



WUXIANG

Shenzhen Wuxiang Testing (Group) Co., Ltd

Report No.WUX202309044640UL

APPLICATION FOR TEST REPORT

UL 1278

On Behalf of

Prepared For : Shenzhen Senhai Power Tech. Co., Ltd.
Address : Room202, Building B, No.36 Shuangxiu Road, Xiuxin Community,
Kengzi Street, Pingshan District, Shenzhen, 518122

Product Name : Space Heater Fan
Model : AC68H, AC68, AC68P, AC68P-W, AC68P-S, AC68P-G, AC68P-WW,
AC68P-WS, AC68P-GS, AC68H-W, AC68H-S, AC68H-G, AC68H-R,
AC68H-WW, AC68H-WS, AC68H-GS

Trade Mark : Ocean Loong
Manufacturer : Shenzhen Senhai Power Tech. Co., Ltd.
Address : Room202, Building B, No.36 Shuangxiu Road, Xiuxin Community,
Kengzi Street, Pingshan District, Shenzhen, 518122

Prepared By : Shenzhen Wuxiang Testing (Group) Co., Ltd.
Building B, Xinbaosheng, No.233, Xixiang Street, Bao'an District,
Shenzhen, China

Test Date : September 04, 2023 to September 12, 2023
Date of Report : September 12, 2023
Report No. : WUX202309044640UL





WUXIANG

Shenzhen Wuxiang Testing (Group) Co., Ltd. Report No. WUX202309044640UL

UL 1278 TEST REPORT

Standard: UL 1278-2018			
Report No.:	WUX202309044640UL	Client:	Shenzhen Senhai Power Tech. Co., Ltd.
Product:	Space Heater Fan	Rated input	AC100-120V, 50/60Hz, 1500W 60Hz Class II
Project Engineer:	Tony Bi	Rated output	--
Test Engineer:	Rust He	Protection class	Class II
Application Date	September 04, 2023	Protection against moisture:	IPX0
Requested Date	September 12, 2023	Construction:	Plastic enclosure
Re-test	☐	Operation mode	Continuity
Full-test	☒	Weight:	<1.5kg
Model/ type reference:	AC68H	Sample No.	1#, 2#,
Should the heating test be done in heating oven?	☐ Yes °C ☒ No		
Altitude during operation (m)	☐ Up to 2000 ☒ No		
Altitude of test laboratory (m)	☒ below 2000 ☐ No		
Other information:.....	/		

Lab Use Only			
Lab Start Date	September 04, 2023	Lab Finish Date	September 12, 2023
Ambient Temperature, °C	24.8	Relative Humidity, %	45.9

Remarks:

Rust He



Tony Bi.

Tested by: _____

Checked by: _____

****Modified History****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	2023/09/12	Rust He



Test Item:

No.	Clause(s)	Test(s)	Remark	Comment
1	7	Enclosure	UL 746C V-0	Pass
2	8	Accessibility of Live Parts	Cannot touch the live part	Pass
3	9	Accessibility of Moving Parts	Cannot touch moving part	Pass
4	10	Guarding of Heating Elements	Bar gauge Cannot touch the heating elements.	Pass
5	11	Parts Subject to Pressure	No such component	N/A
6	12	Polymeric Materials	UL 746C V-0	Pass
7	13	Heat Transfer Fluids	No such Fluid	N/A
8	14	Assembly of Components		Pass
9	15	Protection Against Corrosion	Metal part	Pass
10	16	Supply Connections	SP-2 VW-1, 300V Plug: 15A, 125V 2-POLE	Pass
11	17	Special Protection Devices	No such component	N/A
12	18	Static Load Test For Hanging Means	Movable	N/A
13	19	Current-Carrying Parts		Pass
14	20	Internal Wiring	105°C VW-1	Pass
15	21	Heating Elements	Securely supported UL 499	Pass
16	22	Heating Element Supports		Pass
17	23	Electrical Insulation		Pass
18	24	Thermal Insulation		Pass
19	25	Motors	Fan UL 1004	Pass
20	26	Motor Overload Protection		N/A



No.	Clause(s)	Test(s)	Remark	Comment
21	27	Overcurrent Protection	Fuse ANSI/NFPA 70.	Pass
22	28	Secondary Circuits		Pass
23	29	Temperature Limiting Means	UL 1020 See the temperature test	Pass
24	30	Alarms	No alarm	N/A
25	31	Lampholders	No lampholders	N/A
26	32	Pilot Lights	No pilot light	N/A
27	33	Switches		Pass
28	34	Automatic Controls and Control Circuits	Without this circuit	N/A
29	35	Spacings		Pass
30	36	Grounding		N/A
31	38	Power Input Test		Pass
32	39	Dielectric Voltage-Withstand Test		Pass
33	40	Normal Temperature Tests		Pass
34	41	Alarm Device Endurance Test)		N/A
35	42	Abnormal Operation Tests		Pass
36	43	Endurance Test		Pass
37	44	Short Circuit Tests		Pass
38	45	Overload Test – High-Voltage Transformers		Pass
39	46	Burnout Test – High-Voltage Transformers		Pass
40	47	Component Failure Test		Pass
41	48	Dielectric Voltage-Withstand Test		Pass
42	49	Insulation Resistance Test		Pass
43	50	Water Spray Test		N/A
44	51	Stability of Movable Heaters		Pass
45	52	Element Support Impact Tests		Pass
46	53	Drop Test		Pass
47	54	Test for Permanence of Cord Tag		N/A
48	55	Protection Against Injury to Persons Test		Pass
49	56	Knob Securement Test		Pass



No.	<u>Clause(s)</u>	<u>Test(s)</u>	<u>Remark</u>	<u>Comment</u>
50	57	Strength of Adjustment Stop Test		Pass
51	58	Hydrostatic Test		N/A
52	59	Strain Relief Test		Pass
53	60	Permanence of Marking		N/A
54	66	RATINGS		Pass
55	67-69	MARKINGS		Pass

**Accessibility of Live Parts (8)**

8	Test pin (During the test)				Pass
Bare parts of ELV or hazardous parts accessible?	ELV circuits or hazardous parts protected by lacquer, cotton... accessible?	Functional or basic insulation of parts or wiring in ELV or hazardous voltage accessible?	Unearthed conductive parts separated from ELV or hazardous parts by functional insulation or basic insulation accessible?	Bare parts of TNV circuits accessible?	
Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	
Test pin					

8	Articulate probe with web stop (During the test)	Pass
Are bare live parts at hazardous voltages accessible?		
Yes / No		
Test Finger		

8	Accessibility probe	Pass
Finger used:	Parts for testing	Result
test probe	Contacts of connectors accessible?	Yes / No

**Accessibility of Moving Parts (9)**

9	Accessibility probe	Pass
Finger used:	Parts for testing	Result
test probe	Contacts of connectors accessible?	Yes / No

Spacings (35)

35	Spacings						Pass
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
L/N and enclosure	--	AC110V	3.0	>8.5mm	6.5	>8.5mm	
Between component							
Between + and – for Battery on PCB							
Primary winding to secondary winding of transformer (T1) (RI)							
Supplementary information							
Note(s): --							

**Power Input test (38)****Method:**

EUT is operating at: $U=U_n$, $F=F_n$.

Load of the EUT is under maximum normal load.

The input current and wattage to the EUT shall be measured.

Multiple rated voltages or rated voltage range, each rated voltage shall be measured.

The current and power shall be taken under steady state conditions.

Result:

38	TABLE: Electrical data (in normal conditions)					Pass
U (V)	I (A)	P rated (W)	P (W)	Fuse #	Ifuse (A)	Condition/status
AC110V	11.90A	1500W	1416W	--	--	Normal work
--	--	--	--	--	--	--
Supplementary information:						

**Leakage Current Test (39)**

39	Leakage Current Test		Pass
Test voltage: 120V/ 50Hz			
Measured point:	U ₂ (mV)	(mA)	Limit (mA)
Line and output accessible terminal	--	--	0.5
Neutral and output accessible terminal	--	--	0.5
Line and accessible enclosure surface	--	0.12	0.5
Neutral and accessible enclosure surface	--	0.13	0.5
Oscilloscope, Measuring circuit for touch current according to Annex D, Leakage Current Tester			

**Normal Temperature Test (40)****Method:**

EUT primary is $U=U_n$, $F=F_n$, operated under normal max. load.

Temperatures of parts are measured by thermal couplers, windings are measured by resistance change method.

Measuring place shall be a point close to the heat source.

The test is continued until thermal stable.

Voltage is changed lower or higher tolerance without rest of time.

Result:

40	TABLE: Thermal requirements,						Pass
	Supply voltage (V)	AC120V	--	--	--		—
	Ambient Tmin (°C)	24.2	--	--	--		—
	Ambient Tmax (°C)	24.5	--	--	--		—
	Max. load	Normal work	--	--	--		
	Model	--	--				
Maximum measured temperature T of part/at::		T (°C)					Allowed Tmax (°C)
Enclosure near Heater		56.9	--	--	--	--	65
Fuse		53.2					65
Insulated wire		76.3					300
Power cord		47.5	--	--	--	--	105
Heater covered		93.1					125
Switch		41.8					65
CX1		51.2					105
Internal wire		52.8					80
--							
Supplementary information:							
Temperature T of winding:		t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed T _{max} (°C)
--		--	--	--	--	--	--
Supplementary information:							

**Alarm Device Endurance Test (41)**

41	Alarm Endurance		N/A
Test part:		Times	Result
Alarm		6000 cycles	--
--			

Abnormal Operation Tests (42)**Method:**

EUT is operating under normal load, $U=U_n$, $F=F_n$. A fault is then introduced. One fault only at one time. Ventilation openings shall be blocked; Semiconductors shall be short-circuited or open-circuited one at a time; Transformer secondary windings are short-circuited one at a time (other windings are normal loaded); Transformer secondary windings are overloaded one at a time (other windings are normal loaded), Fan is locked; Operational insulation which clearances or creepage distances are less than requirement, is short-circuited; Motors are locked.

The input current, fuse rating current, test duration and observation shall be recorded.

The test is continued until a protection device opened the circuit (fuse) or steady state conditions.

Overload test and fault condition which the current is more than normal current, shall wait until thermal stable, coil temperature of transformer shall be recorded.

Result:

42	Fault condition tests (Continued)		Pass
Requirement		Result	Remarks
During the test:			
Fire propagates beyond the EUT?		No	
Molten metal emitted?		No	
Enclosures deform to cause non-compliance with the standard?		No	

42	TABLE: Fault condition tests		Pass
	Ambient temperature (°C):	25.0°C	—



Component No.	Fault	Supply voltage (V)	Test time	Fuse #	current (A)	Observation
--	Overvoltage test	180Vac(unit powered by power supply, normal operation)	7h	--	--	Still Normal work, no damage, no hazards
--	Tip-over test	120Vac (unit powered by power supply, normal operation)	7h	--	--	Still Normal work no damage, no hazards
--	Terry cloth drape test	120Vac (unit powered by power supply, normal operation)	30mins	--	--	Still Normal work no damage, no hazards
	Terry cloth band drape test	120Vac (unit powered by power supply, normal operation)	30mins	--	--	Still Normal work no damage, no hazards
--	Abnormal ambient test	120Vac (unit powered by power supply, normal operation)	7h	--	--	Still Normal work no damage, no hazards
Supplementary information:						
S: Short-circuited; O: Open-circuited; O/L: Overloaded						
Equipment used: CTT15S, CTT48						
	Electric strength test					Pass
Test voltage applied between:					Test voltage (V)	Breakdown
Input and plastic enclosure					1480V	No
--						
--						

**Endurance Test (43)**

43	Alarm Endurance		Pass
Test part:		Times	Result
Temperature Control		100000 cycles	Still can work
--			



Short Circuit Tests (44)

Method:

EUT is operating under normal load, $U=U_n$, $F=F_n$. A fault is then introduced. One fault only at one time. Ventilation openings shall be blocked; Semiconductors shall be short-circuited or open-circuited one at a time; Transformer secondary windings are short-circuited one at a time (other windings are normal loaded); Transformer secondary windings are overloaded one at a time (other windings are normal loaded), Fan is locked; Operational insulation which clearances or creepage distances are less than requirement, is short-circuited; Motors are locked.

The input current, fuse rating current, test duration and observation shall be recorded.

The test is continued until a protection device opened the circuit (fuse) or steady state conditions.

Overload test and fault condition which the current is more than normal current, shall wait until thermal stable, coil temperature of transformer shall be recorded.

Result:

44	Fault condition tests (Continued)		Pass
Requirement		Result	Remarks
During the test:			
Fire propagates beyond the EUT?		No	
Molten metal emitted?		No	
Enclosures deform to cause non-compliance with the standard?		No	

44	TABLE: Fault condition tests		Pass
	Ambient temperature (°C)	25.0°C	—



Component No.	Fault	Supply voltage (V)	Test time	Fuse #	current (A)	Observation
U4 Pin1-2	S	120Vac(unit powered by power supply, normal operation)	10mins	--	--	Still Normal work, no damage, no hazards
U4 Pin1-8	S	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
D6	S	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Shut down, no damage, no hazards
C2	S	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Shut down, no damage, no hazards
C3	S	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
R2	S	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
Supplementary information:						
S: Short-circuited; O: Open-circuited; O/L: Overloaded						
Equipment used: CTT15S, CTT48						
Electric strength test						Pass
Test voltage applied between:					Test voltage (V)	Breakdown
Input and plastic enclosure					1000V	No
--						
--						



Component Failure Test (47)

Method:

EUT is operating under normal load, $U=U_n$, $F=F_n$. A fault is then introduced. One fault only at one time. Ventilation openings shall be blocked; Semiconductors shall be short-circuited or open-circuited one at a time; Transformer secondary windings are short-circuited one at a time (other windings are normal loaded); Transformer secondary windings are overloaded one at a time (other windings are normal loaded), Fan is locked; Operational insulation which clearances or creepage distances are less than requirement, is short-circuited; Motors are locked.

The input current, fuse rating current, test duration and observation shall be recorded.

The test is continued until a protection device opened the circuit (fuse) or steady state conditions.

Overload test and fault condition which the current is more than normal current, shall wait until thermal stable, coil temperature of transformer shall be recorded.

Result:

44	Fault condition tests (Continued)		Pass
Requirement		Result	Remarks
During the test:			
Fire propagates beyond the EUT?		No	
Molten metal emitted?		No	
Enclosures deform to cause non-compliance with the standard?		No	

44	TABLE: Fault condition tests		Pass
	Ambient temperature (°C)	25.0°C	—



Component No.	Fault	Supply voltage (V)	Test time	Fuse #	current (A)	Observation
U4 Pin1-2	O	120Vac(unit powered by power supply, normal operation)	10mins	--	--	Still Normal work, no damage, no hazards
U4 Pin1-8	O	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
D6	O	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Shut down, no damage, no hazards
C2	O	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Shut down, no damage, no hazards
C3	O	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
R2	O	120Vac (unit powered by power supply, normal operation)	10mins	--	--	Still Normal work no damage, no hazards
Supplementary information:						
S: Short-circuited; O: Open-circuited; O/L: Overloaded						
Equipment used: CTT15S, CTT48						
Electric strength test						Pass
Test voltage applied between:					Test voltage (V)	Breakdown
Input and plastic enclosure					1000V	No
--						
--						



Dielectric Voltage-Withstand Test (48)

Method:

The test is made while the EUT is still in well-heated condition

Make sure the power switch of the EUT is in ON position.

Thin material can be tested in room temperature.

The test voltage is a.c. of 50 or 60 Hz or d.c. voltage equal to peak value of the a.c. voltage.

Test voltage is applied gradually raised from zero to the specified voltage and held at that value for 60s.

Insulation breakdown is: Current flows through the insulation rapidly increases in an uncontrolled manner; that is the insulation does not restrict the flow of the current.

Corona discharge or a single momentary flashover is not regarded as insulation breakdown.

A test incorporating reinforced insulation and lower grades insulation (BI, SI), care is taken not to overstress BI or SI.

Where capacitors (X or Y capacitors) are across the insulation, d.c. voltage is recommended for the test.

Discharge resistors shall be disconnected before testing.

Result:

48	Electric strength test	Pass
Test voltage applied between:		Test voltage (V)
Input and plastic enclosure		Breakdown
		No
--		--
--		--
--		--
--		--
--		--



Insulation Resistance Test (49)

Method:

The test is made while the EUT is still in well-heated condition

Make sure the power switch of the EUT is in ON position.

Thin material can be tested in room temperature.

Test voltage is applied gradually raised from zero to the specified voltage and held at that value for 60s.

Result:

49	Insulation Resistance Test		Pass
Test voltage applied between:		Test voltage (V)	Resistance
Input and plastic enclosure		500V	>50000ohms
--		--	--
--		--	--
--		--	--
--		--	--



Water Spray Test (50)

Pull Location	Samples	Time	Observations	N/A	
				Pass	Fail
Product	1#	1h	--	--	

Leakage Current Test

EUT is operating at: $U=U_n$, $F=F_n$.

Load of the EUT is under maximum normal load.

The input current and wattage to the EUT shall be measured.

Stability Test (51)

23	TABLE: Test at 10° to the horizontal		Pass
Test condition		Result	
Placed on a plane, inclined at 10° to the horizontal		P	

**Element Support Impact Tests (52)**

61.5	TABLE: Drop Test				Pass
Model		weighing	Test temperature (° C)	Duration (h)	Results
Heater		--	25	0.6m	P
Heater		--	25	0.6m	P
Heater		--	25	0.6m	P
52	Electric strength test				Pass
Test voltage applied between:				Test voltage (V)	Breakdown
Input and plastic enclosure				1240V	No
--					
--					

**Drop test (53)**

61.5	TABLE: Drop Test				Pass
Model	weighing	Test temperature (° C)	Duration (h)	Results	
AC68H	--	25	0.91m	P	
AC68H	--	25	0.91m	P	
AC68H	--	25	0.91m	P	
53	Electric strength test				Pass
Test voltage applied between:			Test voltage (V)	Breakdown	
Input and plastic enclosure			1240V	No	
--					
--					

**Test for Permanence of Cord Tag(54)**

			N/A	
Type of marking	Tem,	time	Pass	Fail
Rating label	60°C 50% R.H.	48h	--	--
Rating label	32°C, 85% R. H.	48h	--	--
a. the edges not be curled. b. The label can resist defacement or removal as demonstrated by scraping across the test. c. The printing is legible and not be defaced by rubbing with thumb or finger pressure.				

**Protection Against Injury to Persons Test (55)**

55	TABLE: Impact test				Pass
Model	weighing	Test temperature (° C)	Force (J)	Results	
AC68H	0.535kg	25	1.02J	P	
AC68H	0.535kg	25	1.02J	P	
AC68H	0.535kg	25	1.02J	P	
55	Electric strength test				Pass
Test voltage applied between:			Test voltage (V)	Breakdown	
Input and plastic enclosure			1240V	No	
--					
--					

**Knob Securement Test (56)**

Pull Location	Samples	Force	Observations	Pass	
				Pass	Fail
Knob	1#	13.34N	No damaged	Pass	--

Strength of Adjustment Stop Test (57)

Pull Location	Samples	Force	Observations	Pass	
				Pass	Fail
Knob	1#	0.8Nm	No damaged	Pass	--
Switch	1#	89N	No damaged	Pass	--

**Strain Relief Test (59)**

Pull Location	Samples	Force	Observations	Pass	
				Pass	Fail
Power cord	1#	155N	No damaged, no breakage, without displacement	Pass	--

Pushback Relief Test (59)

Pull Location	Samples	Force	Observations	Pass	
				Pass	Fail
Power cord	2#	26.7N	No damaged, no breakage, without displacement	Pass	--

**Permanence of Marking (60)**

			Durable and legible	
Type of marking	Tem,	time	Pass	Fail
Rating label	87℃	48h	--	--
Rating label	32℃, 85% R. H.	48h	--	--
d. the edges not be curled. e. The label can resist defacement or removal as demonstrated by scraping across the test. f. The printing is legible and not be defaced by rubbing with thumb or finger pressure.				



Photo documentation

Photo 1 Overall view

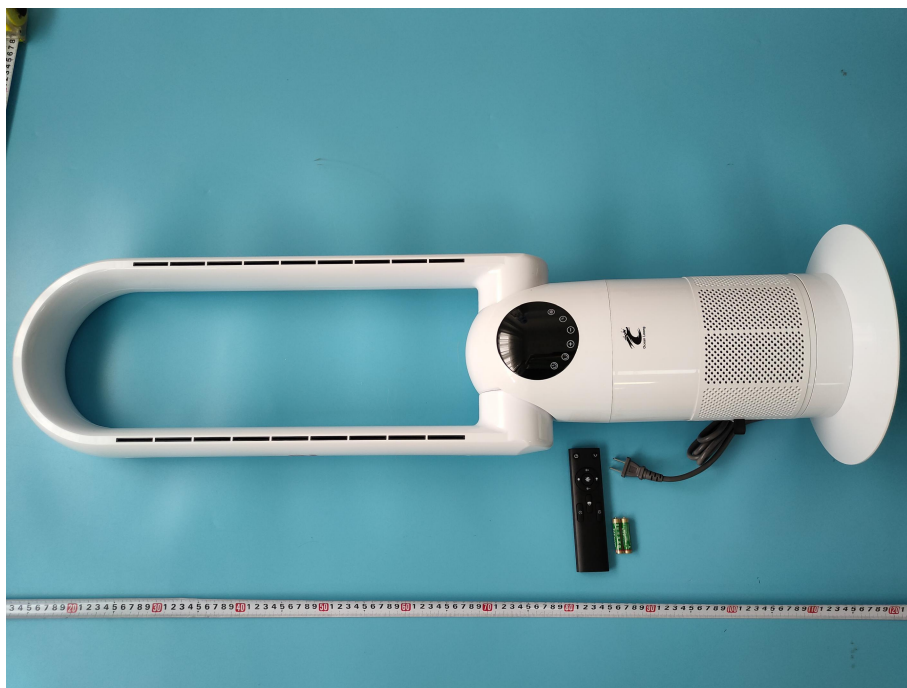


Photo 2 Over view





Photo 3 Over view



Photo 4 Over view



Photo 5 Over view



Photo 6 Over view

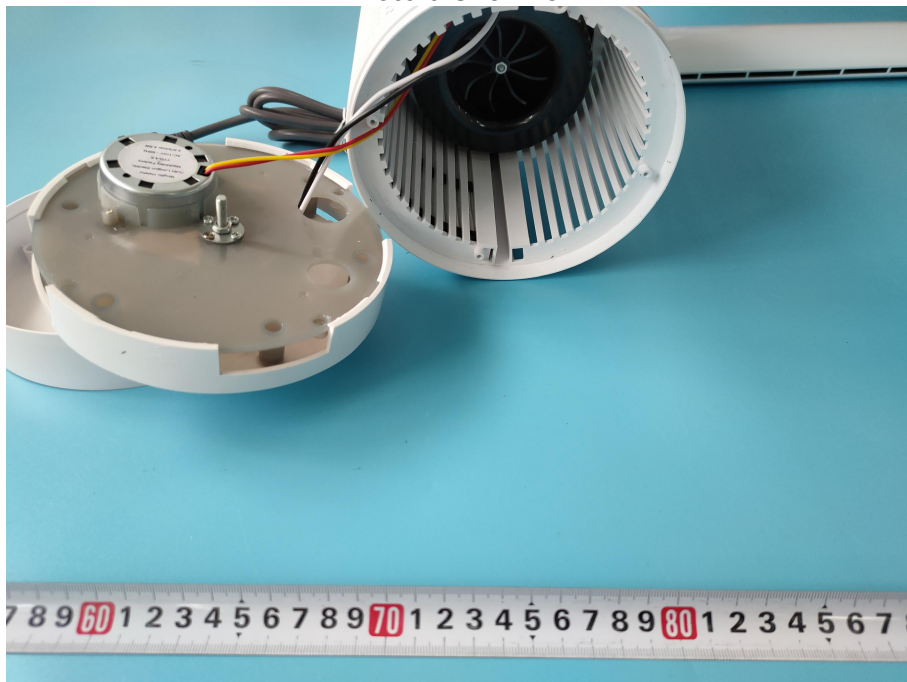




Photo 7 Over view



END OF REPORT