

## **Declaration of Conformity**



Date of Issue:

Apr 6, 2023

Certificate No.:

SAIL230328266E201C

**Applicant** 

Shenzhen Leyoupin Technology Co., Ltd

**Address** 

1-2/F, Building G1, Building 2, Building G5, Shabeili Yingkeli Industrial Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

Manufacturer:

Shenzhen Hongxin Tongchuang Technology Co., Ltd

**Address** 

1-2/F. Building G1. Building 2. Building G5. Shabeili Yingkeli Industrial Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

**Product** 

**Bladeless Humidifying Fan** 

**Trademark** 

Model No.

The submitted products have been tested by us with the listed standards and found in compliance with the following European Directives:

EMC Directive 2014/30/EU

standard

EN IEC 55014-1:2021

EN IEC 55014-2: 2021

EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019+A2:2021

Therefore, Shenzhen SAIL Testing Technology Co., Ltd hereby acknowledges that the manufacturer may issue a declaration of conformity and apply the CE marking in accordance with European Union Rules.

Attestation by:

Mars Zhang, Chief Manager

1. This certificate is only valid in connection with the test report number: SAIL 230

2. This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above-mentioned product. It does not imply an assessment of the whole production and other relevant directives have to be observed. Other relevant Directives have to be observed.

#### Shenzhen SAIL Testing Technology Co.,Ltd

Address: Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou Xintiandi, 6038 Longgang Avenue, Shenzhen, P.R. China

E-Mail: <u>sail@sail-lab.cn</u> TEL: +86 755-23288964 www.sail-test.com



# **EMC TEST REPORT**

## For

Shenzhen Leyoupin Technology Co., Ltd Bladeless Humidifying Fan

Model No. :HX872

Prepared for : Shenzhen Leyoupin Technology Co., Ltd

Address :1-2/F, Building G1, Building 2, Building G5, Shabeili Yingkeli

Industrial Park, Longxin Community, Baolong Street, Longgang

District, Shenzhen

Prepared By: Shenzhen SAIL Testing Technology Co.,Ltd

Address :Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou

Xintiandi, 6038 Longgang Avenue, Shenzhen,

P.R.China

Report Number :SAIL230328266E201

Date of Test :Mar 28, 2023 Date of Report :Apr 6, 2023



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### TEST REPORT DECLARATION

Applicant : Shenzhen Leyoupin Technology Co., Ltd

Manufacturer : Shenzhen Hongxin Tongchuang Technology Co., Ltd

Description: Bladeless Humidifying Fan

(A) Model No. : HX872

(B) Trademark : /

(C) Test Voltage : DC 5V

#### Measurement Standard Used:

EN IEC 55014-1:2021

EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021

EN IEC 55014-2: 2021

The device described above is tested by Shenzhen SAIL Testing technology Co., Ltd to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen SAIL Testing technology Co., Ltd is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the EN IEC 55014-1, EN IEC 61000-3-2, EN 61000-3-3 and EN IEC 55014-2 requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of .

Tested by (name + signature).....: Chacl Liang

**Test Engineer** 

Approved by (name + signature).....:Mars Zhang

**Authorize Signatory** 

Date of issue.....:Apr 6, 2023

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# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1. Description of Standards and Results

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

EMISSION						
Description of Test Item	Standard	Limit s	Results			
Conducted disturbance at mains terminals test	EN IEC 55014-1:2021	Section 4.1.1	N/A			
Disturbance power test	EN IEC 55014-1:2021	Section 4.1.2	N/A			
Radiated disturbance	EN IEC 55014-1:2021	Section 9	PASS			
Harmonic current emissions	EN IEC 61000-3- 2:2019+A1:2021	Class A	N/A			
Voltage fluctuations & flicker	EN 61000-3- 3:2013+A1:2019+A2:2021	Section 5	N/A			
Clicks	EN IEC 55014-1:2021	Section 4.2	N/A			

## 2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description : Bladeless Humidifying Fan

Model Number: HX872

DIFF. :

Trademark: /

Applicant : Shenzhen Leyoupin Technology Co., Ltd

Address :1-2/F, Building G1, Building 2, Building G5, Shabeili

Yingkeli Industrial Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

Manufacturer : Shenzhen Hongxin Tongchuang Technology Co., Ltd

Address :1-2/F, Building G1, Building 2, Building G5, Shabeili

Yingkeli Industrial Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

Sample Type : Prototype production

2.2. Block Diagram of connection between EUT and simulators

**EUT** 

**※ EUT: Bladeless Humidifying Fan** 



## 2.3. Laboratory Name: Shenzhen SAIL Testing Technology Co., Ltd

### 2.4. Site Location:

Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou Xintiandi, 6038 Longgang Avenue, Shenzhen, P.R. China

### 2.5. Measurement Uncertainty

(95% confidence levels, k=2)

Test Item	Uncertainty	U <sub>cispr</sub>
Uncertainty for Conduction emission test	2.50dB	3.8 dB
Uncertainty for Radiation Emission test	3.04 dB (Distance: 3m Polarize: V) 3.02 dB (Distance: 3m Polarize: H)	5.2 dB
Uncertainty for Flicker test	0.05%	N/A
Uncertainty for Harmonic test	1.8%	N/A

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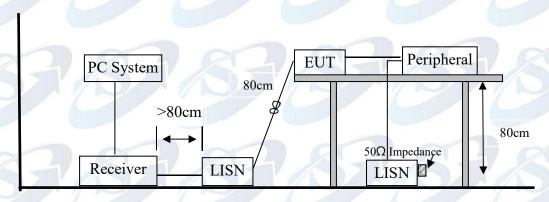


## 3. CONDUCTED DISTURBANCE AT MAINS TERMINALS TEST

### 3.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESCI	100843	Sep.19, 22	1 Year
2.	L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	Sep.19, 22	1 Year
3.	Terminator	Hubersuhner	50Ω	No. 1	Sep.19, 22	1 Year
4.	RF Cable	Schwarzbeck	9111505/20 0	5995-12-161- 6890#	Sep.19, 22	1 Year
A. A.	Coaxial Switch	Schwarzbeck	CX-210	N/A	Sep.19, 22	1 Year
6.	Pulse Limiter	Schwarzbeck	VTSD9516F	9618	Sep.19, 22	1 Year

## 3.2. Block Diagram of Test Setup



### 3.3. Conducted Disturbance at Mains Terminals Test Standard and Limit

## 3.3.1. Test Standard EN IEC 55014-1:2021

#### 3.3.2. Test Limit

	Frequency	At mains terminals (dBμV)			
	rrequerity	Quasi-peak Level	Average Level		
4	150kHz ~ 500kHz	66 ~ 56 *	59 ~ 46 *		
p.l.	500kHz ~ 5MHz	56	46		
	5MHz ~ 30MHz	60	50		

Notes: 1. Emission level=Read level+LISN factor-Preamp factor+Cable loss

- 2\* Decreasing linearly with logarithm of frequency.
- 3. The lower limit shall apply at the transition frequencies.



### 3.4. EUT Configuration on Test

The following equipment are installed on conducted disturbance at mains terminals to meet EN IEC 55014-1 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

## 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT as shown in section 3.2.
- 3.5.2. Turned on the power of all equipment.
- 3.5.3.Let the EUT worked in test mode and measure it.

#### 3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). The power line was checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN IEC 55014-1 on Conducted Disturbance at Mains Terminals test.

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

The frequency range from 150kHz to 30MHz is checked. The test result are reported on Section 3.7.

#### 3.7. Conducted Disturbance at Mains Terminals Test Results

#### N/A

The EUT is supplied by battery, so this item does not applicable.

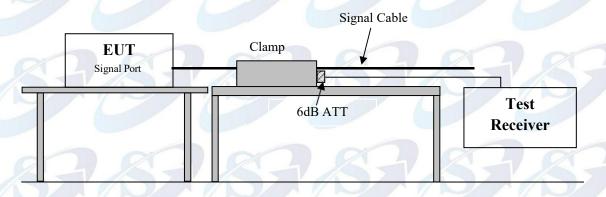


## 4. DISTURBANCE POWER TEST

## 4.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
7.	Test Receiver	Rohde & Schwarz	ESCI	100843	Sep.19, 22	1 Year
8.	Absorbing Clamp	Liithi	MDS-21	4054	Sep.19, 22	1 Year
	N50(f-m) 6dB Fixed Attenuator	Agilent	8491A	MY39264395	Sep.19, 22	1 Year
10.	RF Cable	MIYAZAKI	5D-2W	NO.1	Sep.19, 22	1 Year

## 4.2. Block Diagram of Test Setup



### 4.3. Disturbance Power Test Standard and Limit

- 4.3.1. Test Standard EN IEC 55014-1:2021
- 4.3.2. Test Limit

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

Frequency	Interference Power Limits (dBpW)			
MHz	Quasi-peak Value	Average Value		
20 200	45 Increasing Linearly	35 Increasing Linearly		
30 ~ 300	with Frequency to 55	with Frequency to 45		

Emission level=Read level+LISN factor-Preamp factor+Cable loss

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The EN IEC 55014-1 regulations test method must be used to find the maximum emission during radiated power test. Any lead connecting the EUT to an auxiliary apparatus is disconnected if this does not affect the operation of the EUT, or is isolated by means of absorbing clamp close to the EUT, a similar measure was made on each lead which is or may be connected to an auxiliary apparatus, whether or not it is necessary for the operation of the EUT.

### 4.5. Operating Condition of EUT

Same as conducted test which is listed in section 3.6. except the test setup replaced by section 4.2.

#### 4.6. Test Procedure

The EUT is placed on the table which is high 0.8m by insulating support and away from other metallic surface at least 0.8m. It is connected to the power mains through an extension cord of 6m minimums. The absorber clamp was clamps the cord and moves from the far end to EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the field strength meter (Rohde&Schwarz Test Receiver ESCI) is set at 120kHz.

The frequency range from 30MHz to 300MHz is checked. All the test results are listed in Section 4.7.

#### 4.7. Disturbance Power Test Result

#### N/A

The EUT has no cable out, so this item does not applicable.



## 5. RADIATED DISTURBANCE TEST

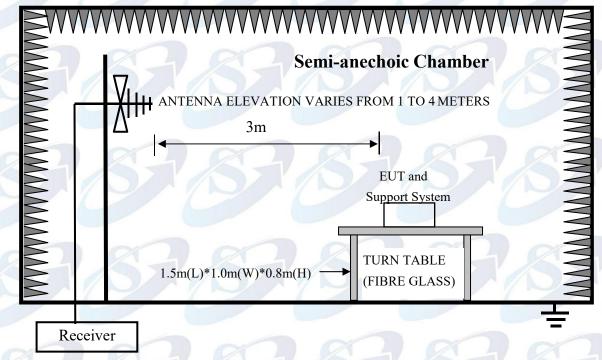
## 5.1. Test Equipment

### 5.1.1. For frequency range 30MHz~1000MHz (At Semi Anechoic Chamber)

Item		Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde&Schwar z	ESCI	101165	Sep.19, 22	1 Year
2	Amplifier	Schwarzbeck			Sep.19, 22	
3	Bilog Antenna	Schwarzbeck	VULB 9168	VULB9168- 438	Sep.19, 22	1 Year
		Schwarzbeck			Sep.19, 22	
		Schwarzbeck			Sep.19, 22	
6	RF Cable	Schwarzbeck	AK9515E	95891-0.5m	Sep.19, 22	1 Year

## 5.2. Block Diagram of Test Setup

### 5.2.1. In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



#### 5.3. Test Standard

EN IEC 55014-1:2021

#### 5.4. Radiated Disturbance Limit

All emanations from a Class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

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FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS
(MHz)	(Meters)	(dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) Emission level = Read level+Antenna Factor-Preamp Factor +Cable Loss

- (2) The lower limit shall apply at the transition frequencies.
- (3) Distance refers to the distance in meters between the test instrument antenna and the closed point of any part of the E.U.T.

### 5.5. EUT Configuration on Test

The EN IEC 55014-1 regulations test method must be used to find the maximum emission during Radiated Disturbance test. The configuration of EUT is same as used in Conducted Disturbance test. Please refer to Section 3.5.

## 5.6. Operating Condition of EUT

- 5.6.1. Setup the EUT and simulator as shown as Section 5.2.
- 5.6.2. Turned on the power of all equipment.
- 5.6.3. Let the EUT work in test mode (Working) and measure it.

#### 5.7. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m & 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all the interface cables were changed according to EN IEC 55014 on Radiated Disturbance test.

The bandwidth setting on the test receiver (Rohde&Schwarz Test Receiver ESCI) is 120 kHz.



## 5.8. Test result

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

### For frequency range 30MHz~1000MHz

The EUT with the following test mode was tested and read Q.P values, the test results are listed in next pages.

Temperature: 24°C Humidity: 54%

The details of test mode is as follows:

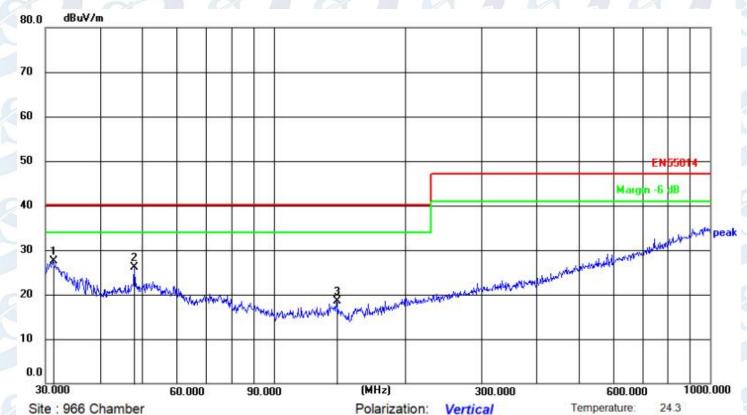
No.	Test Mode
1.	Working

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### Shenzhen SAIL Testing Technology Co.,Ltd



Limit: EN55014 ClassB 3M Radiation

Power: EUT: 4# Distance: 3m

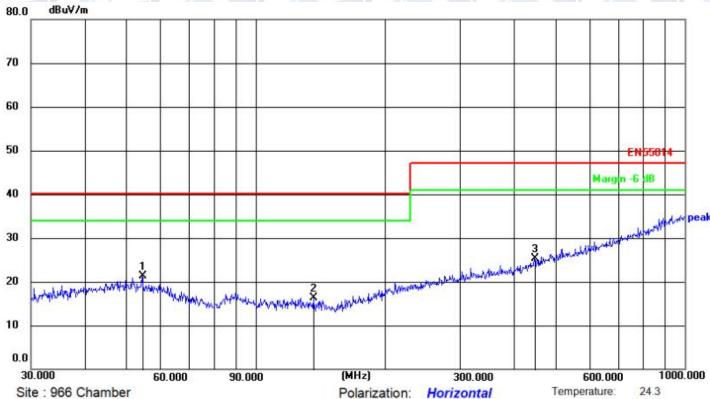
M/N: Mode: Note:

Vo.	Mk.	Freq.	Level	Factor	ment	Limit	Over		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	31.1798	43.35	-15.81	27.54	40.00	12.46	peak	100	0	
2		47.9940	39.51	-13.50	26.01	40.00	13.99	peak	100	0	
3		139.3613	37.18	-18.73	18.45	40.00	21.55	peak	100	0	

Humidity:

66 %





Limit: EN55014 ClassB 3M Radiation

Power:

66 % Humidity:

EUT: 4#

Distance: 3m

M/N: Mode:

Note:

No. Mk.	Freq.	Level	Factor	ment	Limit	Over		Height	Degree		
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	54.4516	35.06	-13.69	21.37	40.00	18.63	peak	100	360	
2		136.4598	34.86	-18.62	16.24	40.00	23.76	peak	100	360	
3		446.4141	34.86	-9.57	25.29	47.00	21.71	peak	100	360	



### 6. CLICKS

The EUT which fulfil the following condition:

- --the click rate is no more than 5;
- --none of the caused clicks has duration longer than 20 ms,
- --90% of the caused clicks have a duration less than 10 ms (measured duration time is 0.4ms), was deemed to comply with the limits.

The disturbance from individual switching operations, caused directly or indirectly, manually or by similar activities on a switch or a control which is included in an appliance or otherwise to be used for:

- a) the purpose of mains connection or disconnection only;
- b) the purpose of programme selection only;
- c) the control of energy or speed by switching between a limited number of fixed positions;
- d) the changing of the manual setting of a continuously adjustable control such as a variable speed device for water extraction or electronic thermostats, is to be disregarded for the purpose of testing the appliance for compliance with the limits of radio disturbance set out in this standard.

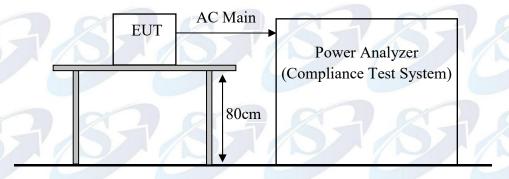
Also the disturbance caused by the operation of any switching device or control which is included in an appliance for the purpose of mains disconnection for safety only, is to be disregarded for the purpose of testing the appliance for compliance with the limits of radio disturbance as described in this standard.

# 7. HARMONIC CURRENT TEST

## 7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial	Last Cal.	Cal.
				No.		Interval
1.	Harmonics&Flicker	Voltech	PM6000	2000067	Sep.19, 22	1 Year
	Analyser			00495		

## 7.2. Block Diagram of Test Setup



## 7.3. Harmonics Test Standard

EN IEC 61000-3-2:2019+A1:2021, Class A

### 7.4. Limits of Harmonic Current

Limits for Clas	s A equipment
Harmonic order	Maximum permissible Harmonic current
n	A
Odd ha	rmonics
3	2,30
	1,14
7	0,77
9	0,40
11	0,33
13	0,21
15≤n≤39	0,15
	0,10 n
Even ha	rmonics
2	1,08
4	0,43
6	0,30
8≤n≤40	$0,23  \frac{8}{n}$

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# 7.5. Operating Condition of EUT

Same as section 3.6. except the test set up replaced by section 7.2..

#### 7.6. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

### 7.7. Test Results

The EUT is supplied by battery, so this item does not applicable.

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# 8. VOLTAGE FLUCTUATIONS & FLICKER TEST

## 8.1. Test Equipment

Same as Section 7.1.

8.2. Block Diagram of Test Setup

Same as Section 7.2.

8.3. Voltage Fluctuation and Flicker Test Standard

EN 61000-3-3:2013+A1:2019+A2:2021

8.4. Limits of Voltage Fluctuation and Flick

Test Item	Limit	Note
P <sub>st</sub>	1.0	P <sub>st</sub> means Short-term flicker indicator
P <sub>lt</sub>	0.65	P <sub>lt</sub> means long-term flicker indicator
T <sub>dt</sub>	0.2	T <sub>dt</sub> means maximum time that dt exceeds 3%
d <sub>max</sub> (%)	4%	d <sub>max</sub> means maximum relative voltage change.
d <sub>c</sub> (%)	3%	d <sub>c</sub> means relative steady-state voltage change.

## 8.5. Operating Condition of EUT

Same as Section 7.5.

#### 8.6. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions During the flick measurement, the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

#### 8.7. Test Results

The EUT is supplied by battery, so this item does not applicable.



Performance Level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level by its manufacturer or the requestor of the test, or the agreed between the manufacturer and the purchaser of the product.

Definition related to the performance level:

- 1. Based on the used product standard
- 2. Based on the declaration of the manufacturer, requestor or purchaser Criterion A:

Definition: normal performance within limits specified by the manufacturer, requestor and purchaser.

The *apparatus* shall continue to operate as intended during the test and after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion B:

Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention.

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed, however. No change of actual operation state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect form the apparatus the apparatus if used as intended.

Criterion C:

Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention.

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

Criterion D:

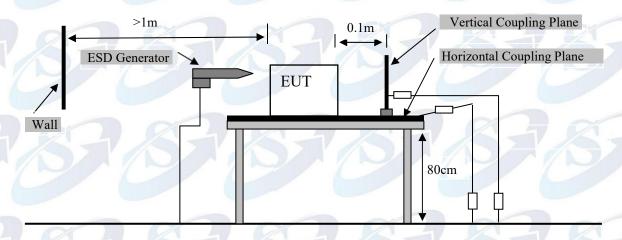
Definition: loss of function or degradation of performance, which is not recoverable, owing to damage to hardware or software, or loss of data.

# 10. ELECTROSTATIC DISCHARGE TEST

## 10.1.Test Equipment

Item	Equipment	Manufacture	Model No.	Serial No.		Cal.
		r				Interval
	ESD	HAEFLY	PESAX61	H310546	Sep.19, 22	1 Year
	Tester		0			

## 10.2.Block Diagram of Test Setup



### 10.3. Test Standard

EN IEC 55014 -2: 2021

(Severity Level 1&2&3 for Air Discharge at 2kV&4kV&8kV,

Severity Level 1&2 for Contact Discharge at 2kV&4kV)

## 10.4. Severity Levels and Performance Criterion

10.4.1. Severity level

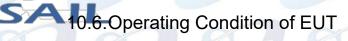
Lovel	Test Voltage	Test Voltage
Level	Contact Discharge (kV)	Air Discharge (kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X	Special	Special

10.4.2. Performance criterion: B

## 10.5.EUT Configuration

The configuration of EUT are listed in section 3.5.





Same as conducted test which is listed in section 3.6. except the test setup replaced by section 10.2.

#### 10.7. Test Procedure

#### 10.7.1. Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed

### 10.7.2. Contact Discharge:

All the procedure was same as Section 10.7.1. except that the generator was re-triggered for a new single discharge for each pre-selected test point. The tip of the discharge electrode was touch the EUT before the discharge switch was operated.

### 10.7.3. Indirect discharge for horizontal coupling plane

At least 20 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

### 10.7.4. Indirect discharge for vertical coupling plane

At least 20 single discharge were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

#### 10.8. Test Results

PASS.

The EUT was tested and all the test results are listed in next page.

Report No.SAIL230328266E201



# **Electrostatic Discharge Test Results**

Applicant	Shenzhen Leyoupin Technology Co., Ltd	Test Date	Apr 6, 2023
EUT	Bladeless Humidifying Fan	Temperature :	23.5℃
M/N	AX	Humidity :	54%
Test Voltage	DC 5V	Test Mode :	Working
Test Engineer	 Tom	Pressure :	100.6KPa
Required Performance	В	Actual Performance	A

Air Discharge:±8kV # For Air Discharge each Point Positive 10 times and negative 10 times discharge.

Contact Discharge:±4kV # For Contact Discharge each point positive 10 times and negative 10 times discharge

For the time interval between successive single discharges an initial value of one second.

Discharge	Type of	Dischargeable	Perfo	Result		
Voltage (kV)	discharge	Points	Required	Observation	(Pass/Fai	
±4	Contact		В	N/A	Pass	
±8	Air	1 1 7	В	A	Pass	
±2	HCP-Bottom	Edge of the HCP	В	A	Pass	
±2	VCP-Front	Center of the VCP	В	Α	Pass	
±2	VCP-Left	Center of the VCP	В	Α	Pass	
±2	VCP-Back	Center of the VCP	В	A	Pass	
±2	VCP-Right	Center of the VCP	В	Α	Pass	
±4	HCP-Bottom	Edge of the HCP	В	A	Pass	
±4	VCP-Front	Center of the VCP	В	Α	Pass	
±4	VCP-Left	Center of the VCP	В	A	Pass	
±4	VCP-Back	Center of the VCP	В	A	Pass	
±4	VCP-Right	Center of the VCP	В	A	Pass	
	D	ischarge Points Desc	ription			
1 Slots			4			
2			<u>5</u>			
3	7/		6			

Test Equipment: ESD Tester PESAX610

Remark:

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

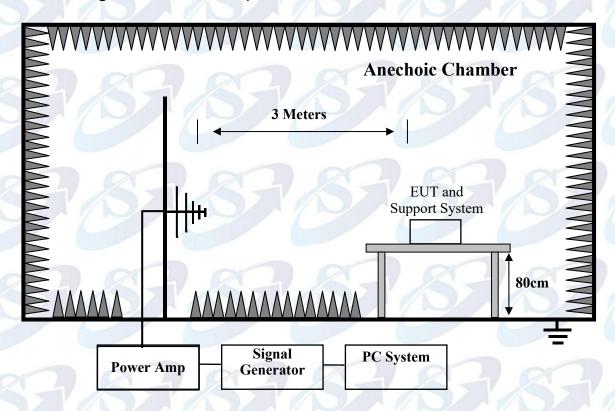


## 11. RF FIELD STRENGTH SUSCEPTIBILITY TEST

11.1.Test Equipment

Item	Equipment	Manufacture	Model No.	Serial No.	Last Cal.	Cal.
		r				Interval
1.	Signal Generator	Marconi	2031B	11606/058	Sep.19, 23	1 Year
2.	Amplifier	A&R	100W/1000M 1	17028	NCR	NCR
3.	Isotropic Field Monitor	A&R	FM7004	0325983	NCR	NCR
4.	Isotropic Field Probe	A&R	FL7006	0325736	Sep.19, 22	1 Year
5.	Laser Probe Interface	A&R	FL7000	325430	NCR	NCR
6.	Power Meter	Anritsu	ML2487A	6k0000326 2	Sep.19, 22	1Year
7.	Power Sensor	Anritsu	MA2491A	33005	Sep.19, 22	1Year
8.	Log-periodic Antenna	A&R	AT1080	16512	NCR	NCR

## 11.2.Block Diagram of Test Setup



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#### 11.3. Test Standard

EN IEC 55014 -2: 2021 (Severity Level: 2 at 3V / m)

### 11.4. Severity Levels and Performance Criterion

### 11.4.1. Severity level

Level	Test Field Strength V/m
1.	1
2.	3
3.	10
X	Special

#### 11.4.2. Performance criterion: A

### 11.5.EUT Configuration

The configurations of EUT are listed in Section 3.5.

### 11.6. Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.6. except the test set up replaced by Section 11.2.

### 11.7. Test Procedure

Testing was performed in a fully anechoic chamber as recommended by . The EUT was placed on an 80 cm high non-conductive table located in the area of field uniformity. The radiating antenna was placed 3m in front of the EUT and Support system, and dwell time of the radiated interference was controlled by an automated, computer-controlled system. The signal source was stepped through the applicable frequency range at a rate no faster than 1% of the funfamental. The signal was amplitude modulated 80% over the frequency range 80 MHz to 1GHz at a level of 3 V/m. The dwell time was set at 3 s. Field presence was monitored during testing via a field probe placed in close proximity to the EUT. Throughout testing, the EUT was closely monitored for signs of susceptibility. The test was performed with the antennae oriented in both a horizontal and vertical polarization.

All	the scanning conditions are as follows:  Condition of Test	Remarks
1.	Test Fielded Strength	3 V/m (Severity Level 2)
2.	Radiated Signal	80% amplitude modulated with a 1kHz sine wave
3.	Scanning Frequency	80 - 1000 MHz
4.	Sweeping time of radiated	0.0015 decade/s
5.	Dwell Time	3 Sec.





# RF Field Strength Susceptibility Test Results

Applicant : She	Shenzhen Leyoupin Technology Co., Ltd				Date	: 4	Apr 6, 2023
EUT : Bla	Bladeless Humidifying Fan				perature	: 2	23°C
M/N : AX	//N : AX			Humidity : 54		54%	
Test Voltage : DC 5V				Pressure : 10		00.6KPa	
Test Engineer : Tom			Test Mode : Work		Vorking		
Frequency Range : 80 MHz -1000MHz Field Strength : 3V/m			SV/m				
Required : A Performance	Required : A			Actua Perfo	al ormance	: <i>F</i>	000
Modulation:	☑ AM	☑ AM ☐ Pulse ☐ none 1 kHz 80%					
		Frequency	y Range	:80 M	Hz -1000	ИНz	
Steps	1%						
	Horizontal			Vertical		Result	
	Required	Observation	Requi	red	Observa	ation	(Pass / Fail)
Front	A	A	A		A		Pass
D'11	A	A	Α		A		Pass
Right			1		1		
Rear	Α	Α	Α		Α		Pass

#### Test Equipment:

1. Signal Generator : Marconi 2031B

2. Power Amplifier: A&R 500A/100;100W/1000M.

Power Antenna : A&R AT-1080.
 Field Monitor : A&R FM7004.

Remark: No function loss

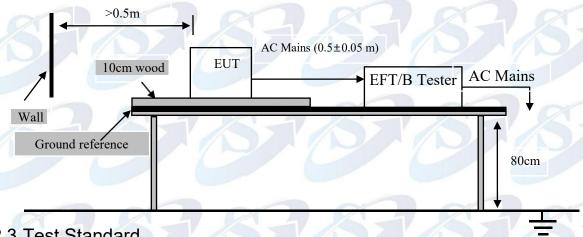


## 12. ELECTRICAL FAST TRANSIENT/BURST TEST

### 12.1.Test Equipment

Item	Equipment	Manufacture	Model No.	Serial No.	Last Cal.	Cal.	
		r				Interval	
1.	EFT	3ctest	EFT-4001G	20100710	Sep.19, 22	1 Year	3
	Equipment			0461015			

## 12.2.Block Diagram of Test Setup



### 12.3. Test Standard

EN IEC 55014 -2: 2021 (Severity Level 2 at 1kV)

## 12.4. Severity Levels and Performance Criterion

## 12.4.1. Severity level

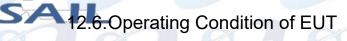
_						
	Open Circuit Output Test Voltage ±10%					
	Level	ON Power Supply	ON I/O (Input/Output)			
		Lines	Signal data and control			
4			lines			
	1.	0.5 kV	0.25 kV			
	2.	1 kV	0.5 kV			
	3.	2 kV	1 kV			
	4.	4 kV	2 kV			
	X	Special	Special			

12.4.2. Performance criterion: B

## 12.5.EUT Configuration

The configuration of EUT are listed in section 3.5.

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Same as conducted test which is listed in section 3.6. except the test setup replaced by section 12.2.

#### 12.7. Test Procedure

The EUT and its simulators were placed on the ground reference plane and were insulated from it by an wood support  $0.1m \pm 0.01m$  thick. The ground reference plane was 1m\*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was 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 was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

### **12.7.1.** For input and output AC power ports:

The EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage was applied during compliance test and the duration of the test can't less than 1min.

### 12.7.2. For signal lines and control lines ports:

It's not I/O ports.

It's unnecessary to measure.

#### 12.7.3. For DC input and DC output power ports:

It's not DC ports.

It's unnecessary to measure.

#### 12.8. Test Result

The EUT is supplied by battery, so this item does not applicable.



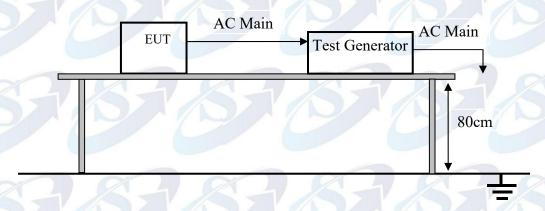


## 13. SURGE TEST

## 13.1.Test Equipment

Item	Equipment	Manufacture r	Model No.	Serial No.		Cal. Interval
1.	Surge Cdn	3ctest	SGN-5010G	EC559100 4	Sep.19, 22	1 Year
	Surge Generator	3ctest	SG-5006G	EC558100 6	Sep.19, 22	1 Year

## 13.2.Block Diagram of Test Setup



### 13.3. Test Standard

EN IEC 55014-2: 2021

(Severity Level: Line to Line: Level 2 at 1kV

Line to Ground: Level 3 at 2kV)

## 13.4. Severity Levels and Performance Criterion

13.4.1. Severity level

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

13.4.2. Performance criterion: B

## 13.5.EUT Configuration

The configuration of EUT are listed in section 3.5.

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Same as conducted test which is listed in section 3.6. except the test setup replaced by section 13.2.

#### 13.7. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 13.2.
- 2) For line to line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral line to ground are same except test level is 2kV.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied 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.

### 13.8. Test Result

The EUT is supplied by battery, so this item does not applicable.

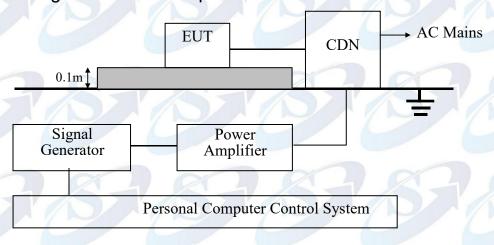


## 14. INJECTED CURRENTS SUSCEPTIBILITY TEST

## 14.1.Test Equipment

Item	Equipment	Manufacture r	Model No.	Serial No.	Last Cal.	Cal. Interval
11/1/20	Signal Generator	Marconi	GDN 6000	11606/058	Sep.19, 22	1 Year
2.	Amplifier	AR	25A250A	19152	NCR	NCR
3.	CDN	FCC	FCC-801-M3-2 5	107	Sep.19, 22	1 Year
4.	PC	N/A	N/A	N/A	N/A	N/A
5.	RF Cable	JINGCHEN G	KLMR400	No.1/2	NCR	NCR

## 14.2. Block Diagram of Test Setup



## 14.3.Test Standard

EN IEC 55014 -2: 2021

(Severity Level 2 at 3Vrms and frequency is from 0.15MHz to 230MHz)



### 14.4. Severity Levels and Performance Criterion

### 14.4.1. Severity level

Level	Voltage Level (e.m.f.) V
1.	1
2.	3
3.	10
X	Special

#### 14.4.2. Performance criterion: A

### 14.5.EUT Configuration

The configuration of EUT are listed in section 3.5.

### 14.6. Operating Condition of EUT

Same as conducted test which is listed in section 3.6. except the test set up replaced by section 14.2.

### 14.7. Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on section 14.2.
- 2) Let EUT work in test mode and measure.
- 3) The EUT and supporting equipment are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane at above 0.1-0.3m 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 230MHz 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\*10-3decades/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.

#### 14.8.Test Results

The EUT is supplied by battery, so this item does not applicable.

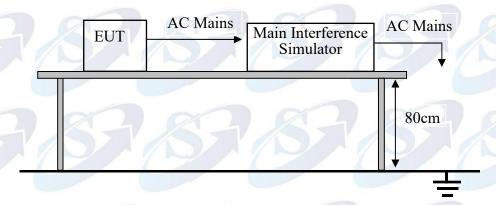


# 15. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 15.1.Test Equipment

Ite	Equipment	Manufactur	Model No.	Serial No.	Last Cal.	Cal.
m		er				Interval
1.	DIPS Equipment	3ctest	VDG-1105G	20100429 0171002	Sep.19, 22	1 Year

### 15.2.Block Diagram of Test Setup



#### 15.3. Test Standard

EN IEC 55014 -2: 2021

(Severity level: 100% 0.5 period

70% 50 periods 40% 10 periods )

# 15.4. Severity Levels and Performance Criterion

#### 15.4.1. Severity level

Test Level %UT	Voltage dip and short interruptions %U⊤	Performanc e Criterion	Duration (in period)
0	100	С	0.5
40	60	C	10
70	30	С	50

#### 15.4.2. Performance criterion: C

### 15.5.EUT Configuration

The configuration of EUT are listed in section 3.5.

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Same as conducted test which is listed in section 3.6. except the test set up replaced by section 15.2.

#### 15.7. Test Procedure

- 1) Set up the EUT and test generator as shown on section 15.2.
- 2) The interruptions is introduced at selected phase angles with specified duration. There is a 3mins minimum interval between each test event.
- 3) After each test a full functional check is performed before the next test.
- 4) Repeat procedures 2 & 3 for voltage dips, only the test level and duration is changed.
- 5) Record any degradation of performance.

#### 15.8. Test Result

The EUT is supplied by battery, so this item does not applicable.

# 16. PHOTOS OF THE EUT





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-----THE END OF REPORT------

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Date of Issue: Apr 6, 2023 Certificate No.: SAIL230328266E202C

Applicant : Shenzhen Leyoupin Technology Co., Ltd

Address: 1-2/F, Building G1, Building Q5, Shabeili Yingkeli Industrial Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

Manufacturer: : Shenzhen Hongxin Tongchuang Technology Co., Ltd

Address: 1-2/F, Building G1, Building 2, Building G5, Shabeili Yingkeli Industrial

Park, Longxin Community, Baolong Street, Longgang District, Shenzhen

Product : Bladeless Humidifying Fan

Trademark : /

Model No. : HX872

was tested to conform to the applicable FCC Rules and Regulations:

FCC Rules and Regulations Part 15 Subpart B Class B: 2016

Therefore, Shenzhen SAIL Testing Technology Co.,Ltd hereby acknowledges that the manufacturer may issue a declaration of conformity and apply the FCC king in accordance with America Union Rules.

FC

Attestation by:

Mars Zhang, Chief Manager

1. This certificate is only valid in connection with the test report number: SAIL 230328266E202

2. This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above-mentioned product. It does not imply an assessment of the whole production and other relevant directives have to be observed. Other relevant Directives have to be observed.

#### Shenzhen SAIL Testing Technology Co.,Ltd

Address:Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou Xintiandi, 6038 Longgang Avenue,Shenzhen,P.R.China

E-Mail: sail@sail-lab.cn TEL: +86 755-23288964 www.sail-test.com



# **ROHS TEST REPORT**

**Report No.:** SAIL230328266R203

**Product:** Bladeless Humidifying Fan

Model No.: HX872

**Applicant:** Shenzhen Leyoupin Technology Co., Ltd

1-2/F, Building G1, Building 2, Building G5, Shabeili

Address: Yingkeli Industrial Park, Longxin Community, Baolong

Street, Longgang District, Shenzhen

Issued by: Lab Location:

**Date of Receipt:** 

Mar 28, 2023

**Date of Test:** 

Mar 28, 2023

Date of Issue:

Apr 6, 2023

Test Result: Pass

**Testing Engineer** 

Authorize Signatory :

(Fan Lian)

(Mars 7hang)

This test report consists of **11** pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by VTC. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to VTC within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.

Page 2 of 11 Report No.: SAIL230328266R203

#### TEST REPORT

**Applicant** Shenzhen Leyoupin Technology Co., Ltd

**Applicant Address** 1-2/F, Building G1, Building 2, Building G5, Shabeili Yingkeli Industrial Park,

Longxin Community, Baolong Street, Longgang District, Shenzhen

The following sample was submitted by the client as:

**Product Name** Bladeless Humidifying Fan

Mode No. HX872

Trade Mark.

Shenzhen Hongxin Tongchuang Technology Co., Ltd Manufacturer

1-2/F, Building G1, Building 2, Building G5, Shabeili Yingkeli Industrial Park,

Longxin Community, Baolong Street, Longgang District, Shenzhen

**Test Requested** EU RoHS Directive 2011/65/EU and its amendment directives 2015/863/EU

(RoHS 2.0) on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs,

PBDEs, DEHP, BBP, DBP & DIBP content **Test Standard** 

IEC 62321-4-2013+A1-2017 IEC 62321-5-2013

IEC 62321-7-2-2017 IEC 62321-6-2015

IEC 62321-8-2017 **Test Results Pass** 

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#### Test Method (s):

Chemical testing methods & Equipments

Testing Item	Testing Method	Equipment	Equipment No.	Cal Date	Due Date
Lead (Pb)	IEC 62321-5-2013 (EAX.0)	ICP-OES	YQ-174	2022/9/4	2023/9/3
Cadmium (Cd)	IEC 62321-5-2013 (EAX.0)	ICP-OES	YQ-174	2022/9/4	2023/9/3
Mercury (Hg)	IEC 62321-4-2013 +A1:2017	ICP-OES	YQ-174	2022/9/4	2023/9/3
Hexavalent chromium (Cr(VI))	IEC 62321-7-2-2017 (EAX.0)*	UV-VIS	YQ-177	2022/8/6	2023/8/5
PBBs	IEC 62321-6-2015 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3
PBDEs	IEC 62321-6-2015 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3
DBP	IEC 62321-8-2017 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3
ВВР	IEC 62321-8-2017 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3
DEHP	IEC 62321-8-2017 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3
DIBP	IEC 62321-8-2017 (EAX.0)	GC-MS	YQ-211	2022/9/4	2023/9/3

Test Item(s):	1			RE	SULT				MDL
	1	2	3	4	5	6	7	8	
Cadmium(Cd)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Lead(Pb)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Mercury(Hg)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Hexavalent Chromium Cr(VI) by alkaline extraction	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	8
Sum of PBBs	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	
Monobromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Dibromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Tribromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Tetrabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Pentabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Hexabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Heptabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Octabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Nonabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Decabromo biphenyl	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Sum of PBDEs	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	
Monobromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Dibromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Tribromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Tetrabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Pentabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Hexabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Heptabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Octabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Nonabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Decabromobiphenyl ether	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	5
Dibutyl Phthalate(DBP)	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	50
Benzyl butyl phthalate (BBP)	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	50
Bis-(2-ethylhexyl)-Phthalate (DEHP)	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	50
Diisobutyl Phthalate(DIBP)	N.D	N.D	N.A	N.D	N.D	N.D	N.D	N.D	50

<sup>1.</sup> Metallic materials 2. Non metallic materials 3. Silicone material 4. resistance

<sup>5.</sup>capacitance 6.Solder 7.PCB board 8.USB interface

Test Item(s):	1			RE	SULT	1			MDL
	9	10	11	12	13	14	15	16	
Cadmium(Cd)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Lead(Pb)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Mercury(Hg)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	2
Hexavalent Chromium Cr(VI) by alkaline extraction	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	8
Sum of PBBs	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	3=1
Monobromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Dibromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Tribromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Tetrabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Pentabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Hexabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Heptabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Octabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Nonabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Decabromo biphenyl	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Sum of PBDEs	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	01-1
Monobromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Dibromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Tribromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Tetrabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Pentabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Hexabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Heptabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Octabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Nonabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Decabromobiphenyl ether	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	5
Dibutyl Phthalate(DBP)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	50
Benzyl butyl phthalate (BBP)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	50
Bis-(2-ethylhexyl)-Phthalate DEHP)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	50
Diisobutyl Phthalate(DIBP)	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	50

9.motor 10.PCB board screws 11.Screw 12.White connection terminal 13.Aluminum sheet 14.Red connecting wire 15.Black connecting wire 16.White plastic shell

**RESULT** MDL Test Item(s): 21 17 18 19 20 22 Cadmium(Cd) N.D N.D N.D N.D N.D N.D Lead(Pb) N.D N.D 2 N.D N.D N.D N.D Mercury(Hg) N.D N.D N.D N.D N.D N.D 2 Hexavalent Chromium Cr(VI) by Neg Neg 8 N.D N.D N.D N.D alkaline extraction ative ative **Sum of PBBs** N.D N.D N.D N.A N.A N.D Monobromo biphenyl 5 N.A N.D N.D N.D N.A N.D Dibromo biphenyl N.A N.D N.D N.D N.A 5 N.D Tribromo biphenyl N.A N.D N.D N.A 5 N.D N.D Tetrabromo biphenyl N.A N.D N.D N.D N.D 5 N.A Pentabromo biphenyl N.A N.D N.D 5 N.D N.A N.D Hexabromo biphenyl N.A N.D N.D N.D N.A N.D 5 Heptabromo biphenyl 5 N.A N.D N.D N.D N.A N.D Octabromo biphenyl 5 N.A N.D N.D N.D N.A N.D Nonabromo biphenyl N.A N.D N.D N.D N.A 5 N.D Decabromo biphenyl N.A N.D N.D N.D N.A N.D 5 **Sum of PBDEs** N.A N.D N.D N.D N.A N.D Monobromobiphenyl ether N.A N.D N.D N.D N.A N.D 5 Dibromobiphenyl ether N.A N.D N.D N.D N.A 5 N.D Tribromobiphenyl ether N.A N.D N.D N.D N.A 5 N.D Tetrabromobiphenyl ether N.D N.A N.D 5 N.A N.D N.D Pentabromobiphenyl ether N.A N.D N.D N.D N.A N.D 5 Hexabromobiphenyl ether N.D N.D N.A N.D N.A N.D 5 Heptabromobiphenyl ether N.A N.D N.D N.D N.A N.D 5 Octabromobiphenyl ether N.A N.A N.D N.D N.D N.D 5 Nonabromobiphenyl ether 5 N.A N.D N.D N.D N.A N.D Decabromobiphenyl ether N.A N.D N.D N.D N.A N.D 5 Dibutyl Phthalate(DBP) 50 N.A N.D N.D N.D N.A N.D Benzyl butyl phthalate (BBP) N.A N.D N.D N.D N.A N.D 50 Bis-(2-ethylhexyl)-Phthalate N.A N.D N.D N.D N.A N.D 50 (DEHP)

17.Atomized film 18.White transparent rubber ring 19.White fan leaf 20.Cotton swab 21.spring 22Transparent sink

N.D

N.D

N.A

N.D

50

N.D

N.A

Diisobutyl Phthalate(DIBP)

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Note:

- mg/kg=milligram per kilogram ND=Not Detected(<MDL) MDL=Method Detection Limit
- 2.
- 3.
- 4. NA=Not Applicable
- -" =Not regulated

RoHS Requirement(mg/kg):

Restricted substances	Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs	BBP	DBP	DEHP	DIBP
RoHS limit	100	1000	1000	1000	1000	1000	1000	1000	1000	1000

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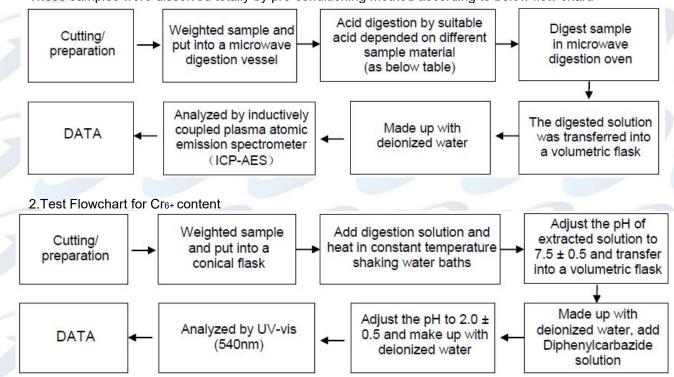
Report No.: SAIL230328266R203

### **Appendix**

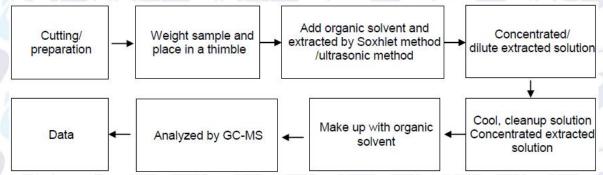
#### **Test Flow chart**

1.Test Flowchart for Cd / Pb /Hg content

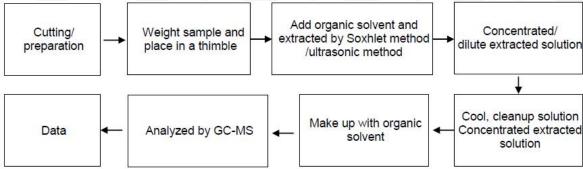
These samples were dissolved totally by pre-conditioning method according to below flow chart.



#### 3.Test Flowchart for PBBs & PBDEs content



#### 4.Test Flowchart for DEHP, BBP, DBP & DIBP content



#### Table:

Sample material	Digestion Acid	
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>	
Glass	HNO <sub>3</sub> /HF	
Gold, platinum, palladium, ceramic	Aqua regia	
Silver	HNO <sub>3</sub>	
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCI	
Others	Any acid to total digestion	

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Sample 1 Photo



Sample 2 Photo



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### Sample 3 Photo



---End of Report---



# **FCC TEST REPORT**

### For

# Shenzhen Leyoupin Technology Co., Ltd

Bladeless Humidifying Fan

Model No. : HX872

Prepared for : Shenzhen Leyoupin Technology Co., Ltd

Address :1-2/F, Building G1, Building 2, Building G5, Shabeili

Yingkeli Industrial Park, Longxin Community, Baolong

Street, Longgang District, Shenzhen

Prepared By: Shenzhen SAIL Testing Technology Co., Ltd

Address : Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou

Xintiandi, 6038 Longgang Avenue, Shenzhen, P.R. China

Report Number : SAIL230328266E202

Date of Receipt : Mar 28, 2023 Date of Test : Mar 28, 2023 Date of Report : Apr 6, 2023

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4.4. EUT Configuration on Test	
4.5. Operating Condition of EUT	
4.6. Test Procedure	
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### TEST REPORT VERIFICATION

Applicant : Shenzhen Leyoupin Technology Co., Ltd

Manufacturer : Shenzhen Hongxin Tongchuang Technology Co., Ltd

EUT Description: Bladeless Humidifying Fan

(A) Model No. : HX872

(B) Trademark : /

(C) Ratings Supply : DC 5V(D) Test Voltage : DC 5V

#### Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart B Class B 2016, ANSI C63.4-2014

The device described above is tested by Shenzhen SAIL Testing Technology Co.,Ltd to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen SAIL Testing Technology Co.,Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen SAIL Testing Technology Co.,Ltd

Tested by (name + T T signature).....

Tom Zhu Test Engineer

Approved by (name +

Mars Zhang

signature)....:

**Authorize Signatory** 

Date of

Apr 6, 2023

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### 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

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

	EMISSION		
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15:2016 ANSI C63.4:2014	Class B	PASS
Radiated Emission Test	FCC Part 15:2016 ANSI C63.4:2014	Class B	PASS

N/A is an abbreviation for Not Applicable.

#### 2. GENERAL INFORMATION

2.1. Description of Device (EUT)

: Bladeless Humidifying Fan Description

**Model Number** : HX872

: / Trademark

**Applicant** : Shenzhen Leyoupin Technology Co., Ltd

Address : 1-2/F, Building G1, Building 2, Building G5, Shabeili

Yingkeli Industrial Park, Longxin Community, Baolong

Street, Longgang District, Shenzhen

: Shenzhen Hongxin Tongchuang Technology Co., Ltd Manufacturer

Address : 1-2/F, Building G1, Building 2, Building G5, Shabeili

Yingkeli Industrial Park, Longxin Community, Baolong

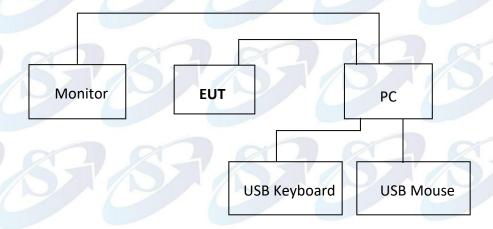
Street, Longgang District, Shenzhen

Sample Type : Prototype production

# 2.2. Tested Supporting System Details

No.	Description	Manufacture r	Model	Serial Number
1.	PC	DELL	N/A	N/A
2.	Monitor	DELL	N/A	N/A
3.	Mouse	DELL	N/A	N/A
4.	Keyboard	DELL	N/A	N/A
1.	PC	DELL	N/A	N/A

# 2.3. Block Diagram of connection between EUT and simulators



**EUT: Bladeless Humidifying Fan** 

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# 2.4. Test Facility

2.4.1. Laboratory Name:

Shenzhen SAIL Testing Technology Co.,Ltd

2.4.2.Site Location:

Room 416, 4 / F, Miyungu Al Center, Block B, Wuzhou Xintiandi, 6038 Longgang Avenue, Shenzhen, P.R. China

# 2.5. Measurement Uncertainty

(95% confidence levels, k=2)

Test Item	Uncertainty		
Uncertainty for Conduction emission test	2.50dB		
Unacrtainty for Dadiction Emission toot	3.04 dB (Distance: 3m Polarize: V)		
Uncertainty for Radiation Emission test	3.02 dB (Distance: 3m Polarize: H)		
Uncertainty for Radiation Emission test	3.56 dB (Distance: 3m Polarize: V)		
(1GHz-18GHz)	3.84 dB (Distance: 3m Polarize: H)		
Uncertainty for test site temperature and	0.6℃		
humidity	3%		

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# 2.6 Test mode Description

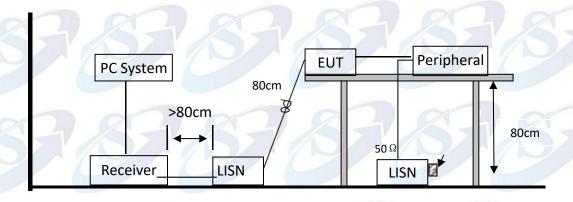
	Test Mode
<b>※1</b> .	Running

# 3. POWER LINE CONDUCTED EMISSION TEST

# 3.1. Test Equipment

Ite m	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	100843	Sep.24, 22	1 Year
2.	L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	Sep.24, 22	1 Year
3.	L.I.S.N.#2	Kyoritsu	KNW-242C	8-1920-1	Sep.24, 22	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	Sep.24, 22	1 Year
5.	RF Cable	Schwarzbeck	9111505/200	5995-12-16 1-6890#	Sep.24, 22	1 Year
6.	Coaxial Switch	Schwarzbeck	CX-210	N/A	Sep.24, 22	1 Year
7.	Pulse Limiter	Schwarzbeck	VTSD9516F	9618	Sep.24, 22	1 Year

# 3.2. Block Diagram of Test Setup



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#### 3.3. Power Line Conducted Emission Test Limits

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

Notes: 1. Emission level=Read level+LISN factor-Preamp factor+Cable loss

- 2\* Decreasing linearly with logarithm of frequency.
- 3. The lower limit shall apply at the transition frequencies.

#### 3.4. Configuration of EUT on Test

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

#### 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT and simulator as shown as Section 3.2.
- 3.5.2. Turn on the power of all equipment.
- 3.5.3.Let the EUT work in test mode (Running) and measure it.

#### 3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. #2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on conducted Emission test.

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

The frequency range from 150kHz to 30MHz is checked. The test results are reported on Section 3.7.

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### 3.7. Conducted Disturbance at Mains Terminals Test Results

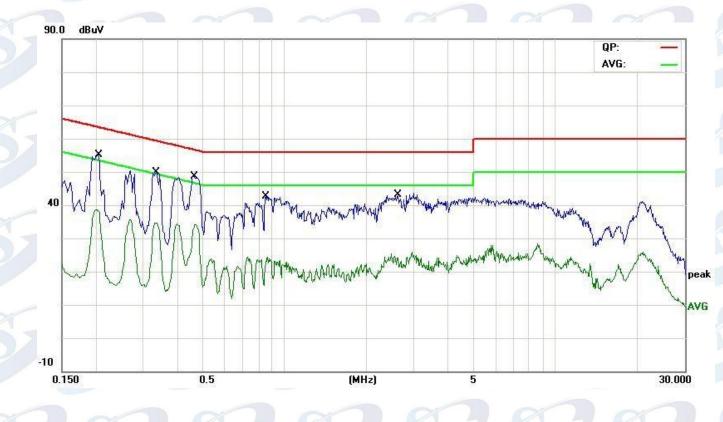
**PASS.** (All emissions not reported below are too low against the prescribed limits.)

The EUT with the following test mode was tested and read QP values and average values, the test results are listed in next pages.

Temperature: 24°C Humidity: 56% The details of test mode is as follows:

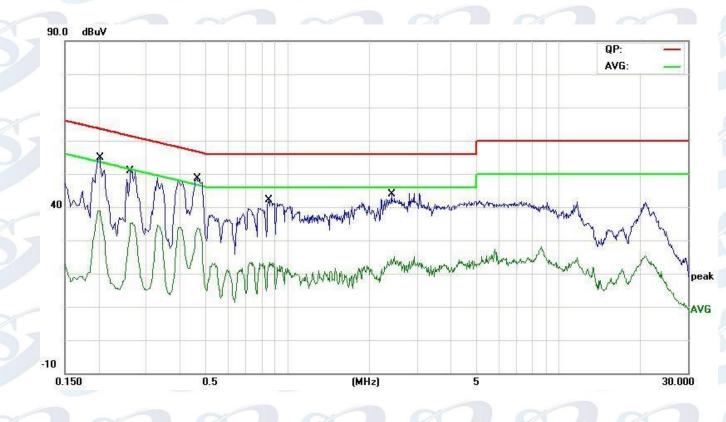
No.	Test Mode
1.	Running

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Limit: FCC PART 15 B QP	Phase: L1
-------------------------	-----------

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2060	39.11	10.12	49.23	63.36	-14.13	QP	
2		0.2060	24.78	10.12	34.90	53.36	-18.46	AVG	
3		0.3339	35.14	10.08	45.22	59.35	-14.13	QP	
4		0.3339	24.20	10.08	34.28	49.35	-15.07	AVG	
5	*	0.4620	36.38	10.03	46.41	56.66	-10.25	QP	
6		0.4620	23.44	10.03	33.47	46.66	-13.19	AVG	
7		0.8500	28.91	10.09	39.00	56.00	-17.00	QP	
8		0.8500	12.20	10.09	22.29	46.00	-23.71	AVG	
9		2.6099	26.91	10.06	36.97	56.00	-19.03	QP	
10		2.6099	12.37	10.06	22.43	46.00	-23.57	AVG	



Limit: FCC PART 15 B QP Phase: N

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2020	41.20	10.02	51.22	63.52	-12.30	QP	
2		0.2020	28.33	10.02	38.35	53.52	-15.17	AVG	
3		0.2644	36.42	10.02	46.44	61.29	-14.85	QP	
4		0.2644	24.99	10.02	35.01	51.29	-16.28	AVG	
5	*	0.4620	36.08	10.02	46.10	56.66	-10.56	QP	
6		0.4620	23.19	10.02	33.21	46.66	-13.45	AVG	
7		0.8500	28.12	10.09	38.21	56.00	-17.79	QP	
8		0.8500	11.37	10.09	21.46	46.00	-24.54	AVG	
9		2.4140	27.51	10.05	37.56	56.00	-18.44	QP	
10		2.4140	12.68	10.05	22.73	46.00	-23.27	AVG	

# 4. RADIATED EMISSION TEST

### 4.1. Test Equipment

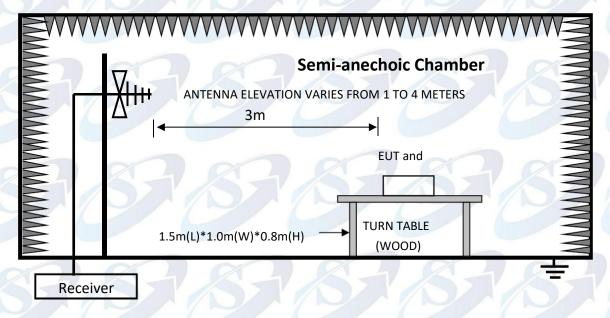
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde&Schwar z	ESCI	101165	Sep.24, 22	1 Year
2	Amplifier	Schwarzbeck	BBV9743	9743-019	Sep.24, 22	1 Year
3	Bilog Antenna	Schwarzbeck	VULB 9168	9168-438	Sep.24, 22	1 Year
4	RF Cable	Schwarzbeck	AK9515E	95891-2m	Sep.24, 22	1 Year
5	RF Cable	Schwarzbeck	AK9515E	95891-11m	Sep.24, 22	1 Year
6	RF Cable	Schwarzbeck	AK9515E	95891-0.5m	Sep.24, 22	1 Year

For frequency range 1GHz~5GHz (At Semi Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY49510055	Sep.24, 22	1 Year
2	Horn Antenna	Schwarzbeck	BBHA 9120 D	BBHA 9120 D(1201)	Sep.24, 22	1 Year
3	Amplifier	Quietek	AP-180C	CHM-060201 2	Sep.24, 22	1 Year
4	RF Cable	Resenberger	Cable 4	N/A	Sep.24, 22	1 Year
5	RF Cable	Resenberger	Cable 5	N/A	Sep.24, 22	1 Year
6	RF Cable	Resenberger	Cable 6	N/A	Sep.24, 22	1 Year

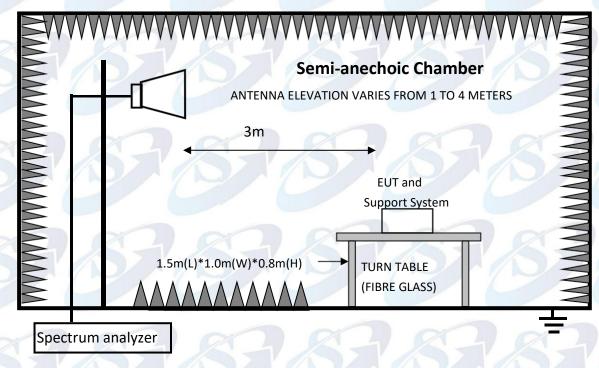
### 4.2. Block Diagram of Test Setup

4.2.1. In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



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4.2.2. In Semi Anechoic Chamber (3m) Test Setup Diagram for 1-5GHz



#### 4.3. Radiated Emission Limit

Frequency	Distance	Field Strengths Limits
MHz	(Meters)	dB(μV)/m
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0
1000 ~ 5000	3	74(Peak) 54(Average)

Remark: (1) Emission level = Read level+Antenna Factor-Preamp Factor +Cable

Loss

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

### 4.4. EUT Configuration on Test

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

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

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### 4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT as shown in Section 4.2.
- 4.5.2. Turn on the power of all equipment.
- 4.5.3.Let the EUT work in test mode (Running) and test it.

#### 4.6. Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on Radiated Emission test.

The bandwidth setting on the test receiver (ROHDE&SCHWARZ TEST RECEIVER ESCI) is 120 kHz.

The resolution bandwidth of the Agilent Spectrum Analyzer E4407B was set at 1MHz. (For above 1GHz)

The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values.

The frequency range from 1GHz to 5GHz was checked with peak and average detector, measurement distance is 3m in 3m chamber.

Finally, selected operating situations at Anechoic Chamber measurement, all the test results are listed in section 4.7.

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#### 4.7. Radiated Disturbance Test Results

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

#### For frequency range 30MHz~1000MHz

The EUT with the following test mode was tested and read Q.P values, the test results are listed in next pages.

Temperature: 24.2℃ Humidity: 54%

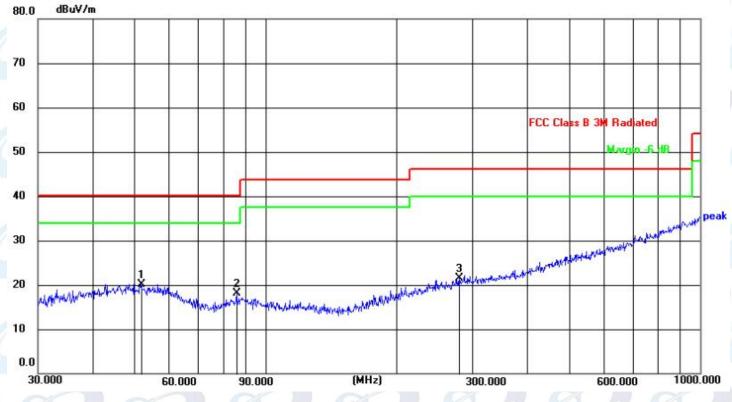
The details of test mode is as follows:

No.	Test Mode
1.	Running

#### For frequency range 1GHz~5GHz

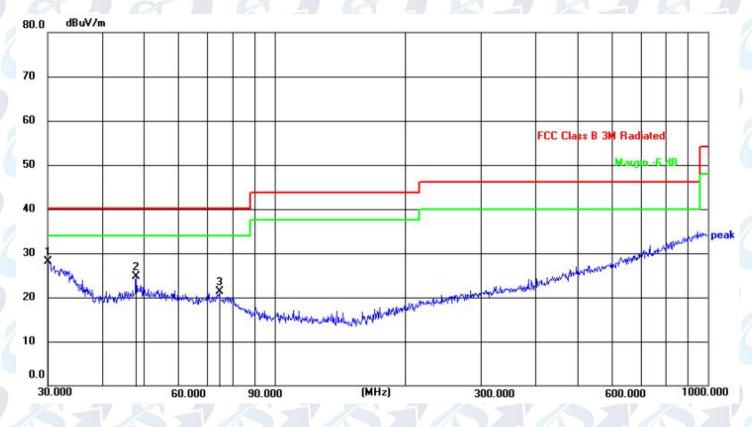
The highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. So the frequency rang 1GHz-5GHz radiation test not applicable.

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Polarization: Horizontal

No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	51.6616	33.63	-13.44	20.19	40.00	19.81	peak	100	360	
2		85.8984	36.33	-18.13	18.20	40.00	21.80	peak	100	360	
3		280.0237	34.52	-13.06	21.46	46.00	24.54	peak	100	360	



Limit: FCC Part15 B 3M Radiation

Polarization: Vertical

No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		Height	Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	30.0000	44.18	-16.00	28.18	40.00	11.82	peak	100	0	
2		47.9940	38.28	-13.50	24.78	40.00	15.22	peak	100	0	
3		74.6569	39.53	-18.27	21.26	40.00	18.74	peak	100	0	

# 5. PHOTOS OF THE EUT





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-----THE END OF REPORT-----