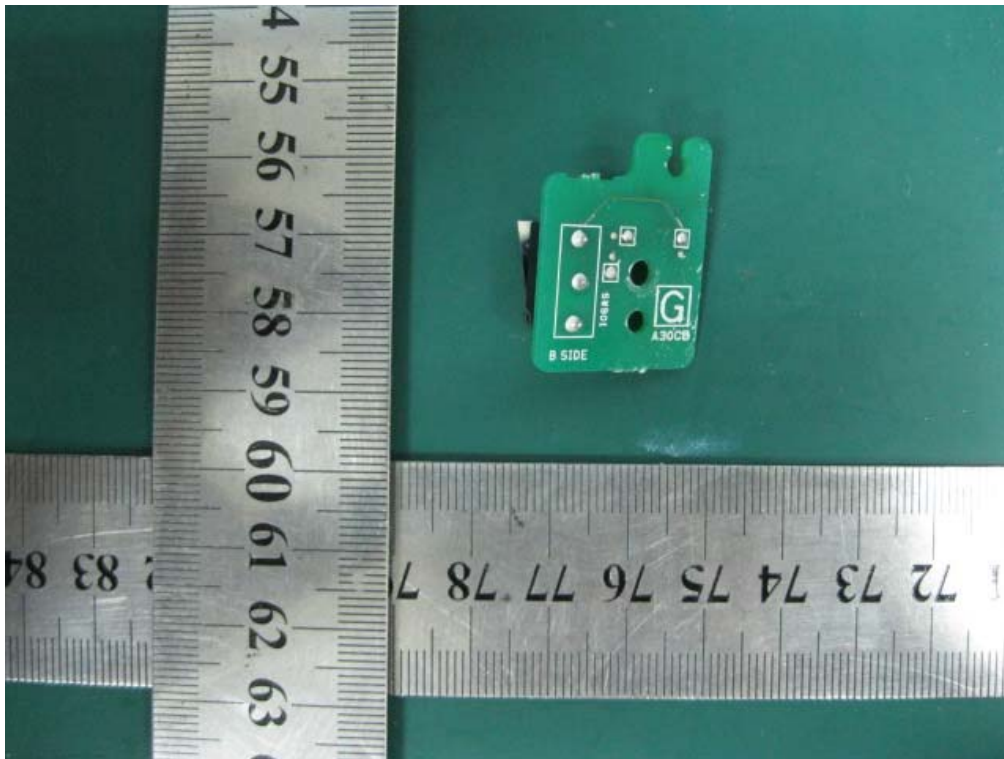
View of EUT-20



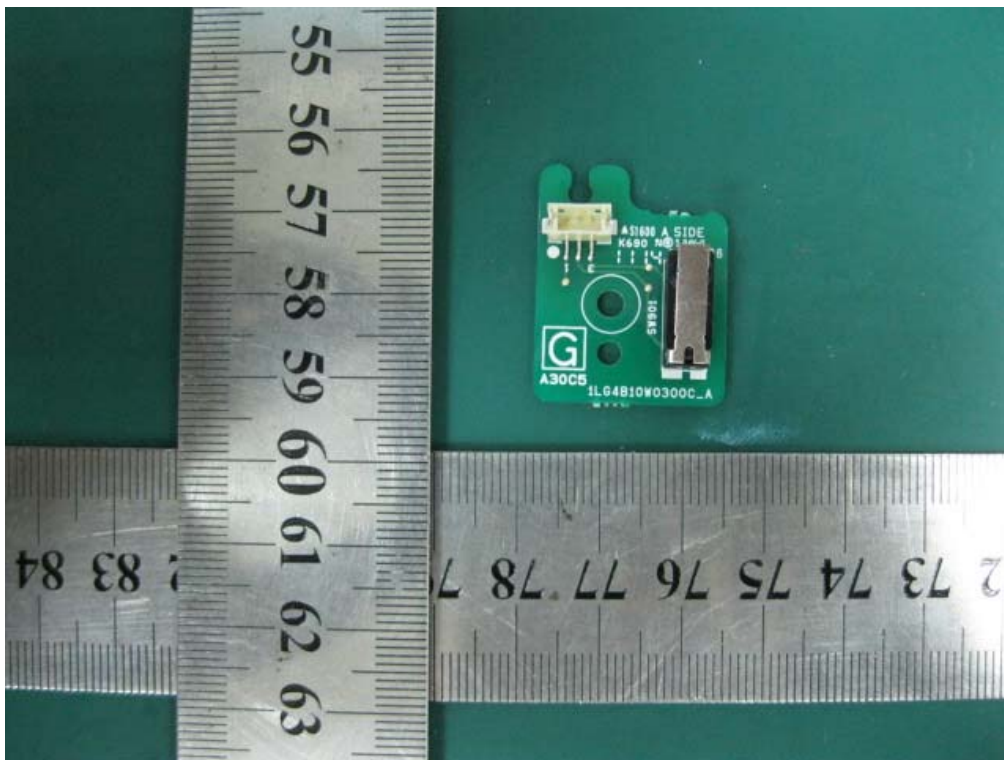
View of EUT-21



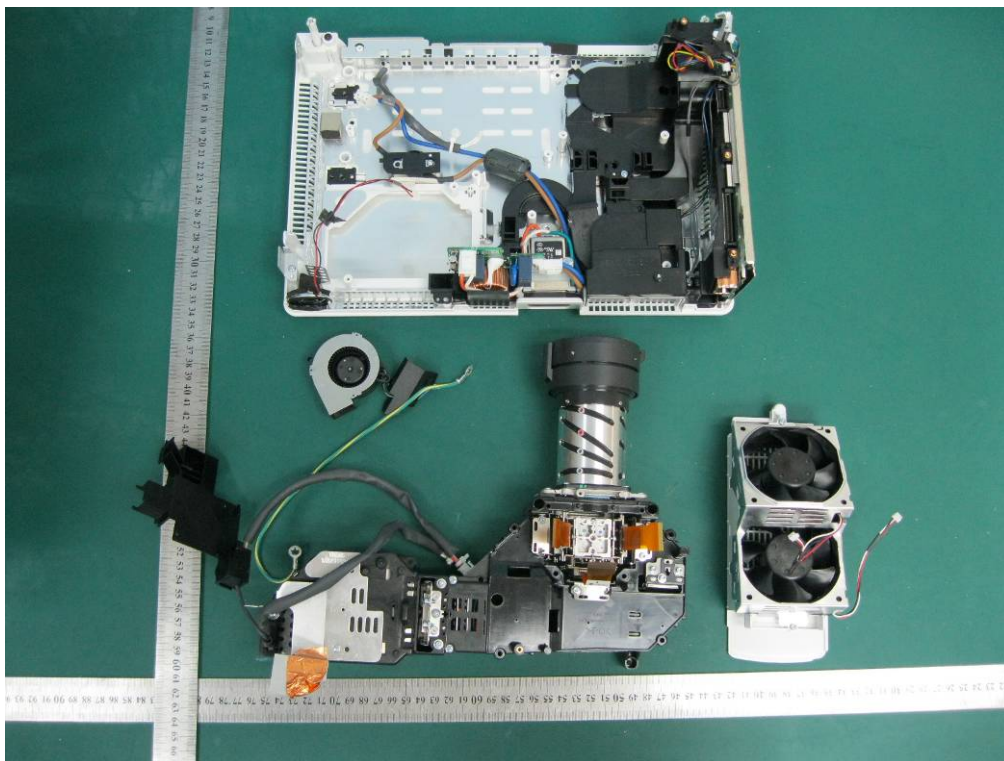
View of EUT-22



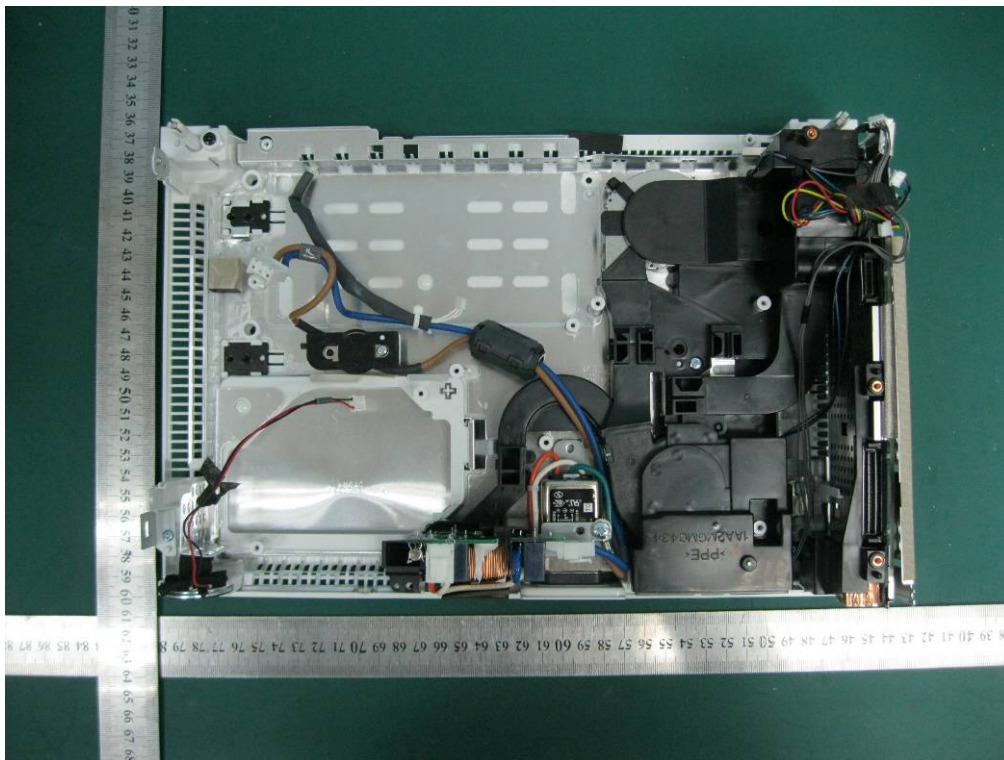
View of EUT-23



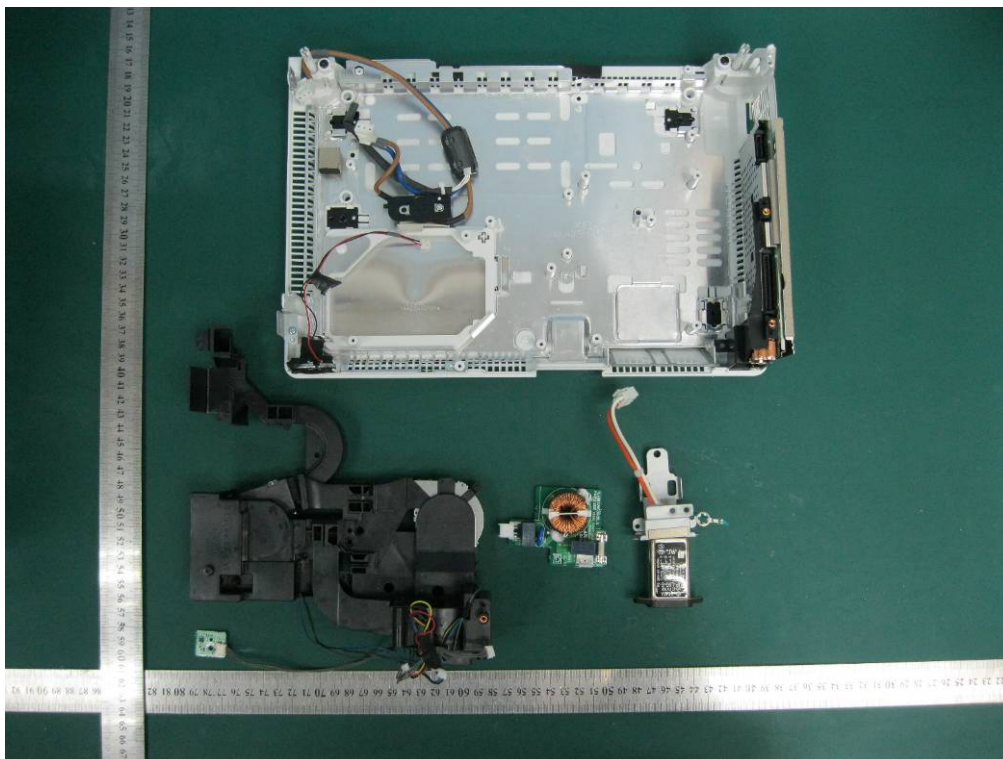
View of EUT-24



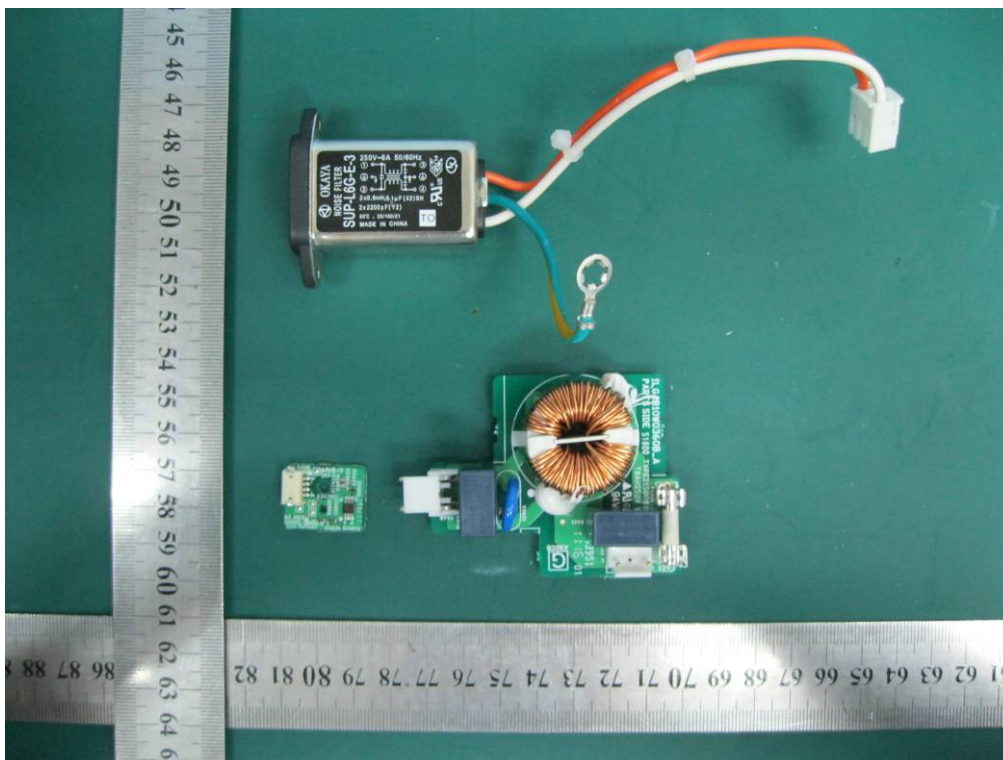
View of EUT-25



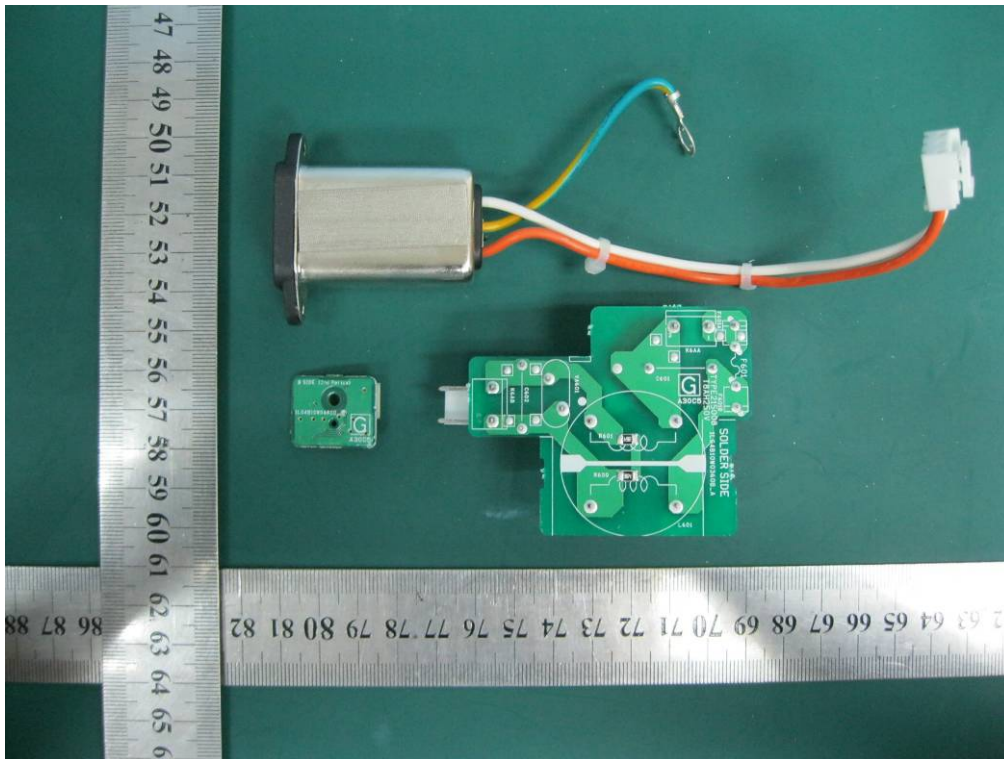
View of EUT-26



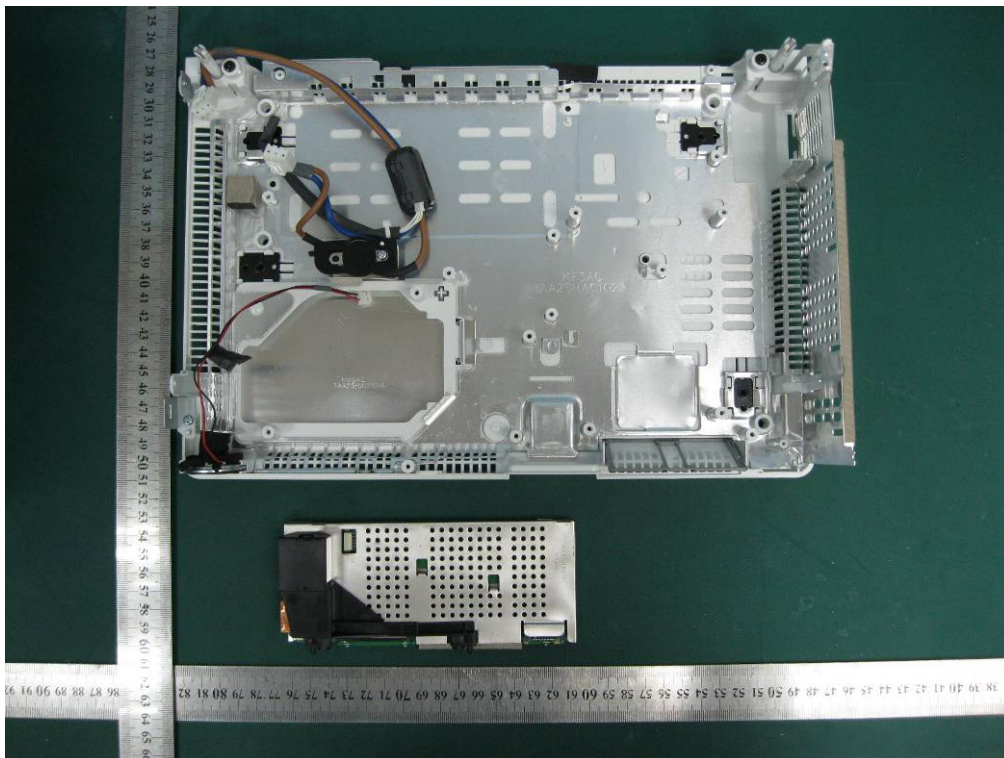
View of EUT-27



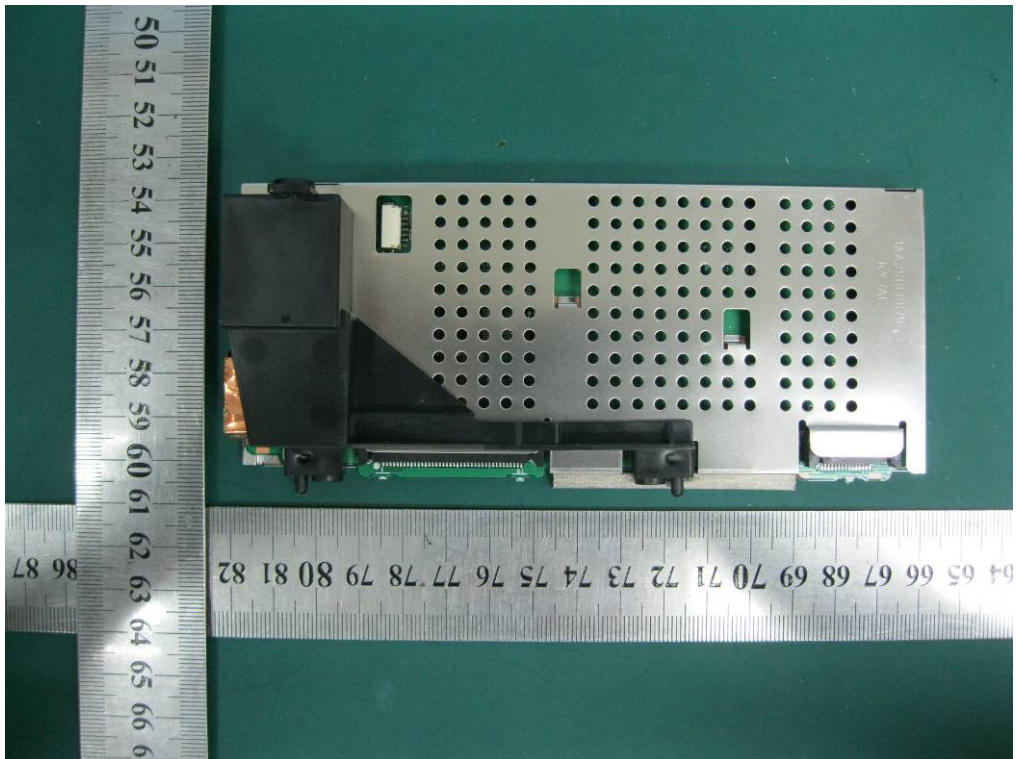
View of EUT-28



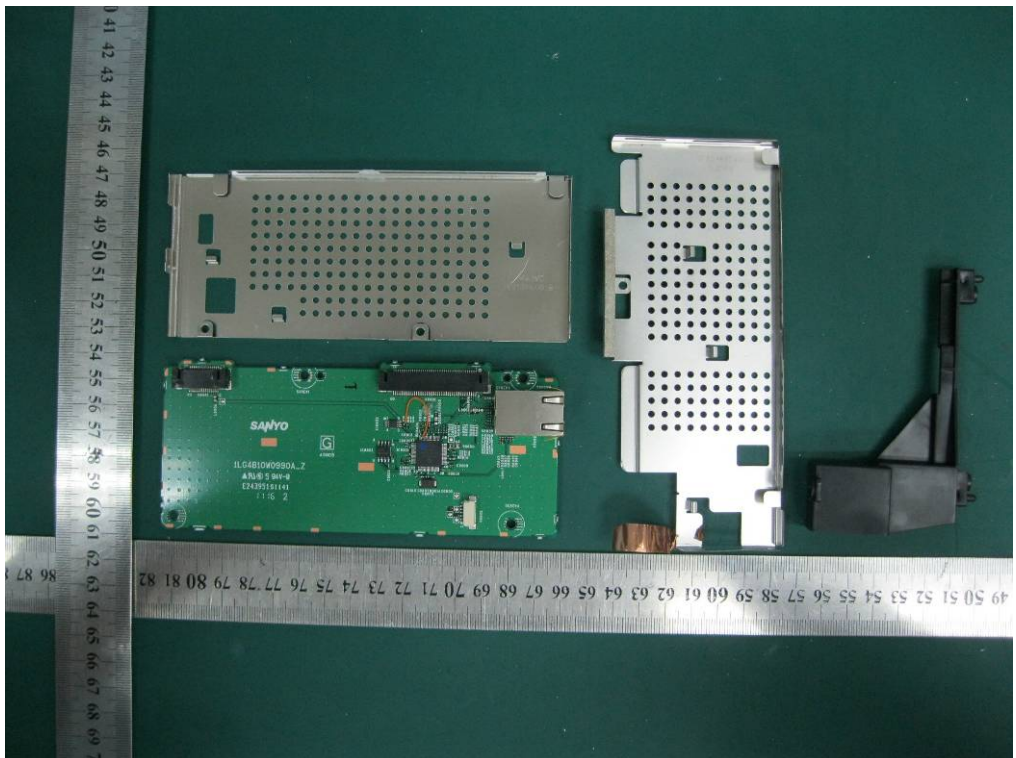
View of EUT-29



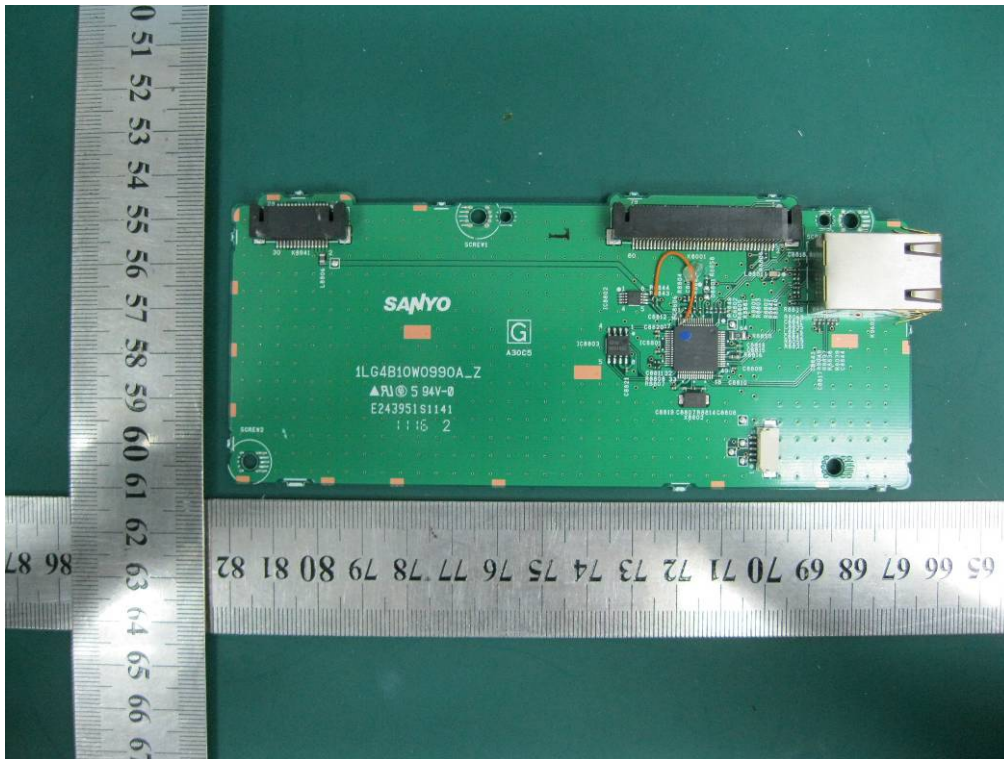
View of EUT-30



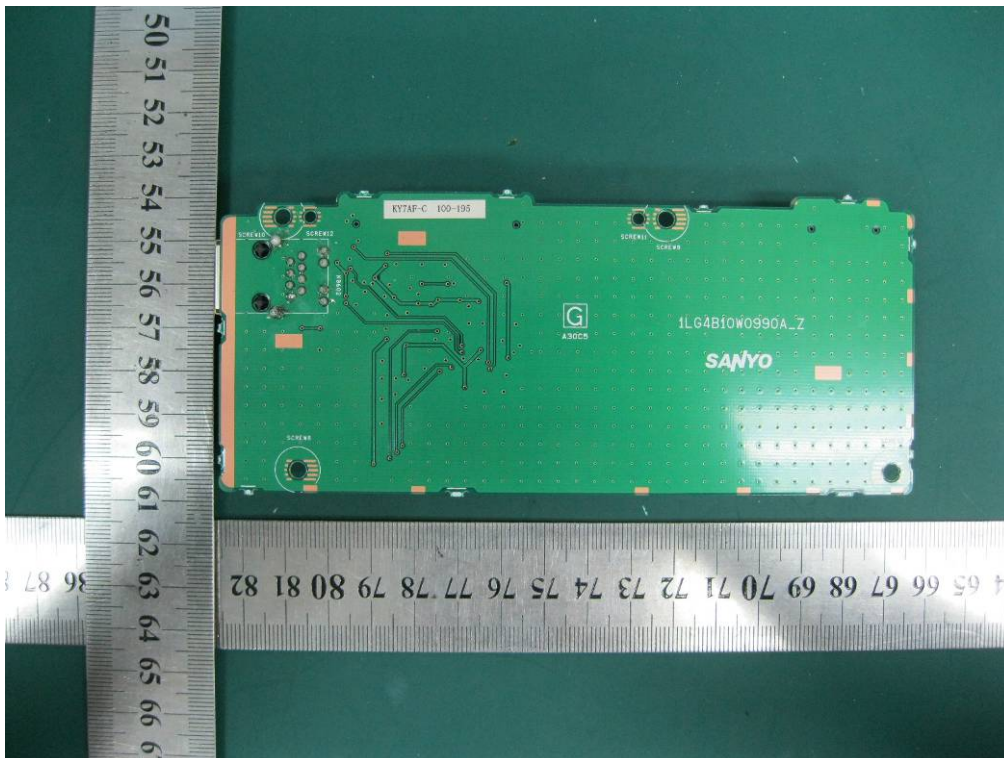
View of EUT-31



View of EUT-32



View of EUT-33



View of EUT-34

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