

Verification Of Conformity
On Behalf of
PaloSanto Solutions

Elastix NLX4000
Model No.: NLX4000

Prepared for : PaloSanto Solutions
Address : Cdla. Nueva Kennedy, Calle ENo.222 - 9na Este, Guayaquil,
Ecuador

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : 201312814F
Date of Test : Dec. 24~31, 2013
Date of Report : Jan. 02, 2014

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APPENDIX I (Photos of EUT) (5 Pages)

TEST REPORT VERIFICATION

Applicant : PaloSanto Solutions
Manufacturer : PaloSanto Solutions
EUT : Elastix NLX4000
Model No. : NLX4000
Rating : AC 100-240V, 50/60Hz, 2.8A
Trade Mark : N.A.

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B 2012 & FCC / ANSI C63.4-2009

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Test : Dec. 24~31, 2013

Prepared by : Barak Ban
(Engineer/ Barak Ban)

Reviewer : Amy Ding
(Project Manager/ Amy Ding)

Approved & Authorized Signer : Tom Chen
(Manager/ Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : Elastix NLX4000

Model Number : NLX4000

(Elastix NLX4000 Based on plug-in modular design. It allows users to integrate up to 2 pieces of PCI-E x1 telephony cards and supports to combine with analog, BRI, PRI, GSM.)

Test Power Supply : AC 120V, 60Hz

Applicant : PaloSanto Solutions
Address : Cdla. Nueva Kennedy, Calle ENo.222 - 9na Este, Guayaquil, Ecuador

Manufacturer : PaloSanto Solutions
Address : Cdla. Nueva Kennedy, Calle ENo.222 - 9na Este, Guayaquil, Ecuador

Date of receipt : Dec. 24, 2013

Date of Test : Dec. 24~31, 2013

1.2. Auxiliary Equipment Used during Test

MONITOR	: Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
KEYBOARD	: Manufacturer: DELL M/N: SK-8115 S/N: CN-0DJ313-71616-06C-02XN CE , FCC: DOC Cable: 1m, unshielded
MOUSE	: Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded
Power Line	: Non-Shielded, 1.5m
VGA Cable	: Non-Shielded, 1.5m (Shield)
Network Cable	Non-Shielded, 10m
Telephone Line	Non-Shielded, 0.1m

1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS - LAB Code: L3503

Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 10, 2013

IC-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, February 22, 2013

Test Location

All Emissions tests were performed
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.3dB

Conduction Uncertainty : Uc = 3.4dB

1.5. Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions.

Table 1 : Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Power Line Conducted Emission Test (150KHz To 30MHz)	√
FCC Part 15 Subpart B	Radiated Emission Test (30MHz To 1000MHz)	√

√ Indicates that the test is applicable

x Indicates that the test is not applicable

2. POWER LINE CONDUCTED MEASUREMENT

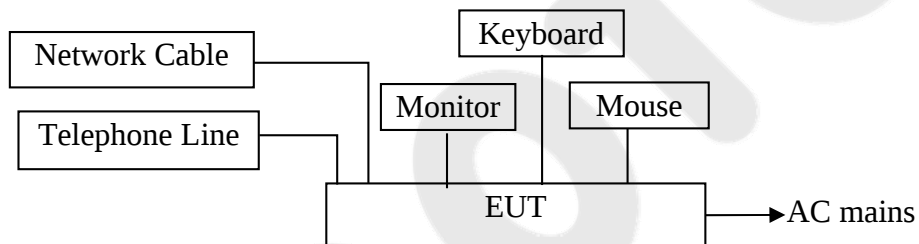
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Apr. 23, 2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 23, 2013	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 23, 2013	1 Year

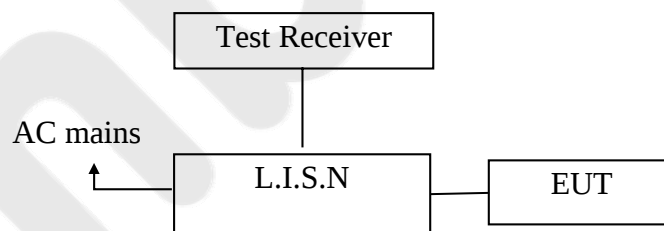
2.2. Block Diagram of Test Setup

2.2.1. Block diagram of connection between the EUT and simulators



(EUT: Elastix NLX4000)

2.2.2. Test Setup Diagram



2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15

Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

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

EUT : Elastix NLX4000
Model Number : NLX4000
Applicant : PaloSanto Solutions

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulator as shown as Section 2.2.
- 2.5.2. Turn on the power of all equipment.
- 2.5.3. Let the EUT work in test mode (On) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. 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 FCC ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7.

2.7. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150KHz to 30 MHz is investigated.

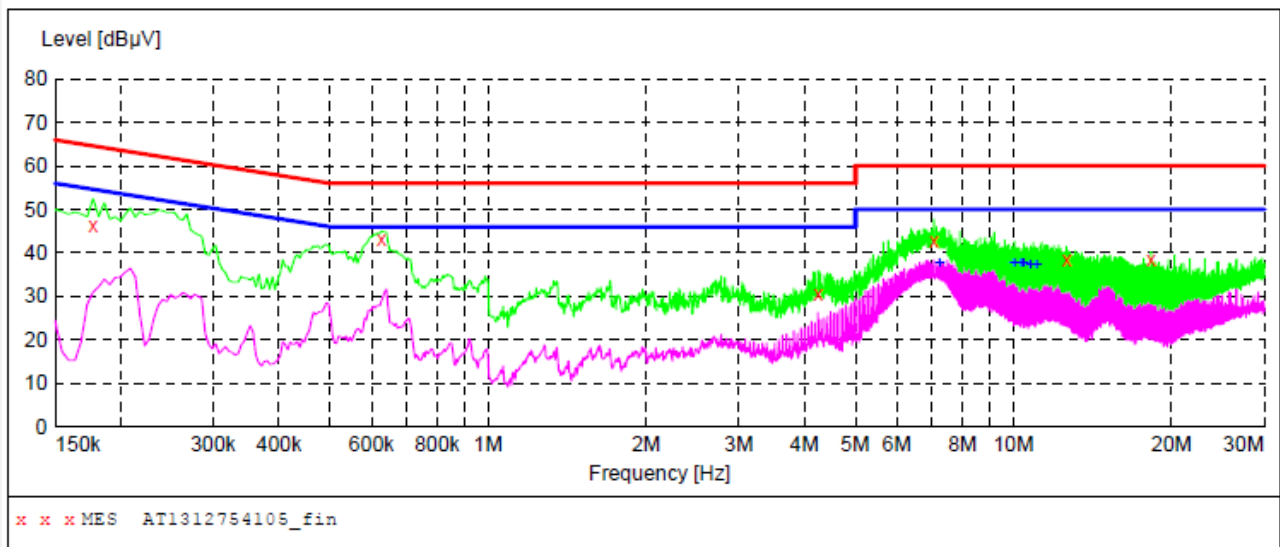
The test curves are shown in the following pages.

CONDUCTED EMISSION TEST DATA

EUT: Elastix NLX4000 M/N:NLX4000
Operating Condition: On
Test Site: 1# Shielded Room
Operator: Bevan Zhang
Test Specification: AC 120V, 60Hz
Comment: L
Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1312754105_fin"

12/24/2013 5:09PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.177000	46.30	20.1	65	18.3	QP	L1	GND
0.627000	43.20	20.1	56	12.8	QP	L1	GND
4.244500	30.50	20.5	56	25.5	QP	L1	GND
7.052500	42.90	20.5	60	17.1	QP	L1	GND
12.610000	38.50	20.7	60	21.5	QP	L1	GND
18.244000	38.60	20.8	60	21.4	QP	L1	GND

MEASUREMENT RESULT: "AT1312754105_fin2"

12/24/2013 5:09PM

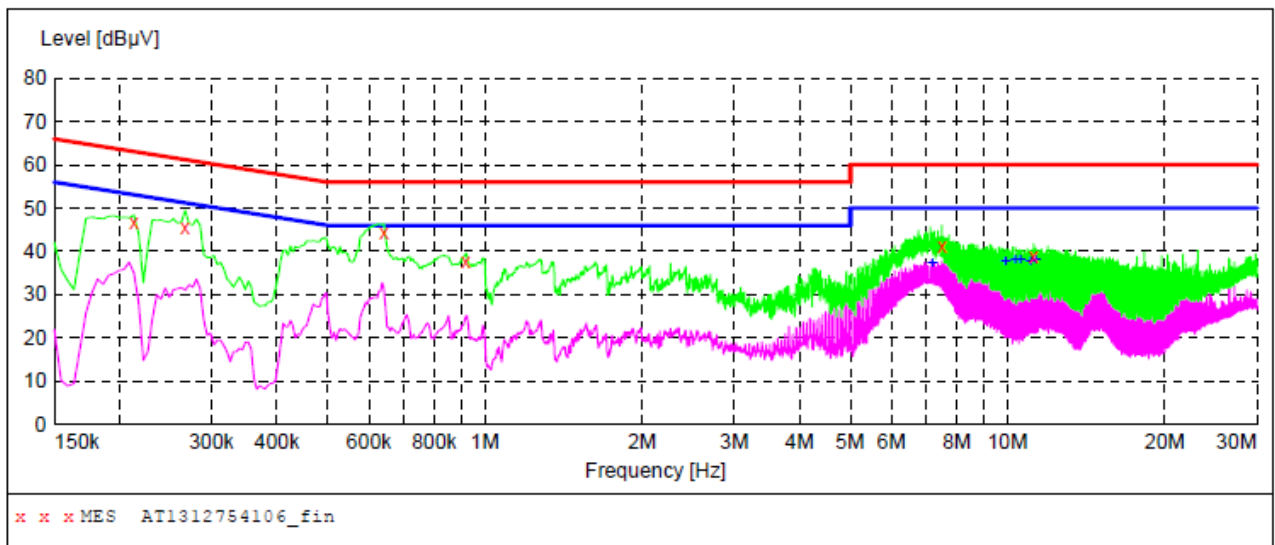
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
7.237000	37.80	20.5	50	12.2	AV	L1	GND
10.045000	37.60	20.6	50	12.4	AV	L1	GND
10.351000	37.70	20.6	50	12.3	AV	L1	GND
10.472500	37.70	20.6	50	12.3	AV	L1	GND
10.778500	37.40	20.6	50	12.6	AV	L1	GND
11.084500	37.20	20.6	50	12.8	AV	L1	GND

CONDUCTED EMISSION TEST DATA

EUT: Elastix NLX4000 M/N:NLX4000
Operating Condition: On
Test Site: 1# Shielded Room
Operator: Bevan Zhang
Test Specification: AC 120V, 60Hz
Comment: N
Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1312754106_fin"

12/24/2013 5:12PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.213000	46.90	20.1	63	16.2	QP	N	GND
0.267000	45.40	20.1	61	15.8	QP	N	GND
0.640500	44.40	20.1	56	11.6	QP	N	GND
0.919500	37.70	20.1	56	18.3	QP	N	GND
7.480000	41.20	20.5	60	18.8	QP	N	GND
11.206000	38.80	20.6	60	21.2	QP	N	GND

MEASUREMENT RESULT: "AT1312754106_fin2"

12/24/2013 5:12PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
7.174000	37.40	20.5	50	12.6	AV	N	GND
9.923500	37.80	20.6	50	12.2	AV	N	GND
10.351000	38.00	20.6	50	12.0	AV	N	GND
10.594000	37.90	20.6	50	12.1	AV	N	GND
11.084500	37.50	20.6	50	12.5	AV	N	GND
11.327500	38.10	20.6	50	11.9	AV	N	GND

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

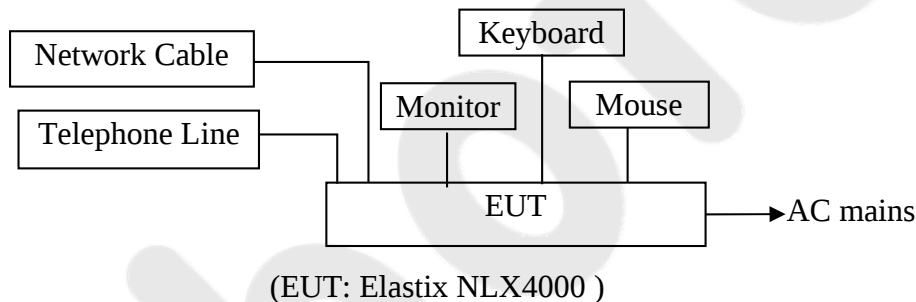
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 14, 2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 23, 2013	1 Year
3.	Pre-amplifier	SONOMA	310N	186860	Aug. 09, 2013	1 Year

3.2. Block Diagram of Test Setup

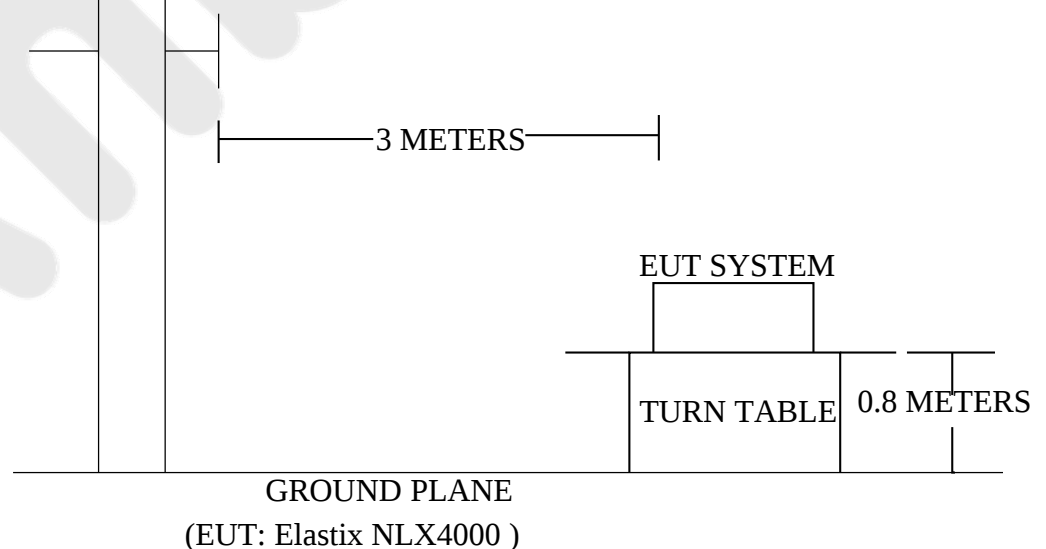
3.2.1. Block diagram of connection between the EUT and simulators



3.2.2. Anechoic Chamber Test Setup Diagram

ANTENNA TOWER

ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



3.3. Radiated Emission Limit (Subpart B Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0

FREQUENCY (GHz)	DISTANCE (Meters)	Field Strengths Limit	
		Average ($\text{dB}\mu\text{V/m}$)	Peak ($\text{dB}\mu\text{V/m}$)
1 ~ 3	3	54	74

- Remark :
- (1) Emission level ($\text{dB}\mu\text{V}$) = $20 \log$ Emission level $\mu\text{V/m}$
 - (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.

3.4. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

EUT : Elastix NLX4000
Model Number : NLX4000
Applicant : PaloSanto Solutions

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2.

3.5.2. Let the EUT work in test mode (On) and measure it.

3.6. Test Procedure

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. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. 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 measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 3000MHz is checked.

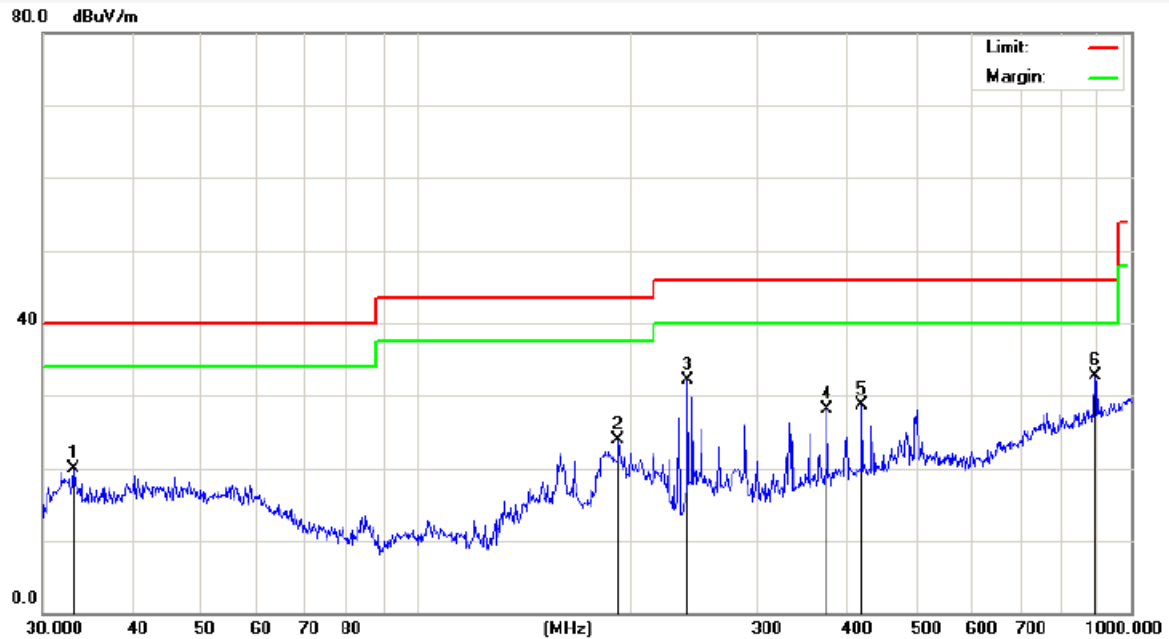
The test mode (On) is tested in chamber and all the test results are listed in Section 3.7.

3.7. Radiated Emission Measurement Results

PASS.

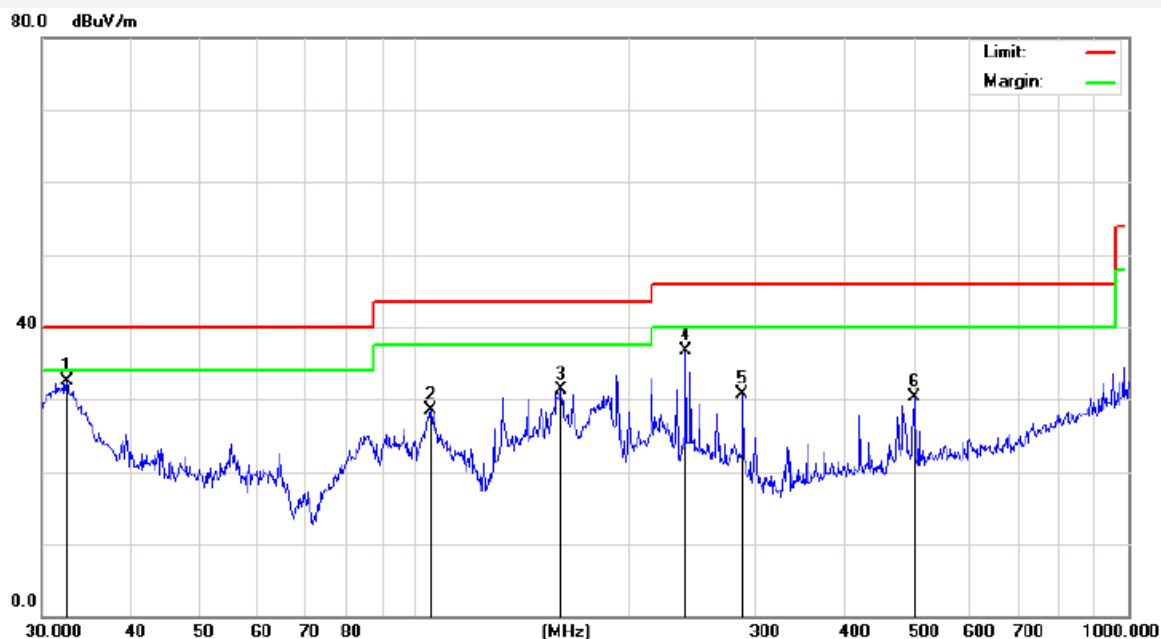
The test curves are shown in the following pages.

Job No.:	AT1312754F	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B _3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	21:06:47
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



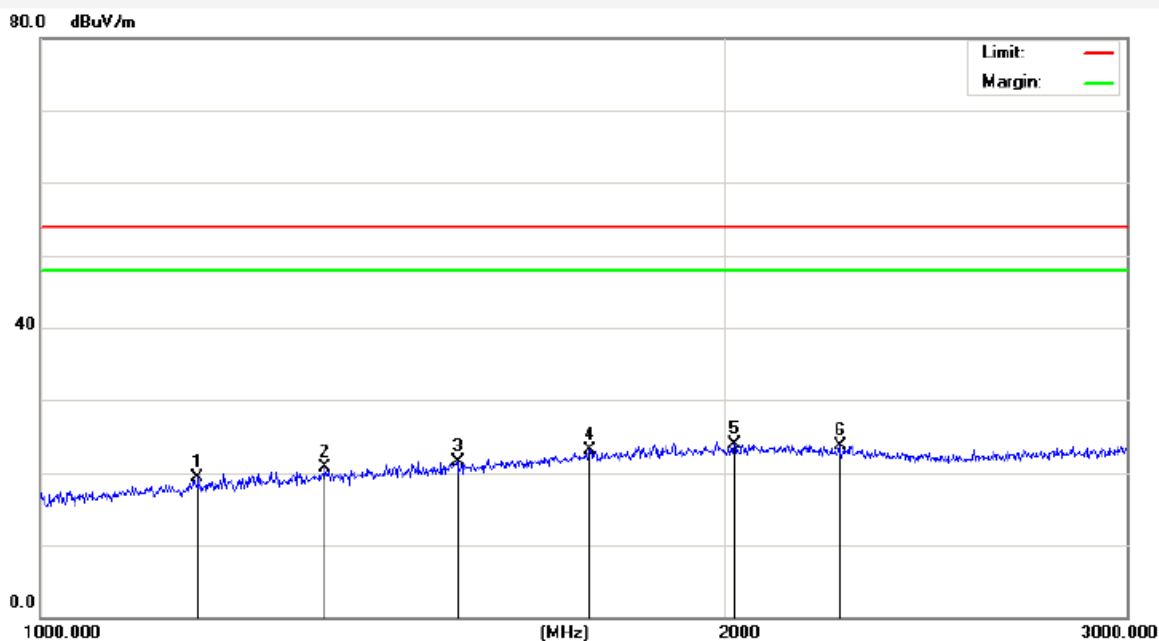
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.0950	36.43	-16.54	19.89	40.00	-20.11	peak			
2	191.7450	44.83	-20.92	23.91	43.50	-19.59	peak			
3	239.9874	50.24	-18.09	32.15	46.00	-13.85	peak			
4	375.9385	41.42	-13.35	28.07	46.00	-17.93	peak			
5	420.5803	41.17	-12.38	28.79	46.00	-17.21	peak			
6	890.7278	37.67	-4.92	32.75	46.00	-13.25	peak			

Job No.:	AT1312754F	Polarization:	Vertical
Standard:	(RE)FCC PART15 B_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	21:01:41
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



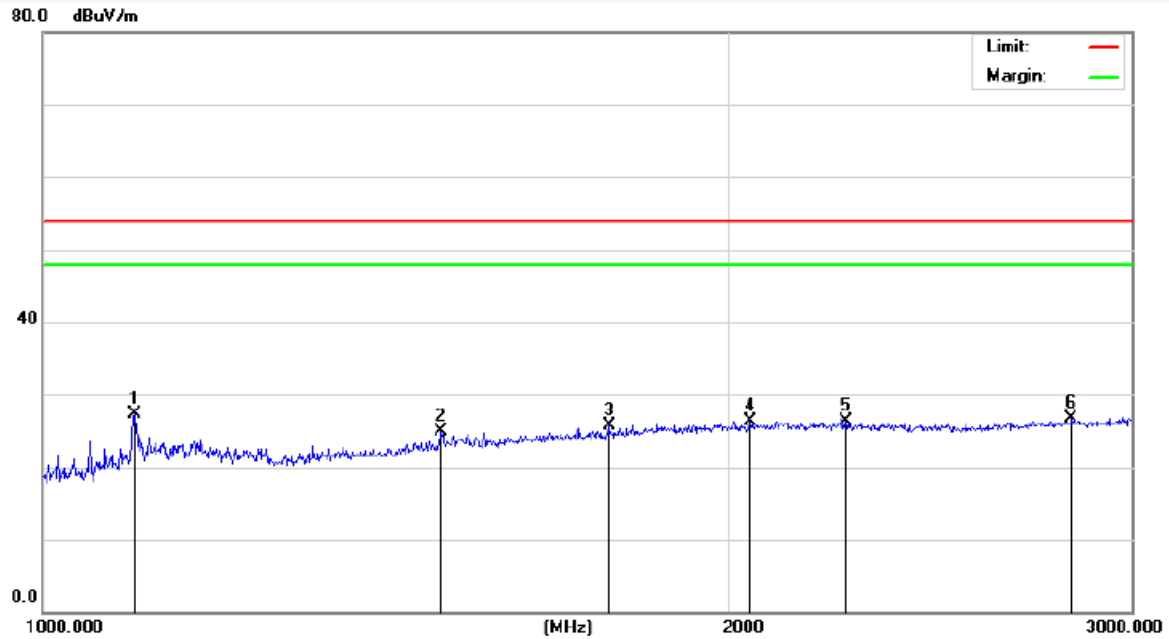
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.5198	49.03	-16.62	32.41	40.00	-7.59	peak			
2	105.2718	44.20	-15.70	28.50	43.50	-15.00	peak			
3	160.3456	49.17	-17.86	31.31	43.50	-12.19	peak			
4	239.9874	50.73	-14.09	36.64	46.00	-9.36	peak			
5	287.9904	45.77	-15.01	30.76	46.00	-15.24	peak			
6	501.1790	41.23	-10.94	30.29	46.00	-15.71	peak			

Job No.:	AT1312754F	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B_AV_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:52:12
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



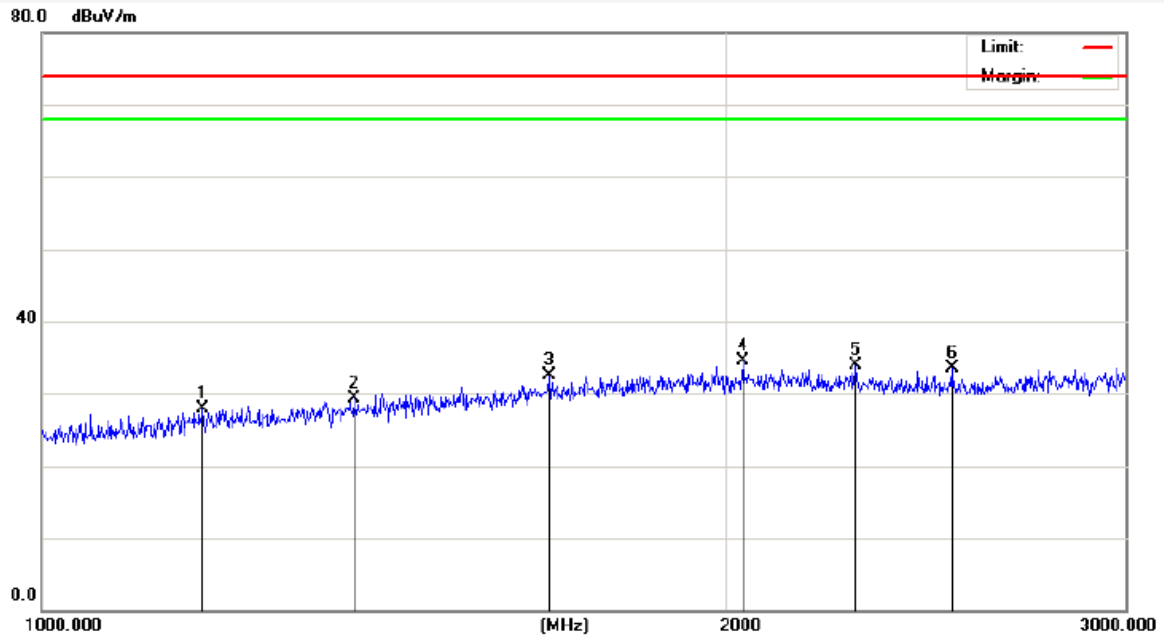
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1172.688	24.87	-5.48	19.39	54.00	-34.61	AVG			
2	1333.539	24.69	-3.98	20.71	54.00	-33.29	AVG			
3	1524.806	23.83	-2.29	21.54	54.00	-32.46	AVG			
4	1743.506	24.20	-1.06	23.14	54.00	-30.86	AVG			
5	2017.811	23.65	0.35	24.00	54.00	-30.00	AVG			
6	2244.715	23.93	-0.15	23.78	54.00	-30.22	AVG			

Job No.:	AT1312754F	Polarization:	Vertical
Standard:	(RE)FCC PART15 B_AV_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:56:27
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



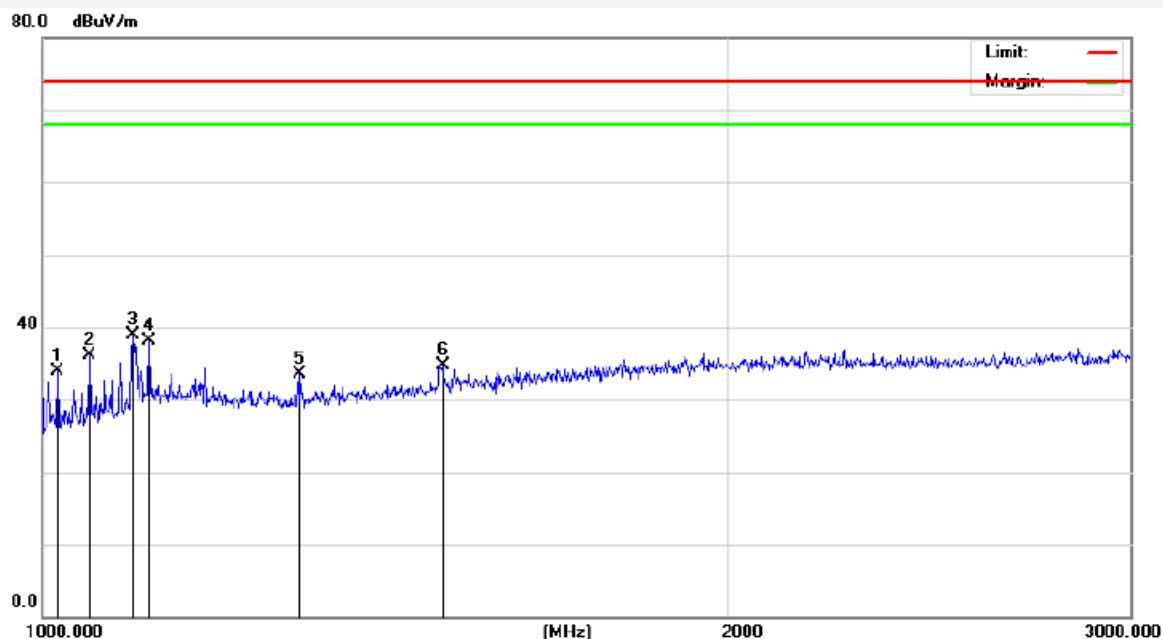
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1096.676	32.39	-5.06	27.33	54.00	-26.67	AVG			
2	1494.949	25.81	-0.87	24.94	54.00	-29.06	AVG			
3	1770.529	24.85	0.86	25.71	54.00	-28.29	AVG			
4	2042.344	23.94	2.28	26.22	54.00	-27.78	AVG			
5	2249.653	24.04	2.24	26.28	54.00	-27.72	AVG			
6	2824.097	24.51	2.13	26.64	54.00	-27.36	AVG			

Job No.:	AT1312754F	Polarization:	Horizontal
Standard:	(RE)FCC PART15 B_PK_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:48:33
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1177.853	33.42	-5.43	27.99	74.00	-46.01	peak			
2	1372.179	33.01	-3.61	29.40	74.00	-44.60	peak			
3	1674.056	33.86	-1.45	32.41	74.00	-41.59	peak			
4	2035.623	34.22	0.31	34.53	74.00	-39.47	peak			
5	2282.013	34.20	-0.23	33.97	74.00	-40.03	peak			
6	2516.413	34.25	-0.71	33.54	74.00	-40.46	peak			

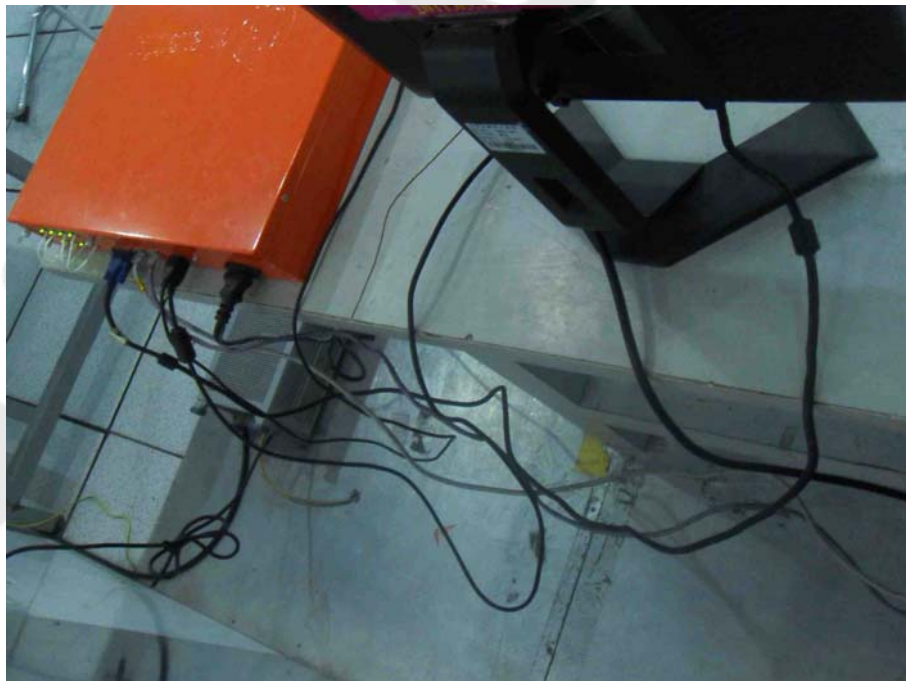
Job No.:	AT1312754F	Polarization:	Vertical
Standard:	(RE)FCC PART15 B_PK_3m	Power Source:	AC 120V, 60Hz
Test item:	Radiation Test	Date:	2013/12/25
Temp.(C)/Hum.(%RH):	24.3(C)/55%RH	Time:	20:43:06
EUT:	Elastix NLX4000	Test By:	Kebo Zhang
Model:	NLX4000	Distance:	3m
Note:	On		



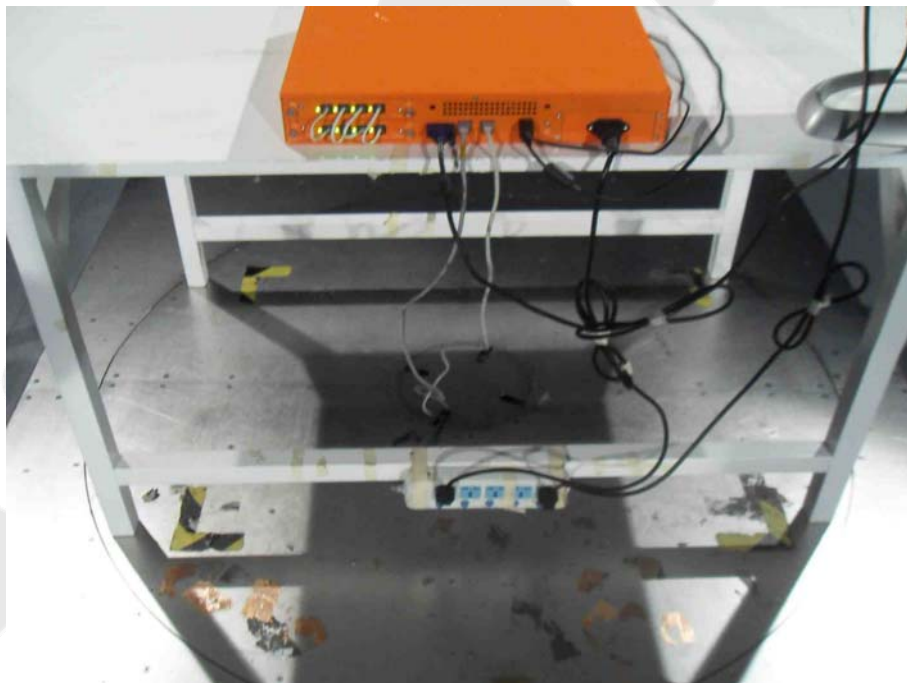
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	1015.500	39.89	-5.93	33.96	74.00	-40.04	peak			
2	1048.374	41.62	-5.58	36.04	74.00	-37.96	peak			
3	1095.472	43.90	-5.08	38.82	74.00	-35.18	peak			
4	1113.674	42.94	-4.89	38.05	74.00	-35.95	peak			
5	1297.411	36.51	-2.95	33.56	74.00	-40.44	peak			
6	1498.237	35.63	-0.84	34.79	74.00	-39.21	peak			

4. PHOTOGRAPH

4.1. Photo of Power Line Conducted Emission Test



4.2. Photo of Radiated Emission Test



APPENDIX I (Photos of EUT)

Figure 1
The EUT-Front View

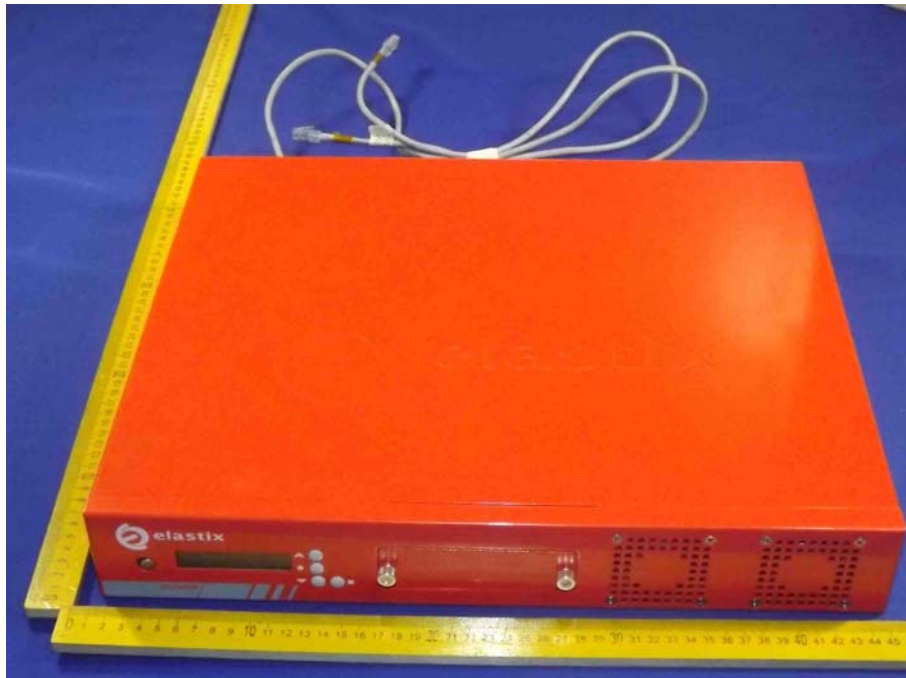


Figure 2
The EUT-Back View

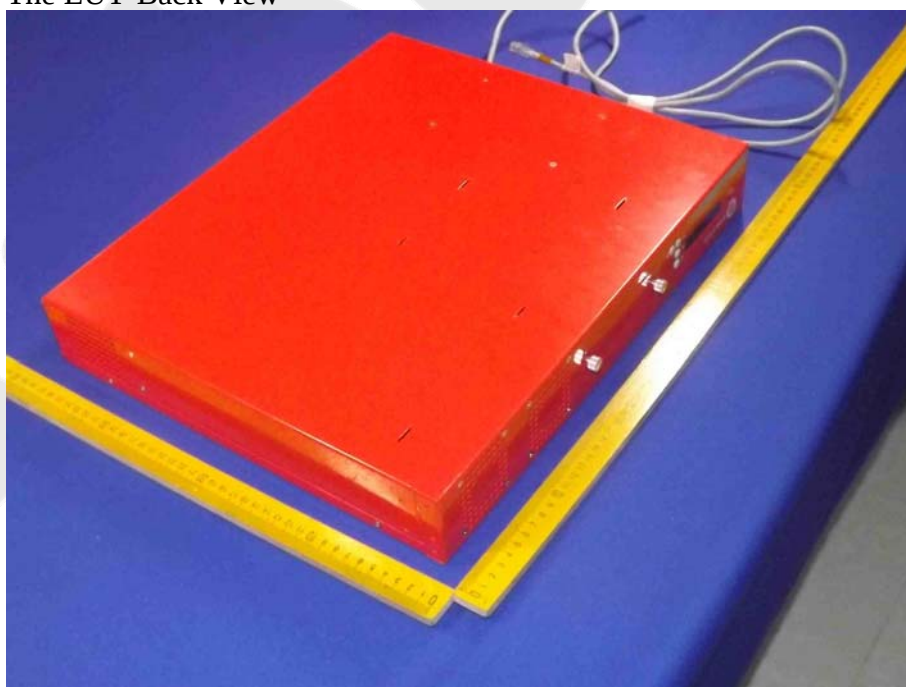


Figure 3
The EUT-Side View



Figure 4
The EUT-Side View



Figure 5
The EUT-Inside View



Figure 6
PCB of the EUT-Front View



Figure 7
PCB of the EUT-Back View

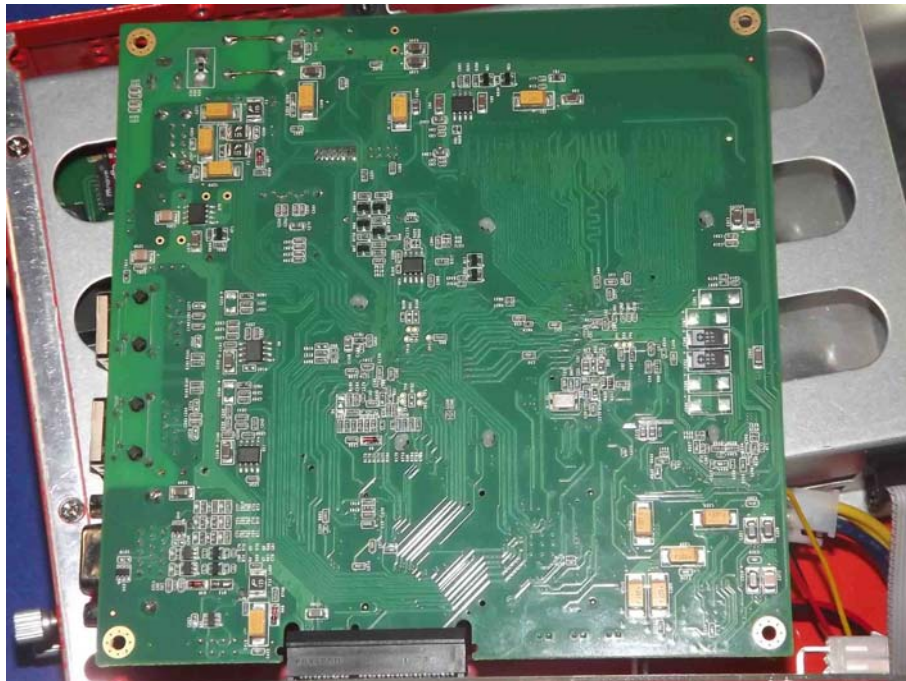


Figure 8
PCB of the EUT-Back View



Figure 9
PCB of the EUT-Front View

