EMC TEST REPORT

Report Ref. No.: **UK210102069**

Name of Product: **Heat/Energy Recovery Ventilator**

Model: **EHR-S 1000**

Testing Institute: **Guangdong U.K Standard Testing Co., Ltd.**

U.K Standard Testing

NOTICE

1. The report is invalid without the “Test report specialized stamp” or “the common seal of the testing institute” stamped.
2. The copy of the report is invalid without the “Test report specialized stamp” or “the common seal of the testing institute” restamped.
3. The report is invalid without the signature or stamp of the chief tester, verifier and ratifier.
4. The report is invalid if altered.
5. The result of the testing is only for the tested sample.
6. Different opinions about the report should be informed to the testing institute within 15 days from the date on which the report is received.

COMPANY NAME:	U.K Standard Testing Co., LTD
LABORATORY:	Building E, Nanpu Technology Innovation Center, Banshi Village, Changping Town, Dongguan City, Guangdong Province.
POST CODE:	523573
TEL:	4008559559
E-MAIL:	ukservice@163.com

Report ref. No.: UK210102069

EMC TEST REPORT

Name of product:	**Heat/Energy Recovery Ventilator**	Applicant:	**ENING d.o.o.**
Model:	**EHR-S 1000**	Address:	**Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.**
Quantity:	**Two sets**	Manufacturer:	**ENING d.o.o.**
Sample source:	**Sample is provided by applicant according to test requirements.**	Address:	**Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.**

Test result:

PASS

Introduction of other products which fall into the range requested by applicant and related information:

Name of product: Heat/Energy Recovery Ventilator

Unit model: EHR-S 1000
Covering range which applied by applicant: EHR-S 250, EHR-S 500, EHR-M 2000, EHR-M 3000

Approved on: Feb. 04, 2021 **By:** Ivy Zhang

Signature:

Remarks: 1. The test results presented in this report relate only to the item(s) tested.

2. The test report is converted from the original report UK171202109, except that the manufacturer and models are different, others are the same.

Composition of the Report

Items	Pages	No.
Front cover	1	No.: UK210102069
Head page	1	No.: UK210102069
Composition of the report	1	No.: UK210102069
EC type approval test report	32	No.: UK210102069
Back cover	1	

EC Type Approval Test Report

Name of product:	**Heat/Energy Recovery Ventilator**	Applicant:	**ENING d.o.o.**
Model:	**EHR-S 1000**	Address:	**Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.**
Quantity:	**Two sets**	Address:	**ENING d.o.o.**
Production No.:	**N/A**		**Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.**

Standards for tests:

EN61000-3-2:2019

Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)

EN61000-3-3:2013/A1:2019

Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current <= 16 A and subject to conditional connection

EN55014-1: 2017/A11:2020

Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

EN55014-2: 2015

Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity product family standard

Test result:

PASS

Tested On **Dec. 04~25, 2017** By **James Tang**

Signature: 

Verified On **Feb. 04, 2021** By **Eddie Ma**

Signature: 

Issue Date: 2021.02.04

U.K Standard Testing Co., Ltd.

Remarks: 1. The test results presented in this report relate only to the item(s) tested.

2. The test report is converted from the original report UK171202109, except that the manufacturer and models are different, others are the same.

1. General Information

1.1 Description of Device (EUT)

Product Name:	Heat/Energy Recovery Ventilator
Model Number:	EHR-S 1000
Applicant:	ENING d.o.o.
Address:	Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.
Manufacturer:	ENING d.o.o.
Address:	Straševina bb, P.fah 112, 81400 Nikšić, Montenegro.
Date of received:	Feb. 04, 2021
Date of Test:	Dec. 04 to Dec. 25, 2017

1.2 Test Uncertainty

Radiated Emission Uncertainty	:	± 3.86dB
Conducted Emission Uncertainty	:	± 2.66dB

Note: blank here

2. Measuring Device And Test Equipment

2.1 For Conducted Emission:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2020	1 Year
2.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	834549/005	May 29, 2020	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2020	1 Year
4.	50 Coaxial Switch	Anritsu	MP59B	M20531	May 29, 2020	1 Year

2.2 For Disturbance Power Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2020	1 Year
2.	Absorbing Clamp	Rohde & Schwarz	MDS21	833711/025	May 29, 2020	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2020	1 Year
4.	50 Coaxial Switch	Anritsu	MP59B	M20531	May 29, 2020	1 Year

2.3 For Harmonic Current / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Power Frequency Test System	HAEFELY	PHF555	080419-03	May 29, 2020	1 Year
2.	PC	N/A	P2L97	N/A	N/A	N/A

2.4 For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	HAEFELY	PESD1600	H708159	May 29, 2020	1 Year

2.5 For Electrical Fast Transient/Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	HAEFELY	PEFT4010	080981-16	May 29, 2020	1 Year
2.	Coupling Clamp	HAEFELY	IP-4A	147147	May 29, 2020	1Year

2.6 For Surge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Tester	HAEFELY	PSURGE4.1	080107-04	May 29, 2020	1 Year

2.7 For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EMTEST	CWS500C	0900-12	May 29, 2020	1Year
2.	CDN	EMTEST	CDN-M2	5100100100	May 29, 2020	1Year
3.	CDN	EMTEST	CDN-M3	0900-11	May 29, 2020	1Year
4.	Injection Clamp	EMTEST	F-2031-23MM	368	May 29, 2020	1Year
5.	Attenuator	EMTEST	ATT6	0010222A	May 29, 2020	1Year

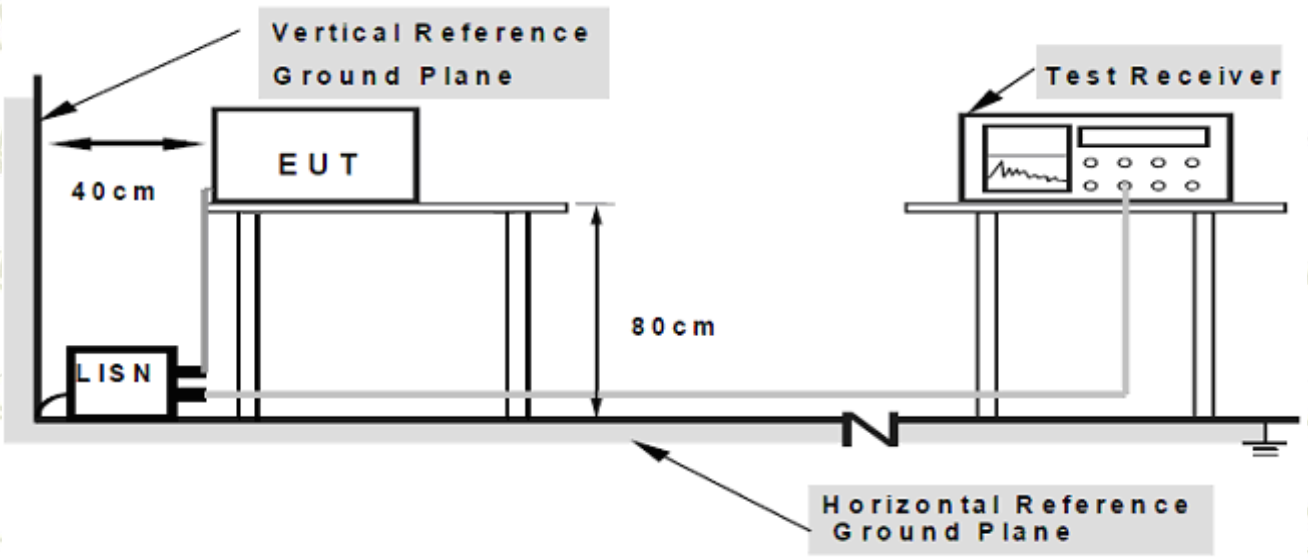
2.8 For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	HAEFELY	Pline1610	083732-18	May 29, 2020	1 Year

Note: blank here

3. Power Line Conducted Emission Measurement

3.1 Test Setup:



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.2 Measuring Standard

EN55014-1:2017/A11:2020

3.3 Power Line Conducted Emission Limits

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56.0*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

3.4 EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet EN 55014 –1 requirements and operating in a manner, which tends to maximize its emission characteristics in a normal application.

EUT: Heat/Energy Recovery Ventilator
Model Number: EHR-S 1000
Serial Number: N/A
Applicant: ENING d.o.o.

3. Power Line Conducted Emission Measurement

3.5 Operating Condition of EUT

3.5.1. Setup the EUT as shown on Section 3.1.

3.5.2. Turn on the power of all equipments.

3.5.3. Let the EUT work in measuring mode and measure it.

3.6 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN55014-1 regulations during conducted emission measurement. And the voltage probe had been used for the load terminals measurement according to the EN55014-1 standard. The bandwidth of the field strength meter (R&S Test Receiver ESCS30) is set at 9KHz. All the test results are listed in Section 3.6. All the scanning waveform is put in Appendix I.

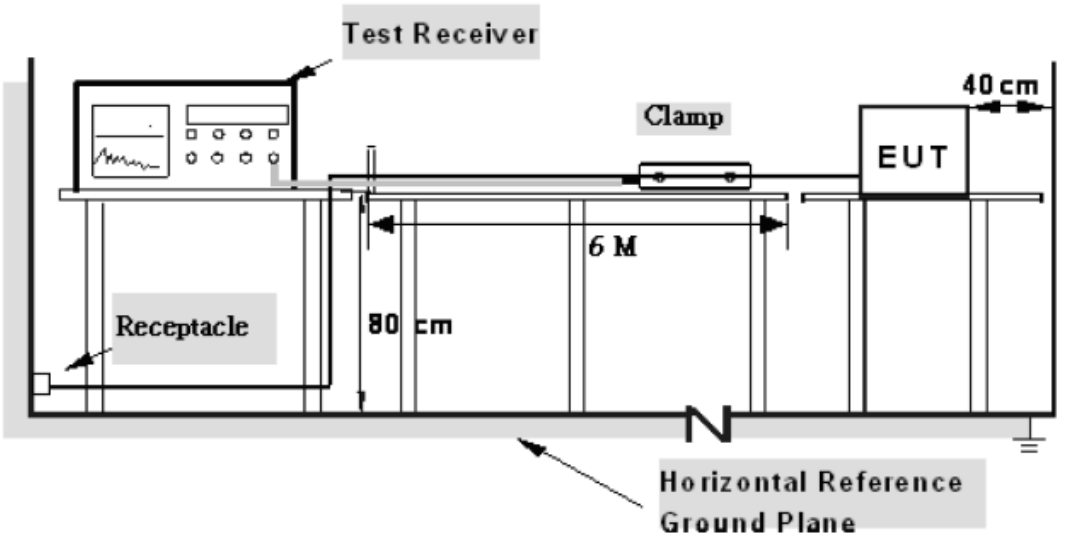
3.7 Power Line Conducted Emission Test Result: PASS.

The frequency range 150kHz to 30MHz is investigated in Appendix I.

Note: blank here

4. Disturbance Power Measurement

4.1 Test Setup



4.2 Measuring Standard

EN55014-1:2017/A11:2020

4.3 Disturbance Power Limit

All emanations from a class A device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Frequency MHz	Interference Power Limits dB(pW)	
	Quasi-peak Value	Average Value
30 ~ 300	45 Increasing Linearly with Frequency to 55 (Q.P.)	35 Increasing Linearly with Frequency to 45 (A.V.)

4.4 EUT Configuration on Test

The EN 55014-1 regulations test method must be used to find the maximum emission during radiated emission test. The configuration of EUT is the same as used in conducted emission test.

4.5 Operating Condition of EUT

4.5.1 Setup the EUT as shown on Section 4.1.

4.5.2 Turn on the power of all equipments.

4.53 Let the EUT work in measuring modes and measure it

4.6 Test Procedure

The EUT is placed on the plane 0.8m high above the ground by insulating support and away from other metallic surface at least 0.4m. It is connected to the power mains through an extension cord of 6m min. The absorbing clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord. The bandwidth of the field strength meter (R&S TEST RECEIVER ESCS30) is set at 120kHz.

All the test results are listed in Section 4.7, the scanning waveform attached in Appendix II.

4. Disturbance Power Measurement

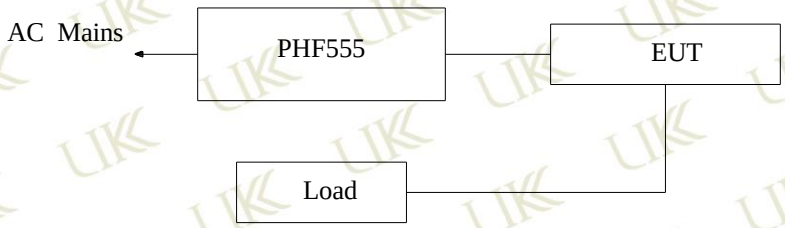
4.7 Disturbance Power Test Result : PASS

The frequency range from 30MHz to 300MHz is investigated in Appendix II.

Note: Blank here

5. Harmonic Current Emission Measurement

5.1 Block Diagram of Test Setup



(EUT: Heat/Energy Recovery Ventilator)

5.2 Measuring Standard

EN61000-3-2: 2019 Class A

5.3 Operation Condition of EUT

Same as Section 3.5 except the test setup replaced as Section 5.1.

5.4 Test Results: PASS

Note: Blank Here

5. Harmonic Current Emission Measurement

EN 61000-3-2 TEST REPORT

EUT: : Heat/Energy Recovery Ventilator
Model Number : EHR-S 1000
Manufacturer : ENING d.o.o.
Test Mode : Normal Operation
Operator : James Tang

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TEST SETUP

Test Freq.:		50.00Hz	Test Voltage:	220Vac
Waveform :		SINE	Test Time:	2 minutes
Classification :		A	Test Type	STEADY-STATE
Prog. Zo Enabled:		YES	Prog. Zo	0.000
Motor Driven with Phase Angle Control:			NO	
Impedance selected:	DIRECT	DIRECT	Synthetic R+L Enabled:	NO
Resistance:		0.380 Ohms	Inductance	460.000 uH

Result: **PASS**

Note: Blank here

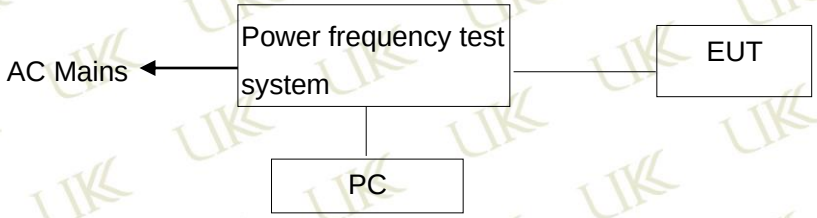
5. Harmonic Current Emission Measurement

EN 61000-3-2 TEST Data

	Harmonic Current Results				Harmonic Voltage Results		
Hn	AMPS	LO Limit	HI Limit	Result	%Fund.	Limit	Result
0	0.000	0.000	0.000	PASS	0.000	N/A	PASS
1	N/A	N/A	N/A	PASS	100.000	100.000	PASS
2	0.017	1.080	1.080	PASS	0.015	0.200	PASS
3	0.014	2.300	2.300	PASS	0.010	0.900	PASS
4	0.001	0.430	0.430	PASS	0.000	0.200	PASS
5	0.016	1.140	1.140	PASS	0.010	0.400	PASS
6	0.013	0.300	0.300	PASS	0.005	0.200	PASS
7	0.009	0.770	0.770	PASS	0.003	0.300	PASS
8	0.011	0.230	0.230	PASS	0.001	0.200	PASS
9	0.012	0.400	0.400	PASS	0.005	0.200	PASS
10	0.003	0.184	0.184	PASS	0.003	0.200	PASS
11	0.003	0.330	0.330	PASS	0.003	0.100	PASS
12	0.001	0.153	0.153	PASS	0.005	0.100	PASS
13	0.000	0.210	0.210	PASS	0.003	0.100	PASS
14	0.001	0.131	0.131	PASS	0.005	0.100	PASS
15	0.001	0.150	0.150	PASS	0.001	0.100	PASS
16	0.000	0.115	0.115	PASS	0.004	0.100	PASS
17	0.000	0.132	0.132	PASS	0.003	0.100	PASS
18	0.000	0.102	0.102	PASS	0.002	0.100	PASS
19	0.000	0.118	0.118	PASS	0.002	0.100	PASS
20	0.000	0.092	0.092	PASS	0.002	0.100	PASS
21	0.000	0.107	0.107	PASS	0.003	0.100	PASS
22	0.000	0.084	0.084	PASS	0.002	0.100	PASS
23	0.000	0.098	0.098	PASS	0.004	0.100	PASS
24	0.000	0.077	0.077	PASS	0.005	0.100	PASS
25	0.000	0.090	0.090	PASS	0.002	0.100	PASS
26	0.000	0.071	0.071	PASS	0.003	0.100	PASS
27	0.000	0.083	0.083	PASS	0.003	0.100	PASS
28	0.000	0.066	0.066	PASS	0.002	0.100	PASS
29	0.000	0.078	0.078	PASS	0.003	0.100	PASS
30	0.000	0.061	0.061	PASS	0.001	0.100	PASS
31	0.000	0.073	0.073	PASS	0.002	0.100	PASS
32	0.000	0.058	0.058	PASS	0.001	0.100	PASS
33	0.000	0.068	0.068	PASS	0.004	0.100	PASS
34	0.000	0.054	0.054	PASS	0.002	0.100	PASS
35	0.000	0.064	0.064	PASS	0.002	0.100	PASS
36	0.000	0.051	0.051	PASS	0.001	0.100	PASS
37	0.000	0.061	0.061	PASS	0.003	0.100	PASS
38	0.000	0.048	0.048	PASS	0.005	0.100	PASS
39	0.000	0.058	0.058	PASS	0.001	0.100	PASS
40	0.000	0.046	0.046	PASS	0.003	0.100	PASS

6. Voltage Fluctuation and Flicker Measurement

6.1 Block Diagram of Test Setup



(EUT: Heat/Energy Recovery Ventilator)

6.2 Measuring Standard

EN 61000-3-3: 2013/A1:2019

6.3 Operation Condition of EUT

Same as Section 3.4 except the test setup replaced by Section 6.1.

6.4 Measuring Results: PASS.

Please refer to the following page.

Note: Blank here.

6. Voltage Fluctuation and Flicker Measurement

EN 61000 -3-3 TEST REPORT

EUT: : Heat/Energy Recovery Ventilator
Model Number : EHR-S 1000
Manufacturer : ENING d.o.o.
Test Mode : Normal Operation
Operator : James Tang

==========

TEST SETUP

Test Freq:	50.00Hz	Test Voltage:	220Vac
Waveform:	SINE	Test Time:	10 minutes
Voltage Change less than once per hour:	NO	T_{short}:	10 minutes
Prog. Zo Enabled:	YES	Prog. Zo	0.000
Impedance selected:	IEC-725 STD. REF.	Synthetic R+L Enabled:	NO
Resistance:	0.380 Ohms	Inductance	460.000 uH

Test Data

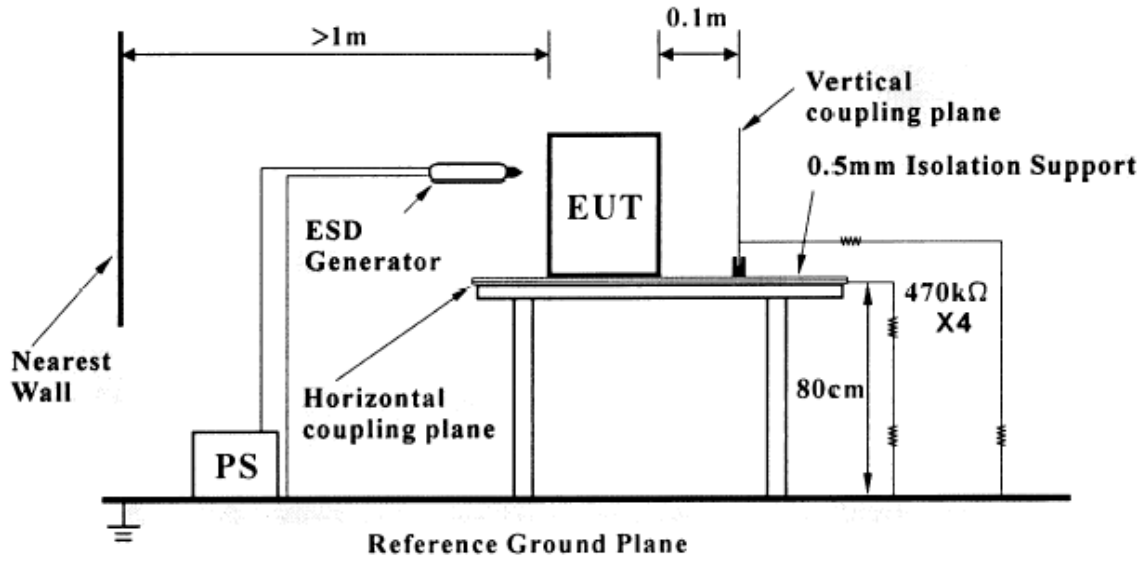
Test Item	EUT Data	Limit	Result	Test Enabled
Pst Max.	0.461	1.00	Pass	True
Plt max	0.415	0.65	Pass	True
dc %	0.57	3.00	Pass	True
dmax %	1.84	4.00	Pass	True
d(t) sec.	0.06	0.20	Pass	True

Test Result: **PASS**

Power Source Data					
Source	max	0.023	0.400	PASS	true
% THD		0.03	3.00	PASS	true

7. Electrostatic Discharge Immunity Test

7.1 Test Setup



7.2 Measuring Standard

EN55014-2: 2015

EN61000-4-2: 2009, Severity Level**:** Air Discharge: Level 3,± 8KV; Contact Discharge: Level 2, ± 4KV

7.3 Severity Levels and Performance Criterion

7.3.1 Severity level

Level	Contact Discharge Test Voltage	Air Discharge Test Voltage
1	± 2	± 2
2	± 4	± 4
3	± 6	± 8
4	± 8	± 15
X	Special	Special

7.3.2 Performance Criterion : B

7.4 EUT Configuration

The configuration of EUT is listed in Section 1.1

7.5 Operating Condition of EUT

7.5.1. Setup the EUT as shown in Section 7.1.

7.5.2. Turn on the power of all equipments.

7.5.3. Let the EUT work in test mode and measure it.

7. Electrostatic Discharge Immunity Test

7.6 Test Procedure

7.6.1 Air Discharge**:**

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

7.6.2 Contact Discharge**:**

All the procedure shall be same as Section 7.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

7.6.3 Indirect discharge for horizontal coupling plane**:**

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

7.6.4 Indirect discharge for vertical coupling plane**:**

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

7.7 Test Results: PASS.

Please refer to the following pages

Note: Blank here.

7. Electrostatic Discharge Immunity Test

Applicant:	ENING d.o.o.		
EUT:	Heat/Energy Recovery Ventilator		
M/N:	EHR-S 1000	Temperature	21℃
Power Supply:	220V, 50Hz	Humidity	59%
Test Mode:	Normal Operation	Performance Criterion:	B

Air Discharge: ±8KV
Contact Discharge: ±4KV, for each test point, positive 10 times and negative 10 times discharge

Location/Test Point		A: Air Discharge C: Conduct Discharge	Result
Slots of enclosure	4 points	A	Pass
Openings	4 points	A	Pass
Slots of Knob	4 points	A	Pass
Metal Screws	6 points	C	Pass
HCP	-	C	Pass
Front of VCP	-	C	Pass
Rear of VCP	-	C	Pass
Right of VCP	-	C	Pass
Left of VCP	-	C	Pass

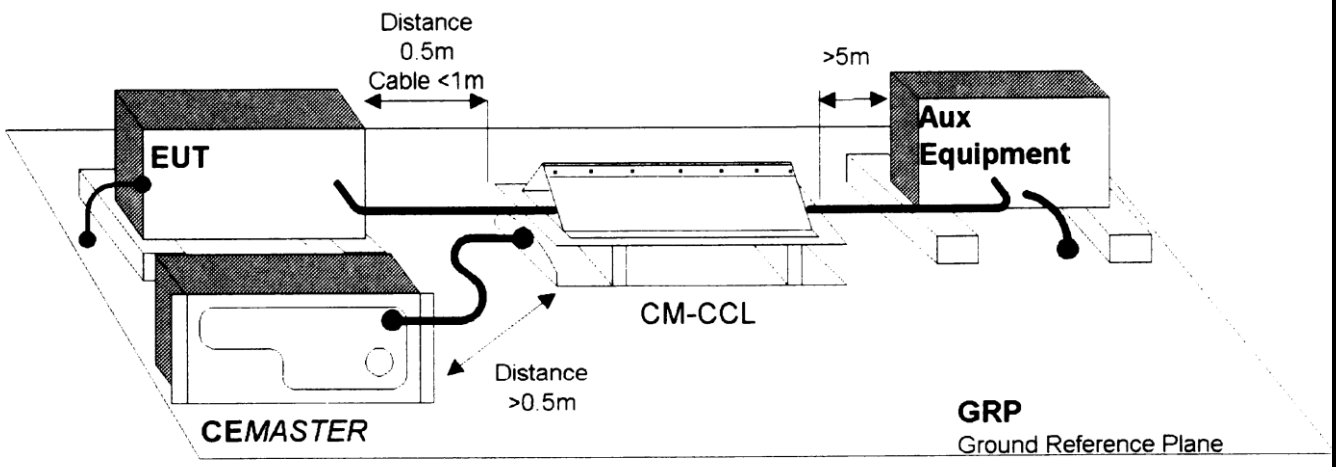
Note:

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

Note: Blank here

8. Electrical Fast Transient/Burst Immunity Test

8.1 Test Setup



8.2 Measuring Standard

EN55014-2: 2015

EN61000-4-4: 2012, Severity Level, Level 2 **:** 1KV

8.3 Severity Levels and Performance Criterion

8.3.1 Severity level

Open Circuit Output Test Voltage ±10%		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

8.3.2 Performance Criterion **: B**

8.4 EUT Configuration

The configuration of EUT is listed in Section 1.1

8.5 Operating Condition of EUT

8.5.1Setup the EUT as shown in Section 8.1.

8.5.2Turn on the power of all equipments.

8.5.3 Let the EUT work in test mode and measure it.

8. Electrical Fast Transient/Burst Immunity Test

8.6 Test Procedure

8.6.1 For input and output AC power ports:

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

8.6.2 For signal lines and control lines ports**:**

No Control signal output line.

8.6.3 For DC output line ports**:**

No DC output line ports.

8.7 Test Result: PASS.

Please refer to the following pages

Note: Blank here.

8. Electrical Fast Transient/Burst Immunity Test

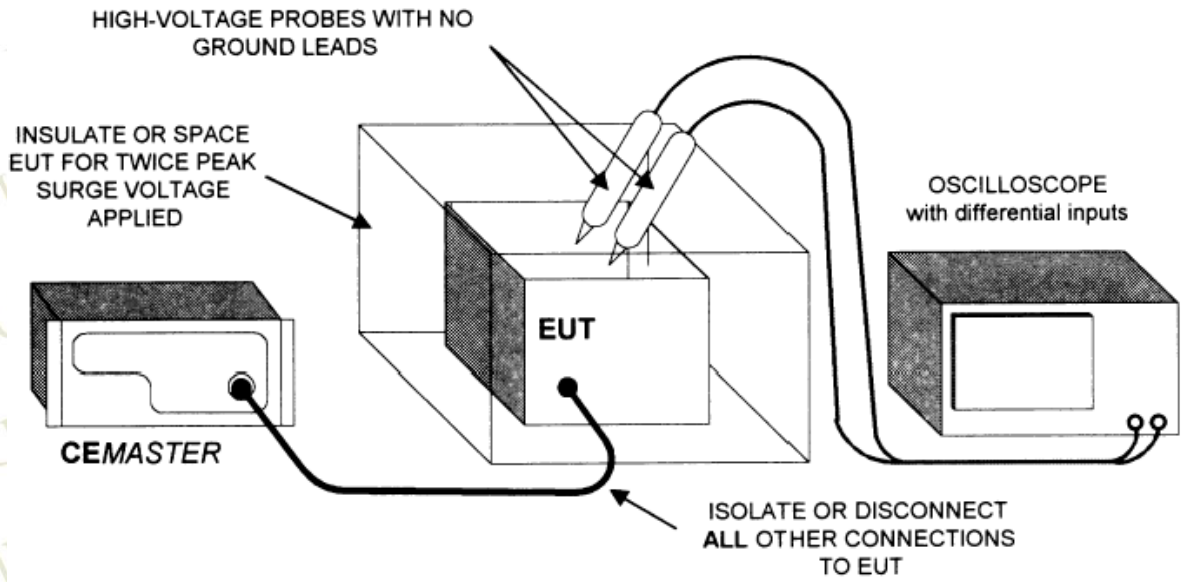
Applicant:	ENING d.o.o.		
EUT:	Heat/Energy Recovery Ventilator		
M/N:	EHR-S 1000	Temperature	21℃
Power Supply:	220V, 50Hz	Humidity	59%
Test Mode:	Normal Operation	Performance Criterion:	B

Injected Line	Polarity	Test Voltage (KV)	Injected Method	Test Time (s)	Test Result
L	±	1	Direct	120	Pass
N	±	1	Direct	120	Pass
L, N	±	1	Direct	120	Pass

Note: Blank here

9. Surge Immunity Test

9.1 Test Setup



9.2 Measuring Standard

EN55014-2: 2015

EN61000-4-5:2014/A1:2017, Severity Level : Line to Line: Level 2 , 1.0KV Line to PE: Level 3, 2.0KV

9.3 Severity Levels and Performance Criterion

9.3.1 Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

9.3.2 Performance Criterion : B

9.4 EUT Configuration

The configuration of EUT is listed in Section 1.1

9.5 Operating Condition of EUT

9.5.1. Setup the EUT as shown in Section 9.1.

9.5.2. Turn on the power of all equipments.

9.5.3. Let the EUT work in test mode and measure it.

9. Surge Immunity Test

9.6 Test Procedure

1) Set up the EUT and test generator as shown on Section 9.1.2.
2) For line to line coupling mode, provide a 0.5 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4) Different phase angles are done individually.
5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

9.7 Test Result: PASS

Please refer to the following pages

Note: Blank here.

9. Surge Immunity Test

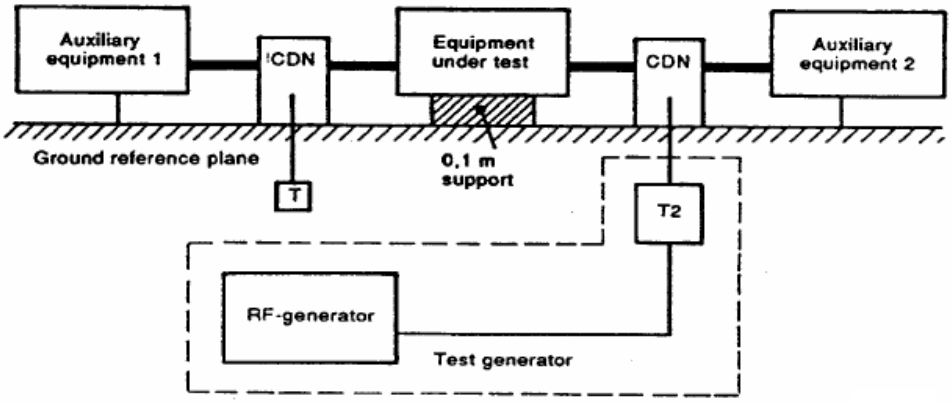
Applicant:	ENING d.o.o.		
EUT:	Heat/Energy Recovery Ventilator		
M/N:	EHR-S 1000	Temperature:	21℃
Power Supply:	220V, 50Hz	Humidity:	59%
Test Mode:	Normal Operation	Performance Criterion:	B

Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Test Result
L-N	+	0º	5	1.0	PASS
	+	90º	5	1.0	PASS
	+	180º	5	1.0	PASS
	+	270º	5	1.0	PASS
	-	0º	5	1.0	PASS
	-	90º	5	1.0	PASS
	-	180º	5	1.0	PASS
	-	270º	5	1.0	PASS

Note: Blank here

10. Injected Currents Susceptibility Test

10.1 Test Setup



T Termination 50 Ω
T_2 Power attenuator (6 dB)
CDN Coupling and decoupling network

10.2 Measuring Standard

EN55014-2:2015

EN61000-4-6:2014/AC:2015, Severity Level**:** 3V (rms),0.15MHz ~ 80MHz

10.3. Severity Levels and Performance Criterion

10.3.1 Severity level

Level	1	2	3	X
Field Strength V	1	3	10	Special

10.3.2. Performance criterion**: A**

10.3.2.1 Configuration: See 1.1

10.4 Test Procedure

1) Set up the EUT, CDN and test generators as shown on Section 10.1.2.
2) Let the EUT work in test mode and measure it.
3) The EUT are placed on an insulating support 0.8m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
4) The disturbance signal described below is injected to EUT through CDN.
5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
7) The rate of sweep shall not exceed $1.5*10^{-3}$decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

10. Injected Currents Susceptibility Test

10.5 Test Results: PASS.

Please refer to the follows.

Applicant:	ENING d.o.o.		
EUT:	Heat/Energy Recovery Ventilator		
M/N:	EHR-S 1000	Temperature:	21℃
Power Supply:	220V, 50Hz	Humidity:	59%
Test Mode:	Normal Operation	Performance Criterion:	B

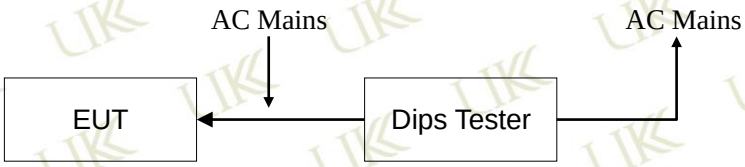
Frequency Range (MHz)	Injected Position	Field Strength (Vrms)	Injected Method	Performance Criterion	Test Result
0.15 ~ 80	AC Mains	3V	CDN	A	Pass

Remark **:** 1. Modulation Signal**:**1KHz 80% AM

Note: Blank here.

11. Voltage Dips And Interruptions Test

11.1 Test Setup



(EUT: Heat/Energy Recovery Ventilator)

11.2 Measuring Standard

EN55014-2: 2015

EN61000-4-11:2004/A1:2017

11.3 Severity Levels and Performance Criterion

11.3.1 Severity level

Test Level %U_T	Voltage dip and short interruptions %U_T	Duration (in period)
0	100	0.5
40	60	1
70	30	5
		10
		25
		50
		*

11.3.2 Performance criterion: **B, C**

11.3.3 Configuration: see 1.1

11.4 Operating Condition of EUT

11.5.1 Setup the EUT as shown in Section 11.1.

11.5.2 Turn on the power of all equipments.

11.5.3 Let the EUT work in test mode and measure it.

11.6 Test Procedure

1) Set up the EUT and test generator as shown on Section 11.1.2.

2) The interruptions are introduced at selected phase angles with specified duration.

3) Record any degradation of performance

11.7 Test Result: PASS

Please refer to the following page.

11. Voltage Dips And Interruptions Test

Applicant:	ENING d.o.o.		
EUT:	Heat/Energy Recovery Ventilator		
M/N:	EHR-S 1000	Temperature:	21℃
Power Supply:	220V, 50Hz	Humidity:	59%
Test Mode:	Normal Operation	Performance Criterion:	B, C

Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in period)	Criterion ☐ A ☑ B ☑ C ☐ D	Result
70	30	10P	C	PASS
0	100	0.5P	B	PASS

Remark **:** U_T is the rated voltage for the equipment.

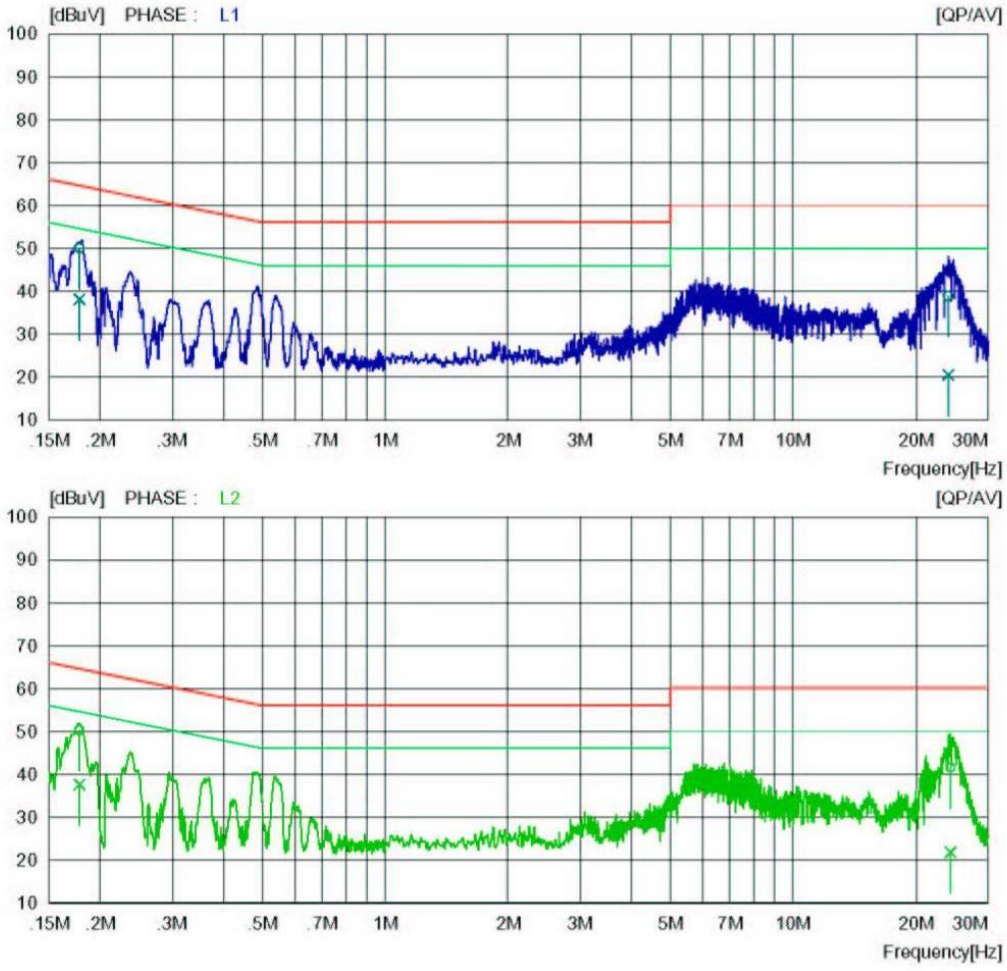
Note: Blank here.

Appendix I

Power Line Conducted Emission

EUT:	ENING d.o.o.
Model No.:	EHR-S 1000
Power Supply:	220V, 50Hz
Test Mode:	Normal Operation
Test Engr.:	James Tang
Temp./Humid.:	22℃/60

Limit: EN55014(QP)
EN55014(AV)



Appendix I

Power Line Conducted Emission

EUT: ENING d.o.o.
Model No.: EHR-S 1000
Power Supply: 220V, 50Hz
Test Mode: Normal Operation
Test Engr.: James Tang
Temp./Humid.: 22℃/60

Limit: EN55014(QP)
EN55014(AV)

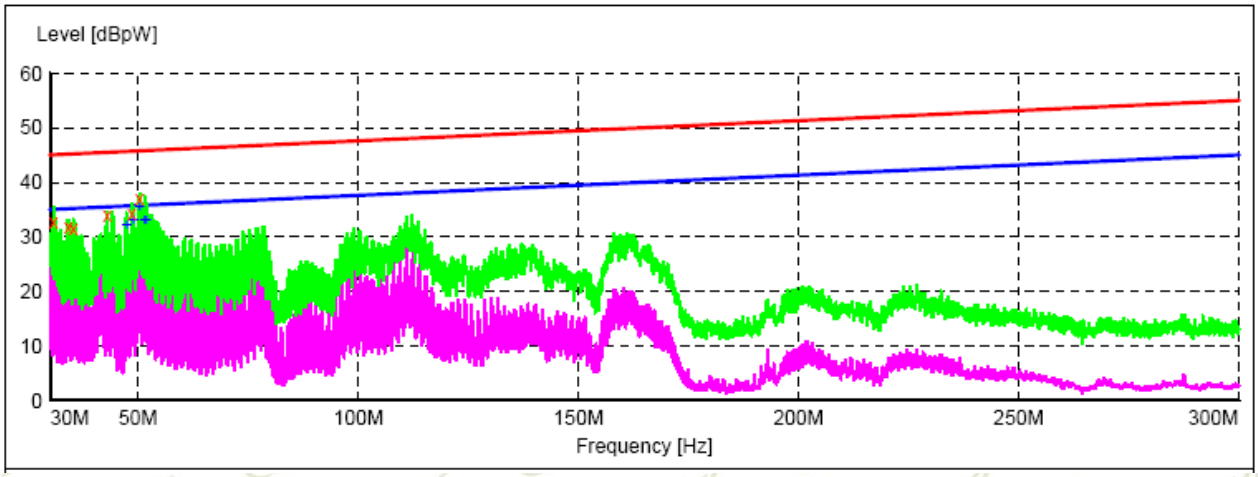
NO	FREQ	READING		C.FACTOR	RESULT		LIMIT		MARGIN		PHASE
		QP	AV		QP	AV	QP	AV	QP	AV	
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.17800	40.0	28.1	10.0	50.0	38.1	64.6	54.6	14.6	16.5	L1
2	23.95500	28.9	10.5	10.0	38.9	20.5	60.0	50.0	21.1	29.5	L1
3	0.17800	40.2	27.6	10.0	50.2	37.6	64.6	54.6	14.4	17.0	L2
4	24.29100	31.6	11.8	10.0	41.6	21.8	60.0	50.0	18.4	28.2	L2

Appendix II

Disturbance Power Measurement

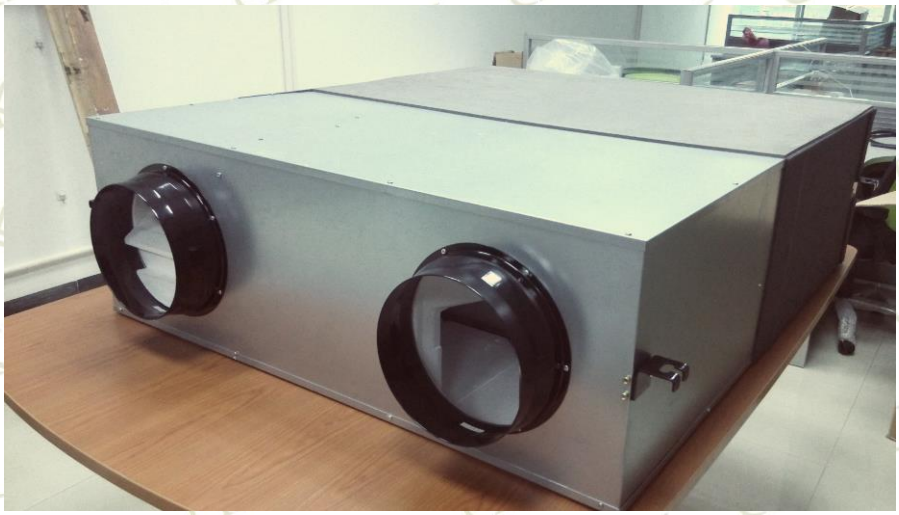
EUT: ENING d.o.o.
Model No.: EHR-S 1000
Power Supply: 220V, 50Hz
Test Mode: Normal Operation
Test Engr.: James Tang
Temp./Humid.: 22℃/60

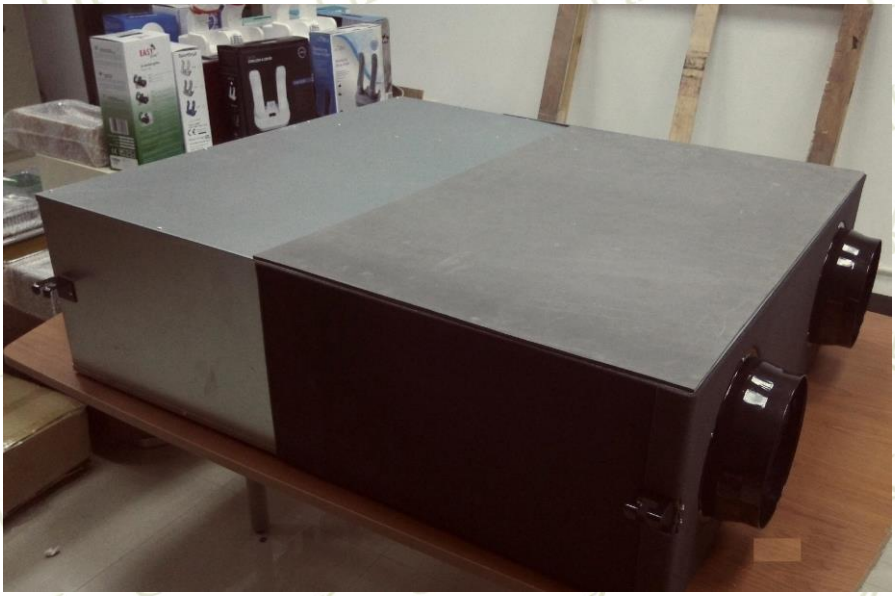
Limit: EN55014(QP); EN55014(AV)



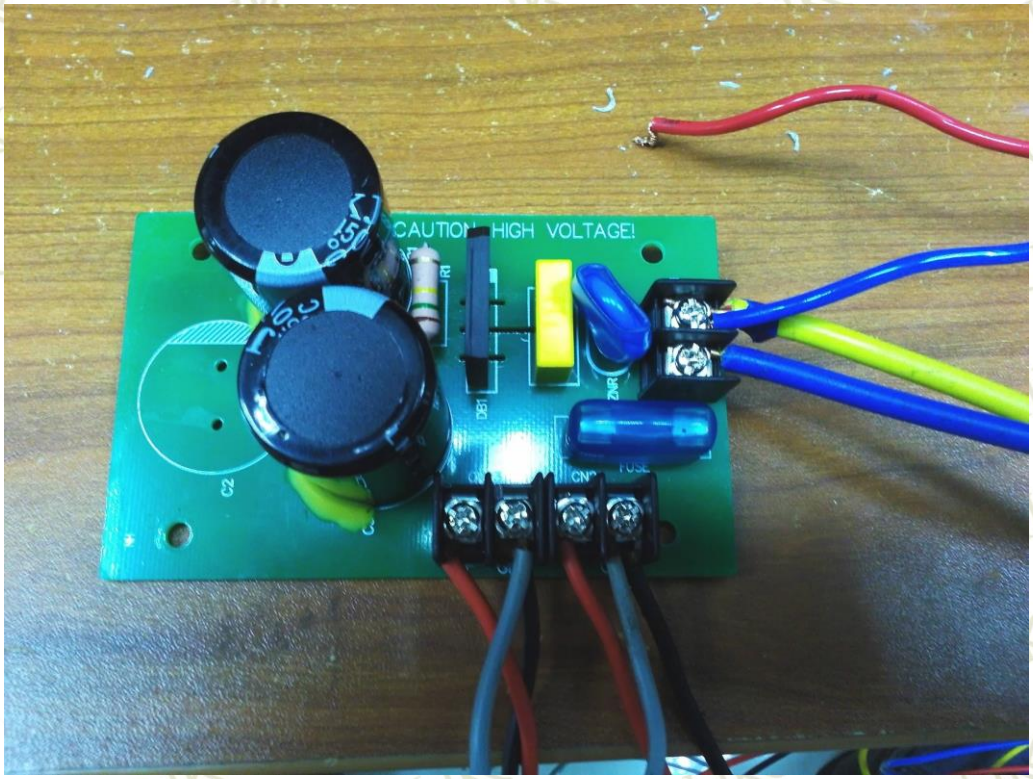
Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
30.840000	32.90	6.7	45	12.1	QP	505.0
34.200000	31.70	7.9	45	13.5	QP	509.0
35.280000	31.50	8.2	45	13.7	QP	516.0
43.020000	34.10	5.8	46	11.4	QP	508.0
48.540000	34.30	5.6	46	11.4	QP	524.0
50.340000	37.00	6.3	46	8.8	QP	526.0

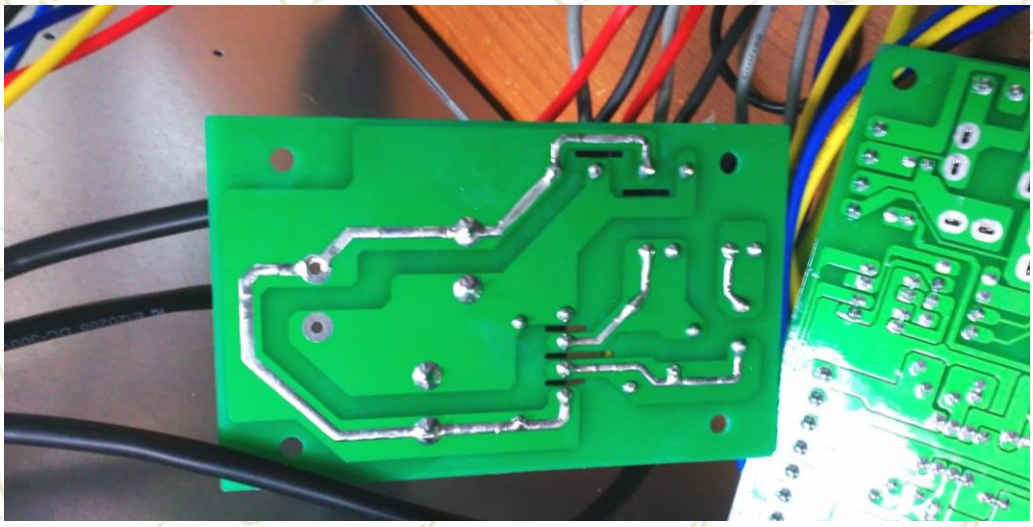
Appendix III - Photos of EUT



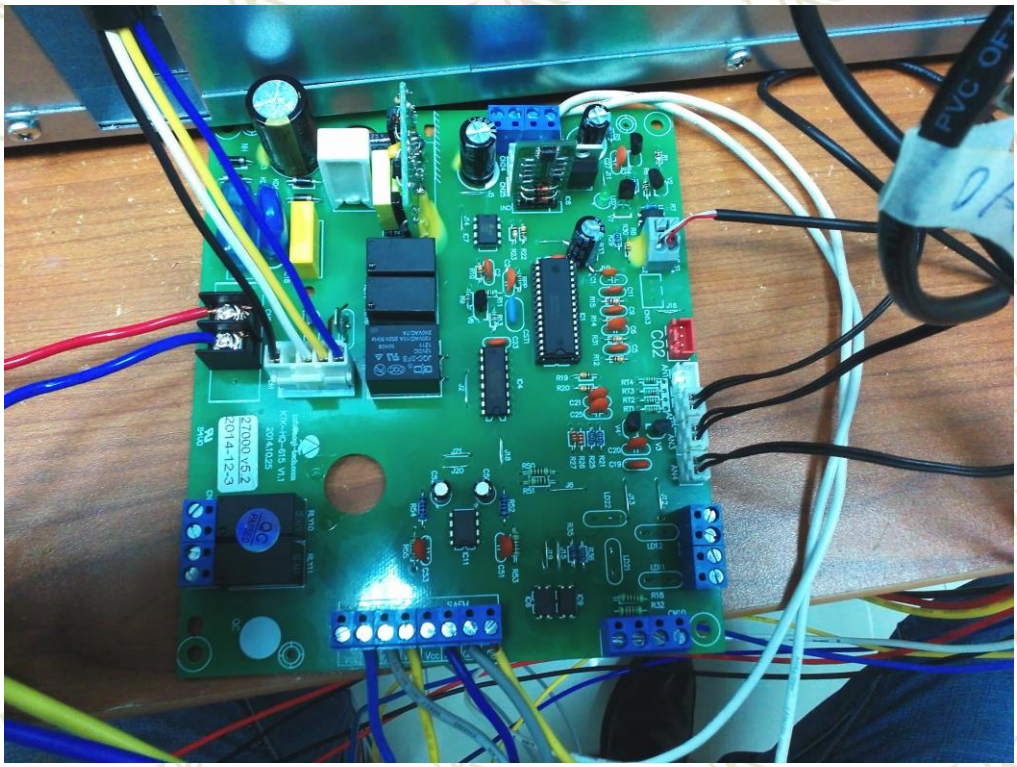


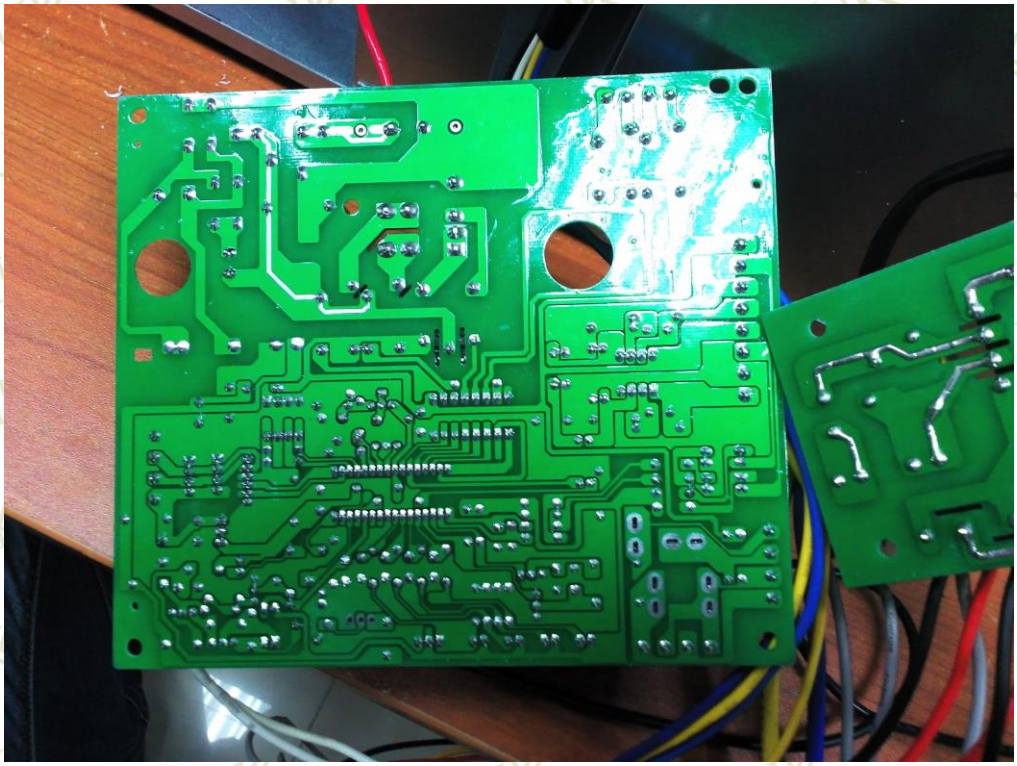
Appendix III - Photos of EUT





Appendix III - Photos of EUT





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