

Qierling (Beijing) Health Technology Co., Ltd.

TEST REPORT



SCOPE OF WORK

EMC TESTING-KJ400F-C400

REPORT NUMBER

210207027GZU-004

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EN 55014:2017+A11:2020 (With electronics)-a
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TEST REPORT

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Intertek Report No: : 210207027GZU-004

Test standards

EN 55014-1:2017+A11:2020
EN IEC 61000-3-2:2019
EN 61000-3-3:2013+A1:2019
EN 55014-2:2015

Sample Description

Product : Air Purifier
Model No. : KJ400F-C400
Electrical Rating : 100V-240V, 50Hz/60Hz, 38W for model KJ400F-C400
Serial No. : Not Labeled
Date Received : 07 February 2021
Date Test : 01 April 2021
Conducted

Prepared and Checked By

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Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD,
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1. TEST RESULTS SUMMARY

Test Item	Standard	Result
Continuous conducted disturbance voltage	EN 55014-1:2017+A11:2020	N/A
Conducted Disturbance at wired network ports	EN 55014-1:2017+A11:2020	N/A
Discontinuous conducted disturbance voltage	EN 55014-1:2017+A11:2020	N/A
Radiated disturbance(9kHz-30MHz)	EN 55014-1:2017+A11:2020	N/A
Radiated disturbance power	EN 55014-1:2017+A11:2020	N/A
Radiated disturbance(30MHz-1000MHz)	EN 55014-1:2017+A11:2020	N/A
Harmonic of current	EN IEC 61000-3-2:2019	N/A
Flicker	EN 61000-3-3:2013+A1:2019	N/A
ESD immunity	EN 55014-2: 2015 Reference: EN 61000-4-2:2009	N/A
Radiated EM field immunity	EN 55014-2:2015 Reference: EN 61000-4-3:2006+A1:2008+A2:2010	N/A
EFT immunity	EN 55014-2:2015 Reference: EN 61000-4-4:2012	N/A
Surge immunity	EN 55014-2:2015 Reference: EN 61000-4-5:2014	N/A
Inject current immunity	EN 55014-2:2015 Reference: EN 61000-4-6:2014	N/A
Voltage dips and interruption immunity	EN 55014-2:2015 Reference: EN 61000-4-11:2004	Pass

Remark:

1. The symbol "N/A" in above table means Not Applicable.
2. When determining the test results, measurement uncertainty of tests has been considered.

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2. EMC RESULTS CONCLUSION

RE: EMC Testing Pursuant to EMC Directive 2014/30/EU Performed on the Air Purifier, Models: KJ400F-C400.

The KJ400F-C400 is the same as the DS-P400 report number 201225119GZU-004 dated 26 February 2021 by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch, except the model differences listed below, and this report should be used with it.

Model differences:

1. KJ400F-C400 Control panel difference, see photo;
2. KJ400F-C400 Increase the frequency of 60Hz;
3. KJ400F-C400 Replace the original plasma generator with a negative ion generator.

Base on engineering judgement, only dips was performed.

We tested the Air Purifier, Models: KJ400F-C400, to determine if it was in compliance with the relevant EN standards as marked on the Test Results Summary. We found that the unit met the requirements of EN 55014-2 (EN 61000-4-11) standards when tested as received. The worst case's test data was presented in this test report.

The production units are required to conform to the initial sample as received when the units are placed on the market.

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3. LABORATORY MEASUREMENTS

Configuration Information

Support Equipment:	N/A
Rated Voltage and frequency under test:	230V; 50/60 Hz
Condition of Environment:	Temperature: 22~28°C Relative Humidity:35~60% Atmosphere Pressure:86~106kPa

Notes:

- The EMI measurements had been made in the operating mode produced the largest emission in the frequency band being investigated consistent with normal applications. An attempt had been made to maximize the emission by varying the configuration of the EUT.
- The EMS measurements had been made in the frequency bands being investigated, with the EUT in the most susceptible operating mode consistent with normal applications. The configuration of the test sample had been varied to achieve maximum susceptibility.
- Test Location:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
All tests were performed at:
Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Except Radiated Disturbance and Radiated Susceptibility were performed at:
Room102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

4. Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission (9 kHz-150 kHz)	2.79 dB
2	Conducted Emission (150 kHz-30 MHz)	2.55 dB
3	Disturbance Power (30 MHz-300 MHz)	3.04 dB
4	Radiated Emission (30 MHz-1 GHz)	4.80 dB
5	Radiated Emission (1 GHz-6 GHz)	4.97 dB
6	Radiated Emission (6 GHz-18 GHz)	4.89 dB

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with CISPR16-4-2:2011+A1:2014+A2:2018.

The measurement uncertainty is given with a confidence of 95%, k=2.

Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

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4. EQUIPMENT USED DURING TEST

Voltage Dips and Interruptions (2)

Equipment No.	Equipment	Model	Manufacturer	Calibration Interval
EM005-09	Surge/DIP Generator	NSG3040	TESEQ	1Y
EM005-09-01	Voltage Regulator	INA6501	TESEQ	1Y
SA047-140	Digital Temperature-Humidity Recorder	AW5145Y	ASAIR	1Y

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Detail of the equipment calibration due date:

Equipment No.	Cal. Due date (DD-MM-YYYY)
Conducted Disturbance-Mains Terminal (1)	
EM080-05	19/07/2021
EM006-05	07/06/2021
SA047-112	16/11/2021
EM004-04	21/01/2022
Conducted Disturbance-Mains Terminal (2)	
EM031-04	07/01/2022
EM006-06	06/09/2021
SA047-111	16/11/2021
EM004-03	21/01/2022
EM031-04-01	N/A
Conducted Disturbance-Load and Control Terminal (1)	
EM080-05	19/07/2021
EM080-05-01	06/09/2021
SA047-112	16/11/2021
EM004-04	21/01/2022
Conducted Disturbance-Load and Control Terminal (2)	
EM080-05	19/07/2021
EM005-06-01	06/09/2021
SA047-112	16/11/2021
EM004-04	21/01/2022
Conducted Disturbance-Telecom Terminal	
EM080-05	19/07/2021
EM011-05	05/04/2022
EM011-06	05/04/2022
EM006-06	06/09/2021
SA047-112	16/11/2021
EM004-04	21/01/2022
Conducted Disturbance-Antenna Terminal	
EM031-04	07/01/2022
EM084-02	21/07/2021
EM041-01	05/01/2022
EM041-02	05/01/2022
SA047-111	16/11/2021
EM004-03	21/01/2022
Click (1)	
EM008-01	19/07/2021
EM006-06	06/09/2021
SA047-111	16/11/2021
EM004-03	21/01/2022
Click (2)	
EM008-02	15/11/2021
EM008-02-01	15/11/2021
EM032-02	19/07/2021
SA047-111	16/11/2021
EM004-03	21/01/2022
Disturbance Power	
EM080-05	19/07/2021
EM081-04	09/03/2022
SA047-112	16/11/2021
EM004-04	21/01/2022

Equipment No.	Cal. Due date (DD-MM-YYYY)
Radiated Disturbance (CDN Method)	
EM080-05	19/07/2021
EM003-02	15/11/2021
EM003-03	15/11/2021
EM003-01-05	06/09/2021
EM032-02-01	20/07/2021
EM032-02-02	20/07/2021
SA047-112	16/11/2021
EM004-04	21/01/2022
Radiated electromagnetic disturbances (9 kHz-30 MHz)	
EM031-04	07/01/2022
EM061-04	7/03/2022
SA047-111	16/11/2021
EM004-03	21/01/2022
Radiated Disturbance (9 kHz-30 MHz)	
EM030-04	06/04/2022
EM031-02	16/10/2021
EM011-04	18/06/2021
EM031-02-01	05/04/2022
SA047-118	21/07/2021
EM045-01-01	N/A
Radiated Disturbance (30 MHz-1 GHz)	
EM030-04	06/04/2022
EM031-02	16/10/2021
EM033-01	18/09/2021
EM031-02-01	05/04/2022
EM036-01	21/07/2021
SA047-118	21/07/2021
EM045-01-01	N/A
Radiated Disturbance (1-18 GHz)	
EM030-04	06/04/2022
EM031-02	16/10/2021
EM031-03	06/09/2021
EM033-02	18/06/2021
EM033-02-02	05/04/2022
EM022-03	10/05/2021
SA047-118	21/07/2021
EM045-01-01	N/A
Harmonic Currents and Flicker (1)	
EM001-02	15/11/2021
SA047-111	16/11/2021
Harmonic Currents and Flicker (2)	
EM001-03	11/09/2021
EM001-03-01	11/09/2021
SA047-140	05/01/2022
EMF	
EM007-03	25/02/2022
SA047-112	16/11/2021
Induced Current Density (20 kHz-10 MHz)	
EM031-04	07/01/2022
EM007-02	07/01/2022
SA047-111	16/11/2021

Equipment No.	Cal. Due date (DD-MM-YYYY)
Electrostatic Discharge (1)	
EM077-04	15/04/2021
SA047-133	16/03/2022
Electrostatic Discharge (2)	
EM077-02	08/05/2021
SA047-133	16/03/2022
Electrical Fast Transient/Burst (1)	
EM005-12	05/04/2022
EM005-10-01	05/04/2022
SA047-140	05/01/2022
Electrical Fast Transient/Burst (2)	
EM005-10	05/05/2021
EM005-10-01	05/04/2022
SA047-140	05/01/2022
Surge (2)	
EM005-08	19/07/2021
SA047-140	05/01/2022
Surge (3)	
EM005-09	22/06/2021
SA047-140	05/01/2022
Conducted Susceptibility (1)	
EM046-04	10/12/2021
EM084-02	21/07/2021
EM003-01-04	06/09/2021
EM003-01-05	06/09/2021
EM019-01-01	06/09/2021
EM019-03	19/07/2021
SA047-140	05/01/2022
Conducted Susceptibility (2)	
EM019-01	05/04/2022
EM019-01-01	06/09/2021
EM019-01-02	06/09/2021
EM019-01-03	06/09/2021
EM019-03	19/07/2021
SA047-140	05/01/2022
Voltage Dips and Interruptions (2)	
EM005-09	22/06/2021
EM005-09-01	22/06/2021
SA047-140	05/01/2022
Radiated Susceptibility	
EM030-04	06/04/2022
EM031-01	22/07/2021
EM086-11	15/11/2021
EM086-11-01	15/11/2021
EM046-01	07/03/2022
EM046-03	06/09/2021
EM061-05	11/10/2021
EM061-07	11/10/2021
EM034-01	/
EM045-01-01	/
SA047-118	21/07/2021
Power Frequency Magnetic Field	
EM001-03	11/09/2021
EM001-03-02	11/09/2021
SA047-140	05/01/2022
Ring Wave	
EM005-11	05/04/2022
SA047-140	05/01/2022

TEST REPORT**5. EMI TEST****5.1 EN 55014-1 Continuous Conducted Disturbance Voltage Test****Test Result: Not Applicable****5.2 EN 55014-1 Conducted Common Mode (Asymmetric Mode) Disturbance at wired network Ports****Test Result: Not Applicable**

Remark: The test only apply to balanced unscreened ports intended for connection to unscreened balanced pairs

5.3 EN 55014-1 Discontinuous Conducted Disturbance Voltage**Test Result: Not Applicable****5.4 EN 55014-1 Radiated Disturbance (9 kHz-30 MHz)- Magnetic field induced current method****Test Result: Not Applicable**

Remark: The test only applies to induction cooking appliances.

5.5 Radiated Disturbance (9 kHz-30 MHz)- Magnetic field strength method**Test Result: Not Applicable**

Remark: The test only applies to induction cooking appliances.

5.6 EN 55014-1 Radiated Disturbance Power**Test Result: Not Applicable****5.7 EN 55014-1 Radiated Disturbance(30MHz-1000MHz)****Test Result: Not Applicable**

Remark:

 Radiated disturbance shall not be conducted, if the measurement quasi-peak data of disturbance power is lower than applicable limit reduced by the margin (0 to 10dB) at frequency range 200 to 300 MHz and the maximum clock frequency is less than 30MHz,.**6. Harmonics of current****Test Result: Not Applicable**

TEST REPORT

7. Flicker

Test Result: Not Applicable

8. EMS TEST

Performance Criteria:

- Criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permission 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: 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 permission loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating 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 from the apparatus if used as intended.
- Criterion C: 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 instruction for use.

Operation mode of EMS test:

Test Item	Operation mode
ESD immunity	--
Radiated EM field immunity	--
EFT immunity	--
Surge immunity	--
Inject current immunity	--
Voltage dips and interruption immunity	Fan speed high

Note: "N/A" means Not Applicable in below text.

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8.1 EN 61000-4-2(Pursuant to EN 55014-2) Electrostatic Discharge Immunity

Performance criterion: B

Test Result: Not Applicable

8.2 EN 61000-4-6(Pursuant to EN 55014-2) Injected Current (0.15 MHz to 230 MHz)

Performance criterion: A

Test Result: Not Applicable

8.3 EN 61000-4-4(Pursuant to EN 55014-2) Electrical Fast Transient/Burst

Performance criterion: B

Test Result: Not Applicable

8.4 EN 61000-4-5(Pursuant to EN 55014-2) Surge Immunity

Performance criterion: B

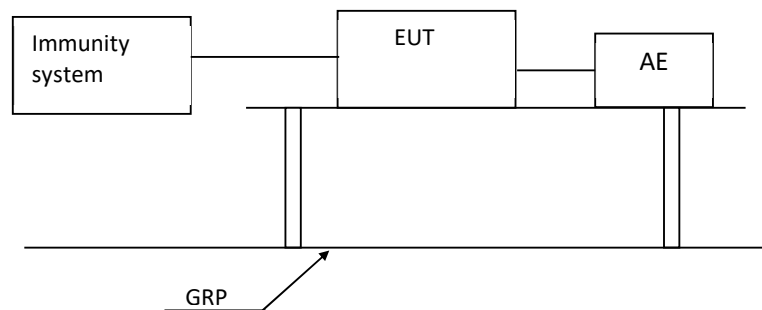
Test Result: Not Applicable

8.5 EN 61000-4-11(Pursuant to EN 55014-2) Voltage Dips and Interruptions

Performance criterion: C

Test Result: Pass

8.5.1 Block Diagram of Test Setup



8.5.2 Test Setup and Procedure

The EUT was placed on an insulating support of 0.8m height, standing on a ground reference plane, and arranged and connected to satisfy its functional requirement

The test was performed with the EUT connected to the test generator with the shortest power supply cable as specified by the EUT manufacturer.

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The EUT was tested for each selected combination of test level and duration with a sequence of three dips/interruptions with intervals of 10 s minimum. Each representative mode of operation was tested.

Abrupt changes in supply voltage was occur at zero crossings of the voltage.

8.5.3 Test Result

Test condition (Pursuant to EN 55014-2)				
Test Level in %U _T	50 Hz		60 Hz	
	Duration	Result	Duration	Result
0	0.5	Pass	0.5	Pass
40	10	Pass	12	Pass
70	25	Pass	30	Pass

Remark: UT is the rated voltage for the equipment.

8.6 EN 61000-4-3(Pursuant to EN 55014-2) Radiated Electromagnetic Field Immunity

Performance criterion: A

Test Result: **Not Applicable**

Remark:

Containing electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz.

TEST REPORT

9. APPENDIX I - PHOTOS OF TEST SETUP



TEST REPORT

10. APPENDIX II – PHOTOS OF EUT

Photo documents:



overall view



overall view

TEST REPORT



Back view

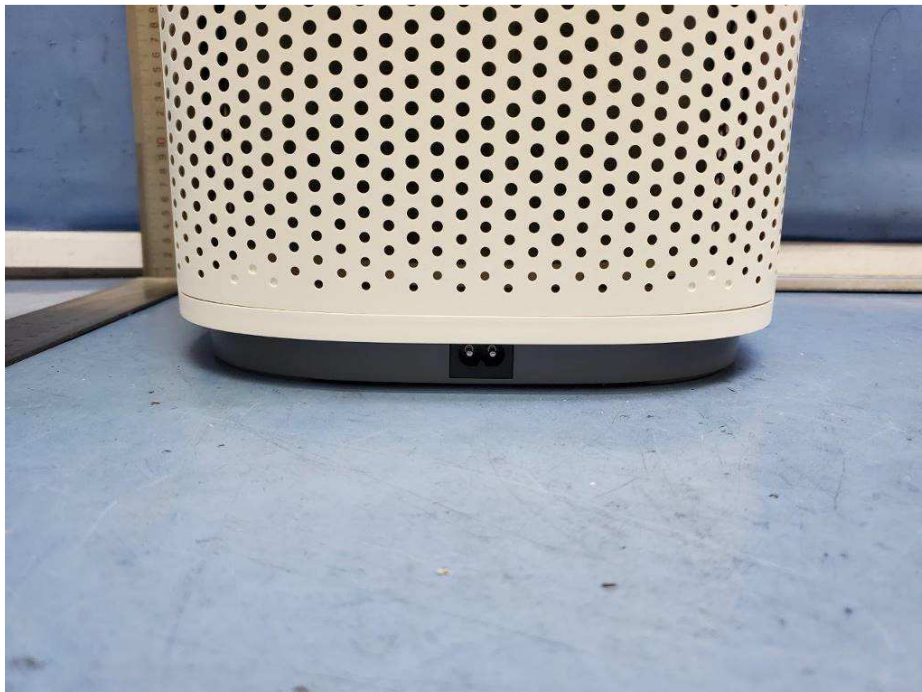


Top view (Air outlet and control panel)

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Remove the filter



Appliance view

TEST REPORT

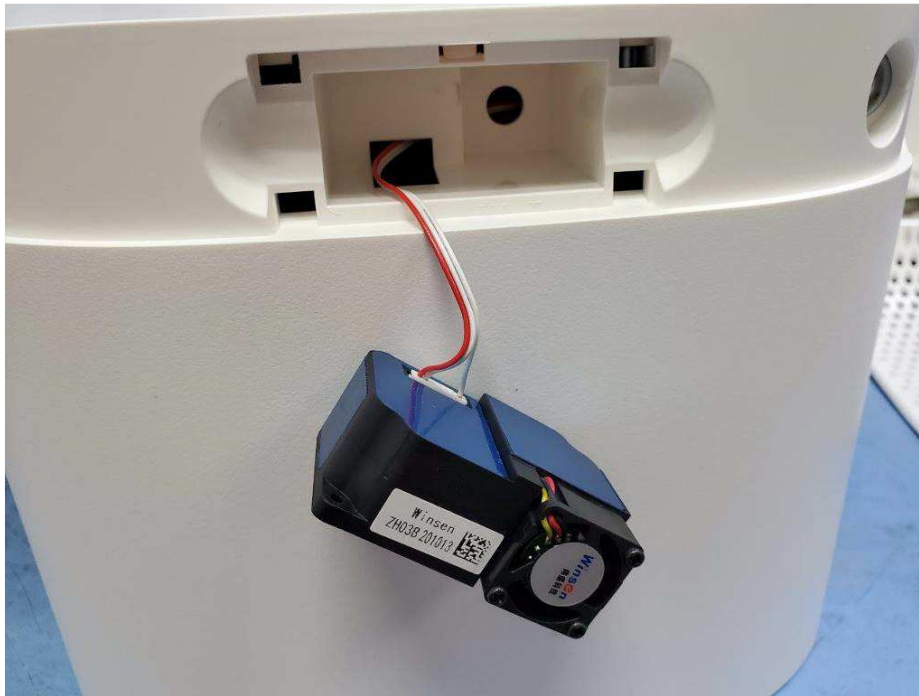


PM2.5 sensor cover



PM2.5 sensor position

TEST REPORT

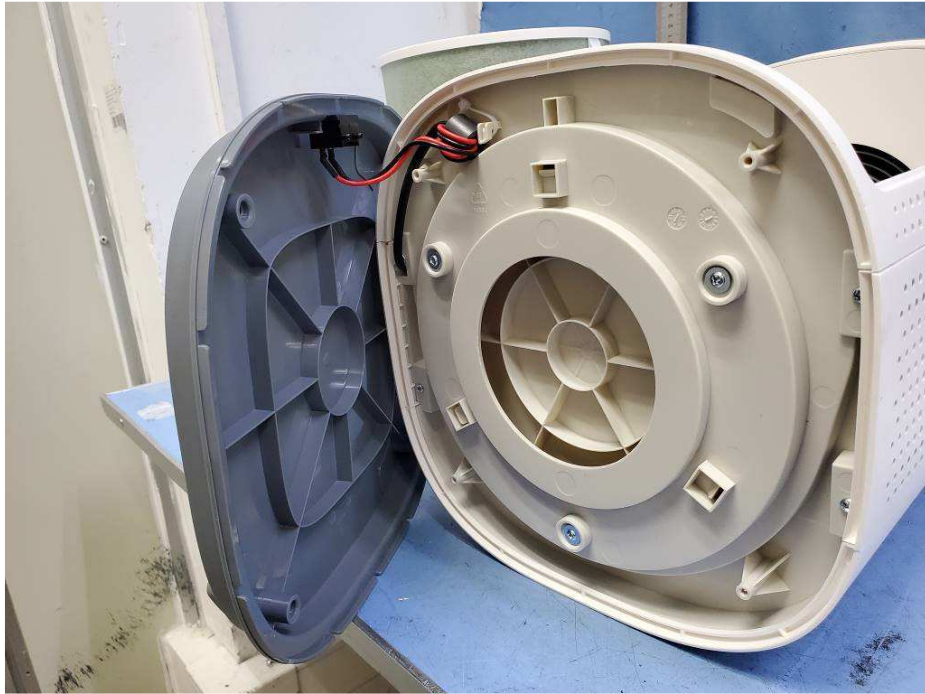


PM2.5 sensor



Bottom view

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Bottom inside view



Appliance inlet view

TEST REPORT

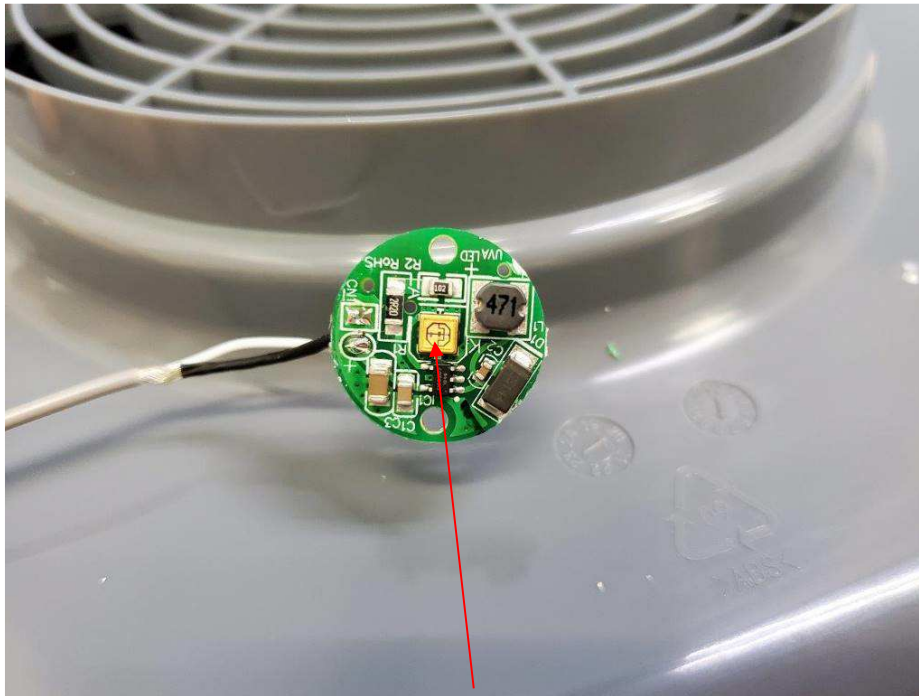


Air inlet, UV lamp position

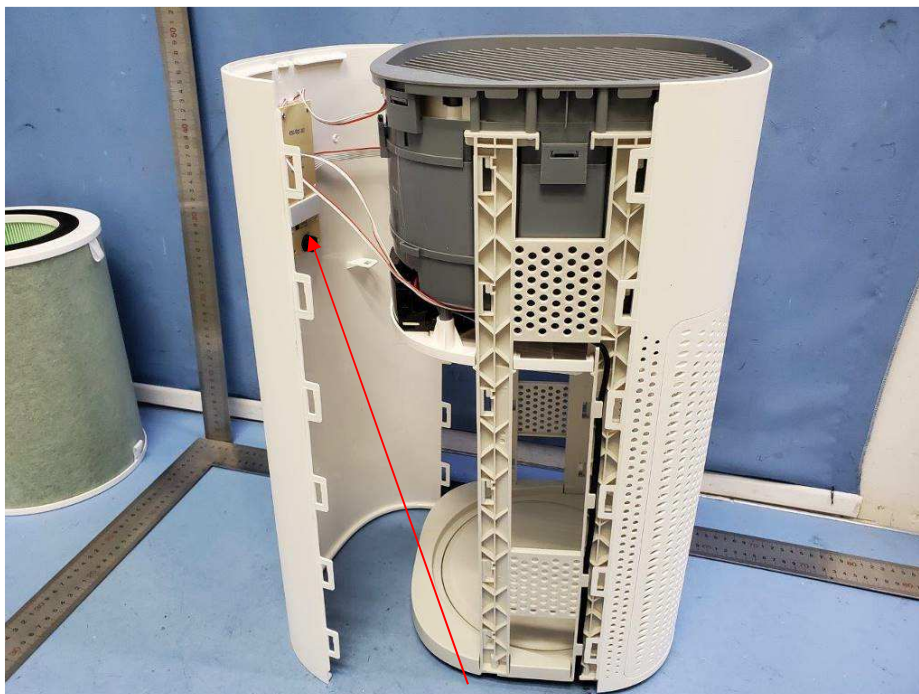


UV lamp PCB

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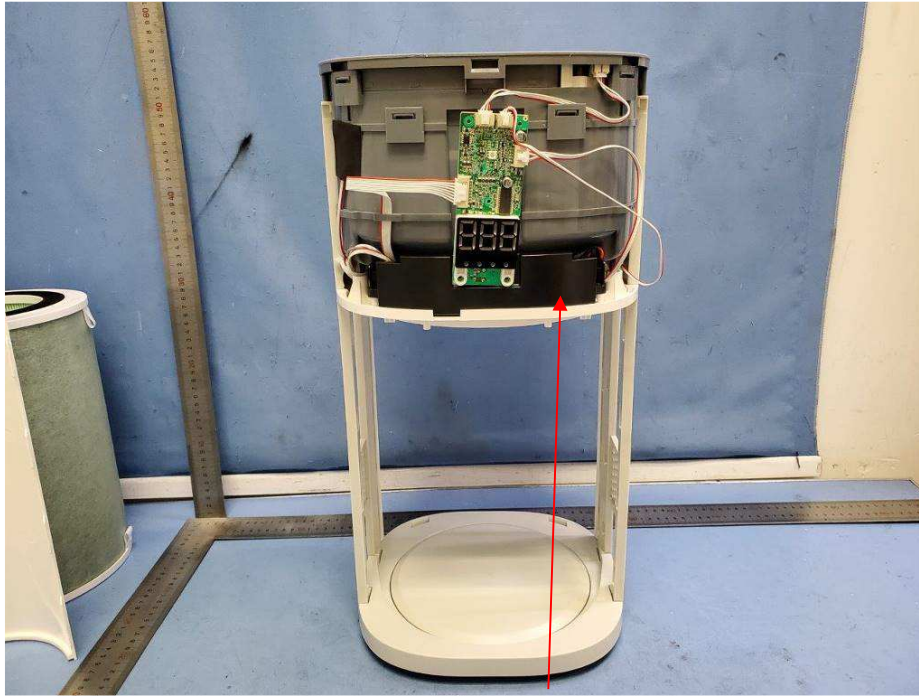


UV lamp

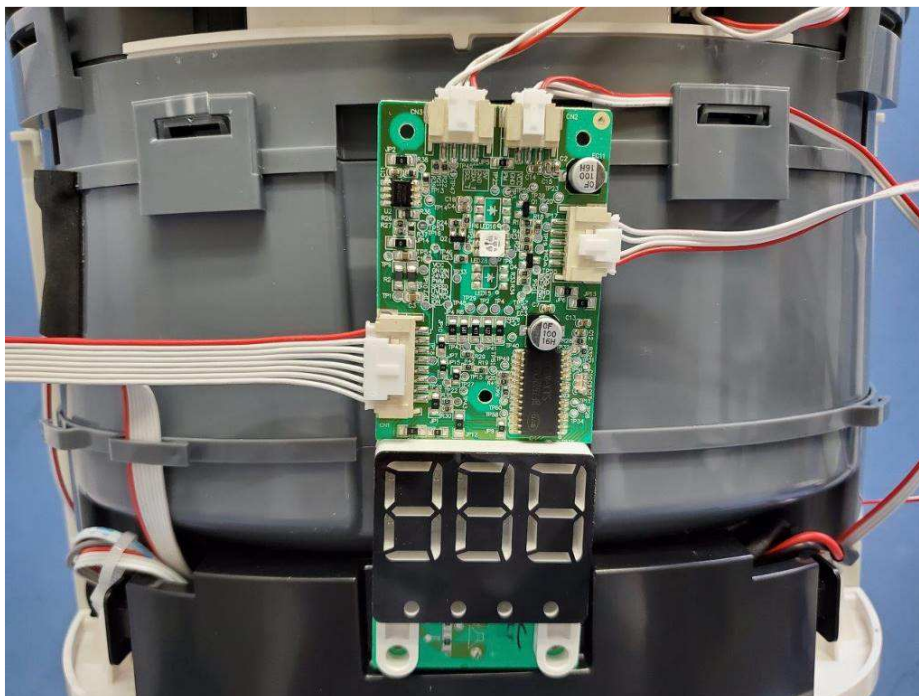


Display PCB location

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Main PCB Box position

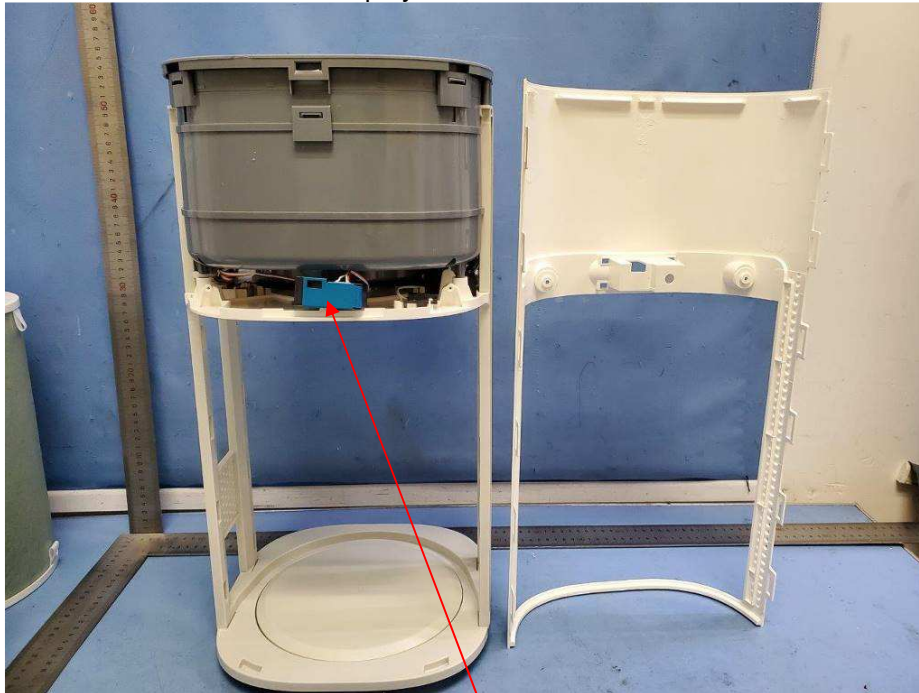


Display PCB front view

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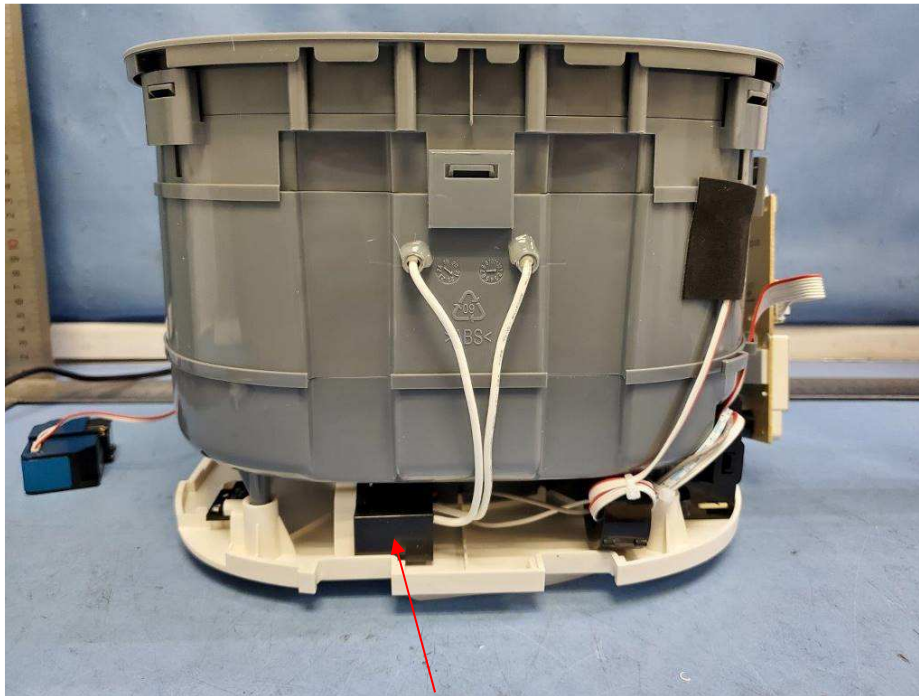


Display PCB back view

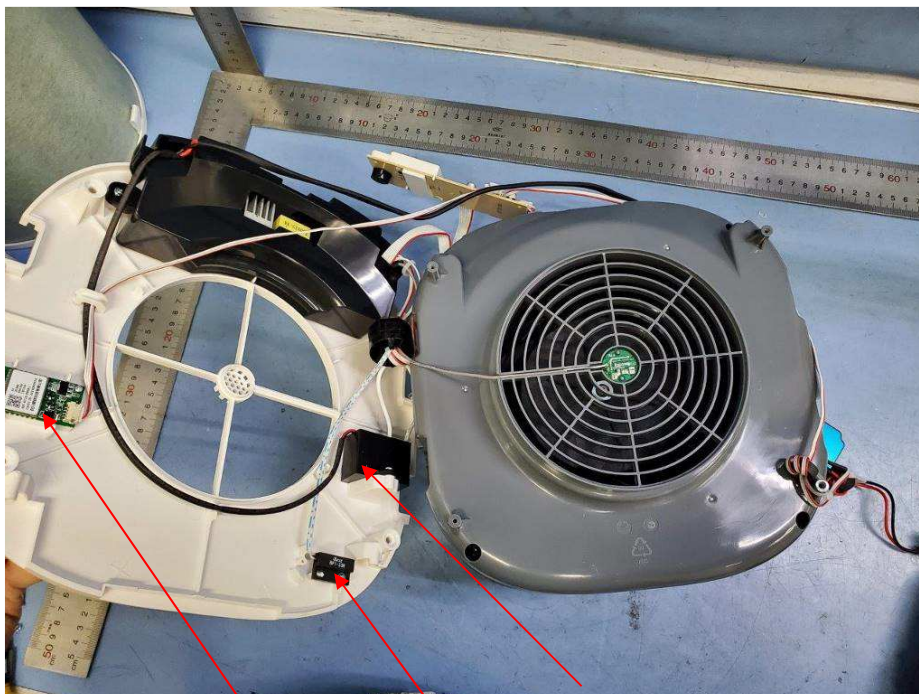


Internal view (PM2.5 location)

TEST REPORT

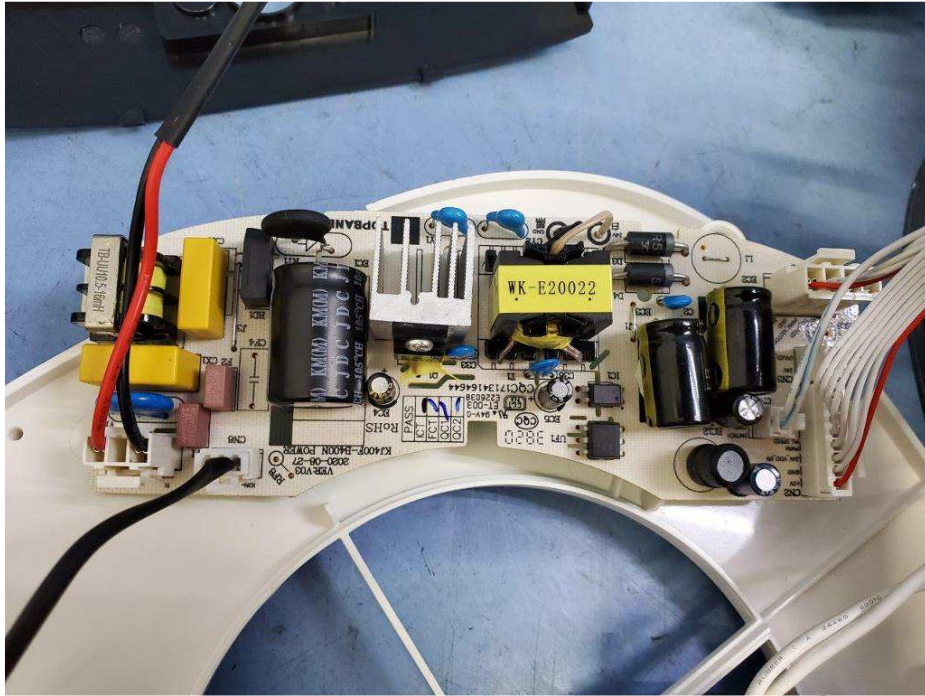


Plasma generator location

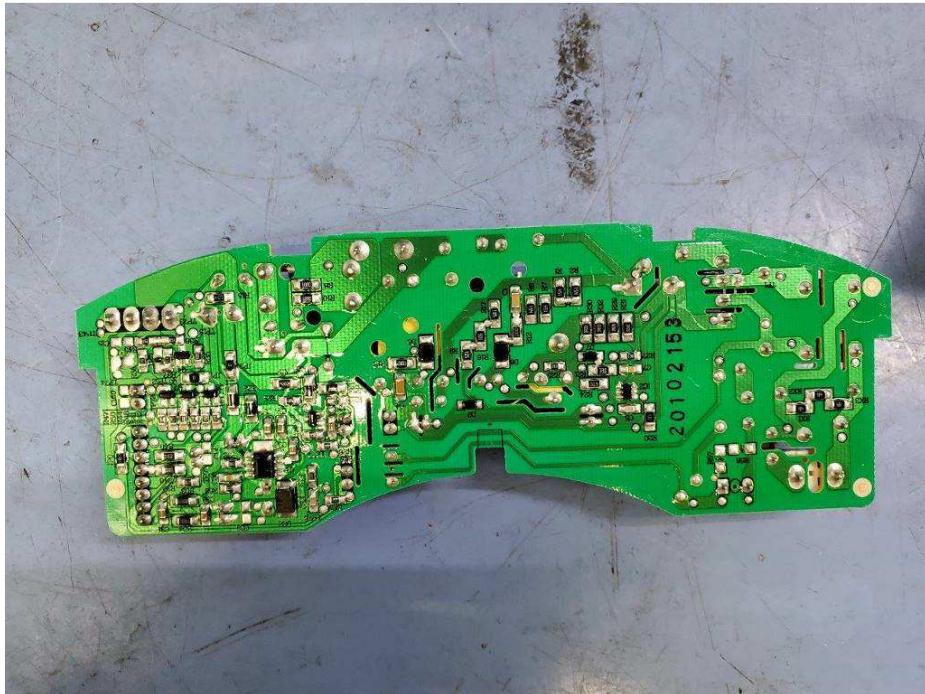


Wifi module, Hall sensor, Plasma generator

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Main PCB

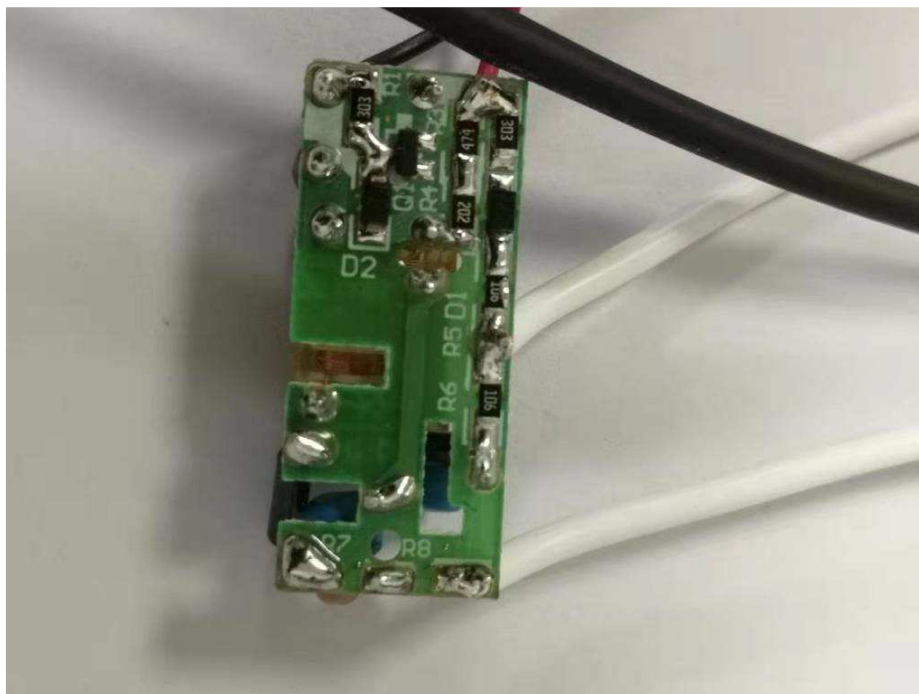


Main PCB

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Top view for Anion generator



Bottom view of Anion generator

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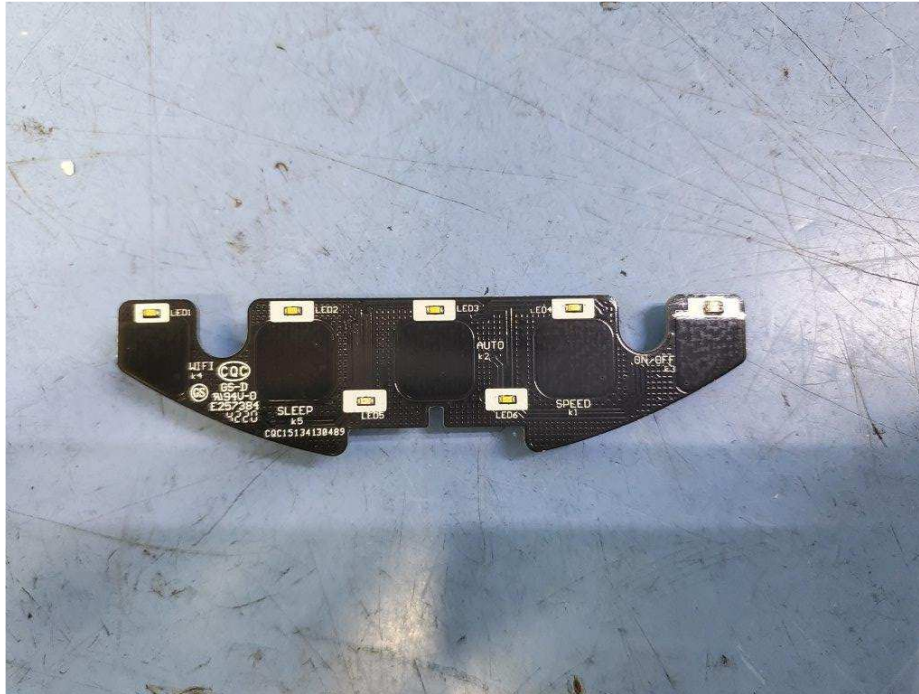


Remove air outlet grill view

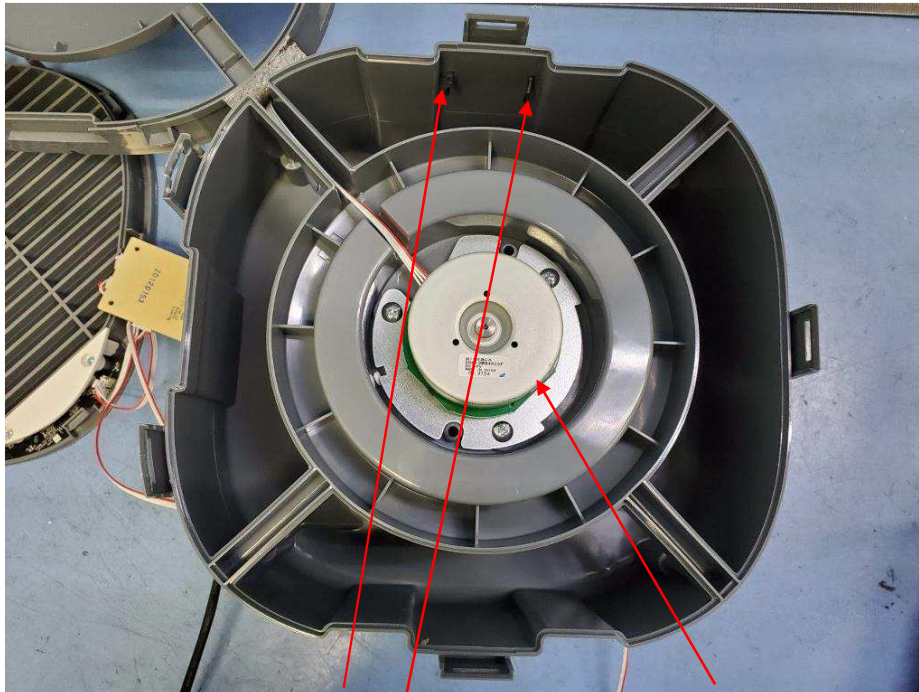


Control PCB

TEST REPORT



Control PCB



Plasma generator carbon brushes position, Fan Motor position

TEST REPORT



Control PCB for Fan Motor

*****End of Report*****