EMC Test Report

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Applicant: Shenzhen Roborock Innovation Technology Co., Ltd.

Product: Auto-Empty Dock

Model: MDS23HRR

In accordance with, EN 55014-1, EN 61000-3-2, EN 61000-3-3 and EN 55014-2

Prepared for: Shenzhen Roborock Innovation Technology Co., Ltd.
Room 1802, Building D1, Nanshan Zhiyuan, No.1001 Xueyuan Avenue, Changyuan community, Taoyuan Street, Nanshan District, Shenzhen, P.R. China

COMMERCIAL-IN-CONFIDENCE

Report Number: 4840125244200

RESPONSIBLE FOR	NAME	SIGNATURE	DATE
Approved By	Bo Dai		2025.04.07
Prepared By	Zhilan Xue		2025.04.07

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service control rules.

EXECUTIVE SUMMARY
Two samples of this product were tested and found to be compliant with 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.

TÜV SÜD Certification and Testing (China) Co., Ltd.

Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

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ID Number: EMC_WUX_F_25.43E
Revision:04
Effective:2023-07-11

Contents

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	2025.04.07

1.2 Introduction

The information contained in this report is intended to show verification of the EMC Qualification Approval Testing of the requirements of the standards for the tests listed in Section 1.3.

Applicant	Shenzhen Roborock Innovation Technology Co., Ltd.
address	Room 1802, Building D1, Nanshan Zhiyuan, No.1001 Xueyuan Avenue, Changyuan community, Taoyuan Street, Nanshan District, Shenzhen, P.R. China
Manufacturer	Shenzhen Roborock Innovation Technology Co., Ltd.
address	Room 1802, Building D1, Nanshan Zhiyuan, No.1001 Xueyuan Avenue, Changyuan community, Taoyuan Street, Nanshan District, Shenzhen, P.R. China
Model Number(s)	MDS23HRR
Rated voltage & frequency & current	Rated Input (Charging): 220-240 VAC, 50-60 Hz, 0.3 A Rated Input (Dust evacuation & charging): 220-240 VAC, 50-60 Hz, 5 A Rated Output: 34.5 VDC, 1 A
Sample Tested	MDS23HRR
Test Specification	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
Date of Receipt of EUT	2025.02.25
Start of Test	2025.02.26
Finish of Test	2025.03.26
Name of Engineer(s)	Zhilan Xue

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with EN 55014-1, EN 61000-3-2, EN 61000-3-3 and EN 55014-2 is shown below.

Section	Specification	Clause	Test Description	Result	Comments/Base Standard
2.1	EN IEC 55014-1:2021	4.3, 3.6	Conducted Disturbance	Pass	--
2.2	EN IEC 55014-1:2021	4.3, 4.4	Disturbance Power	Pass	--
2.3	EN IEC 61000-3-2:2019/A1:2021	7	Harmonic current emission	Pass	
2.4	EN 61000-3-3:2013/A1:2019/A2:2021	6	Flicker	Pass	
2.5	EN IEC 55014-2:2021	5.1	Electrostatic discharge immunity test	Pass	IEC 61000-4-2
2.6	EN IEC 55014-2:2021	5.2	Electrical fast transient /burst immunity test	Pass	IEC 61000-4-4
2.7	EN IEC 55014-2:2021	5.3	Immunity to conducted disturbances, induced by radio-frequency fields	Pass	IEC 61000-4-6
2.8	EN IEC 55014-2:2021	5.6	Surge immunity test	Pass	IEC 61000-4-5
2.9	EN IEC 55014-2:2021	5.7	Voltage dips, short interruptions and voltage variations immunity tests	Pass	IEC 61000-4-11

1.4 Product Information

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Auto-Empty Dock.

The highest clock frequency is less than 15MHz.

The EUT has two types of electric configurations, all of them were performed tests.

Besides, the Auto-Empty Dock has two types of configurations, so each EUT was tested with both of them.

The worst status was recorded.

1.4.2 EUT Port/Cable Identification

Port	Max Cable Length specified	Usage	Type	Screened
Power line	--	--	2 core	No

1.4.3 Test Configuration

Configuration	Description
1	230V AC 50Hz

1.4.4 Modes of Operation

Mode	Description
1	The EUT was charging
2	The EUT was dust evacuation & charging

1.4.5 Monitoring of Performance

The EUT works normally, the EUT was monitored by visual inspection.

1.4.6 Performance Criteria

EN 55014-2:
Performance 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 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 reasonable expect from the apparatus if used as intended.

Performance 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 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 to persist after test. 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 reasonable expect from the apparatus if used as intended.

Performance 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.

1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.6 Test Location

TÜV SÜD Product Service conducted the following tests at TÜV SÜD Certification and Testing (China) Co., Ltd.

Address:

Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu, P.R.China

Test Name	Name of Engineer(s)
Conducted Disturbance at Mains Terminals	Haoyu Wang
Disturbance power	Haoyu Wang
Electrostatic discharge immunity test	Haoyu Wang
Electrical fast transient /burst immunity test	Haoyu Wang
Immunity to conducted disturbances, induced by radio-frequency fields	Haoyu Wang
Surge immunity test	Haoyu Wang
Voltage dips, short interruptions and voltage variations immunity tests	Haoyu Wang
Harmonic current emission	Haoyu Wang
Flicker	Haoyu Wang

2 Test Details

2.1 Conducted Disturbance at Mains Terminals

2.1.1 Specification Reference

Refer to 1.3

2.1.2 Equipment Under Test

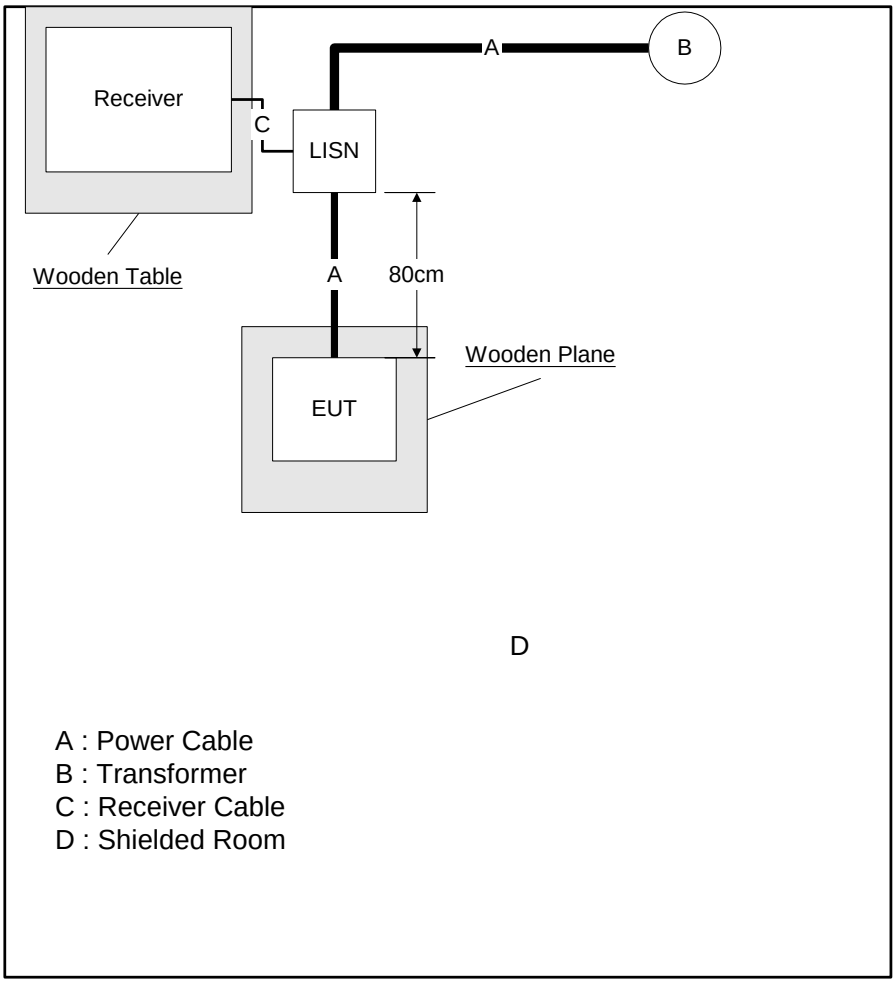
MDS23HRR

2.1.3 Date of Test

2025.03.05

2.1.4 Test Method

The EUT was placed on a non-conductive table 0.1m above a reference ground plane.
All power was connected to the EUT through an Artificial Mains Network (AMN). Conducted disturbance voltage measurements on mains lines were made at the output of the AMN. The AMN was placed 0.8m from the boundary of the EUT and bonded to the reference ground plane.



2.1.5 Environmental Conditions

Ambient Temperature	25 °C
Relative Humidity	53 %
Atmospheric Pressure	1009.3 mbar

2.1.6 Specification Limits

Household appliances and equipment causing similar disturbances and regulating controls incorporating semiconductor devices						
Frequency range	Disturbance voltage at main terminals		Disturbance voltage at associated ports		Disturbance current at associated ports	
MHz	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµA	Average dBµA
0.15 to 0.5	66 to 56	59 to 46	80	70	40 to 30	30 to 20
0.5 to 5	56	46	74	64	30	20
5 to 30	60	50	74	64		

2.1.7 Test Results

Results for Configuration and Mode: Configuration 1 & Mode 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

0.15-30MHz Conducted Emission Test

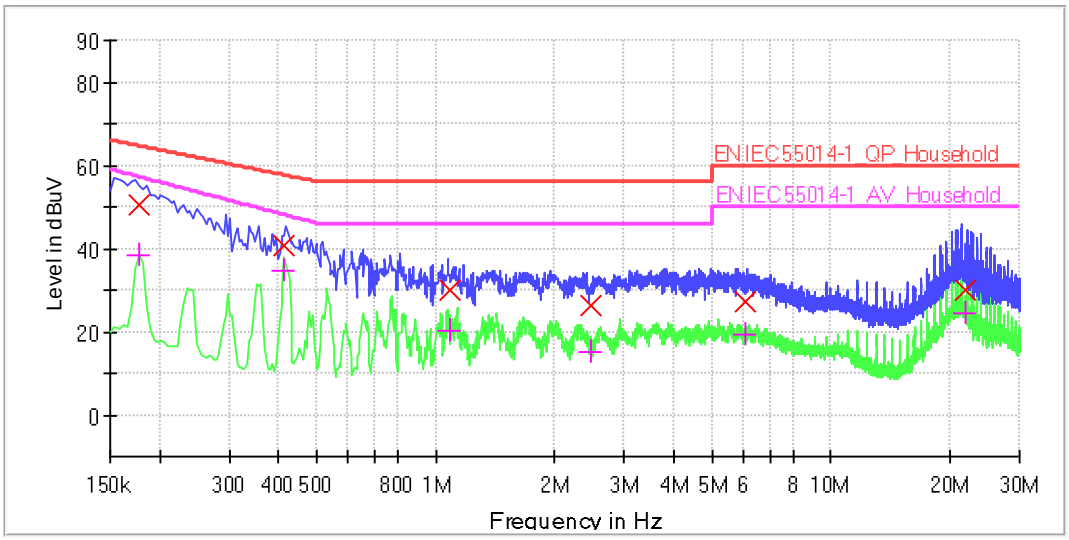
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Charging, configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Phase L
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.178000	50.3	38.6	1000.0	19.6	14.3	64.6	18.6	57.2
0.414000	40.7	34.5	1000.0	19.7	16.8	57.6	13.6	48.0
1.082000	30.1	20.4	1000.0	19.7	25.9	56.0	25.6	46.0
2.482000	26.1	15.1	1000.0	19.7	29.9	56.0	31.0	46.0
6.090000	27.2	19.3	1000.0	19.7	32.8	60.0	30.7	50.0
21.790000	30.1	24.2	1000.0	19.8	30.0	60.0	25.8	50.0

0.15-30MHz Conducted Emission Test

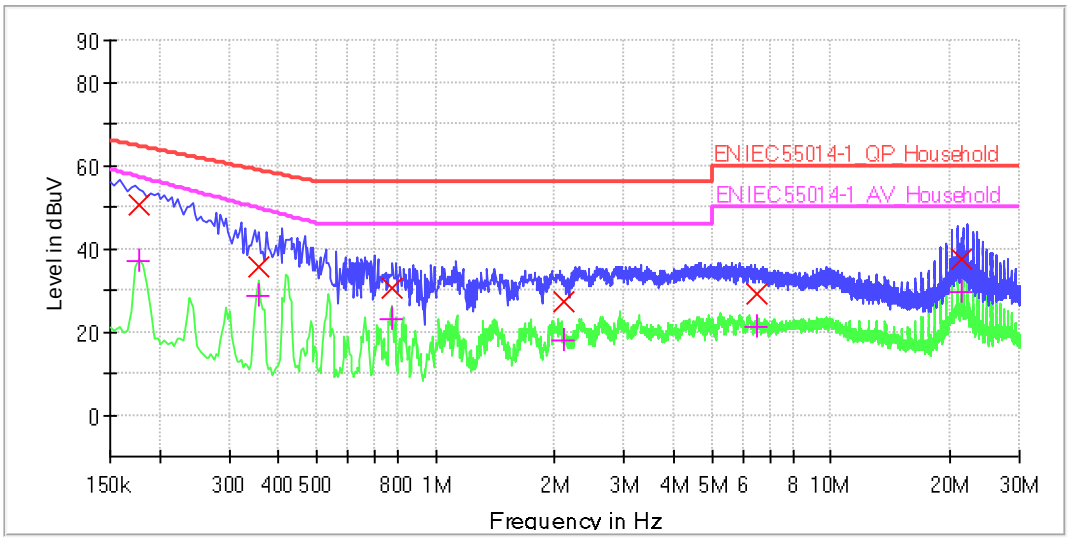
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Charging, configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Phase N
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.178000	50.6	36.9	1000.0	19.6	14.0	64.6	20.3	57.2
0.358000	35.6	28.6	1000.0	19.7	23.2	58.8	21.0	49.6
0.774000	30.6	23.0	1000.0	19.7	25.4	56.0	23.0	46.0
2.098000	27.1	17.9	1000.0	19.7	28.9	56.0	28.1	46.0
6.490000	29.1	21.4	1000.0	19.7	31.0	60.0	28.6	50.0
21.490000	37.6	29.4	1000.0	19.8	22.4	60.0	20.6	50.0

0.15-30MHz Conducted Emission Test

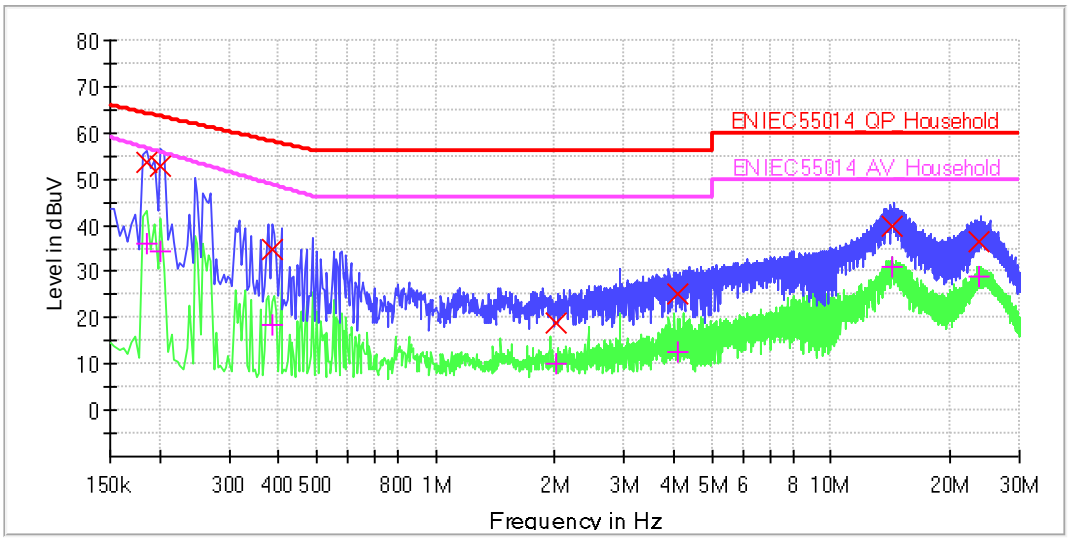
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on,Charging, configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-003
Test Standard:	EN IEC 55014-1
Comment:	Phase L
Comment:	Temp.:25℃,Humi.:47%,Atm.:1016.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.186000	53.8	35.9	1000.0	9.000	10.5	10.4	64.2	20.8	56.7
0.202000	52.9	34.5	1000.0	9.000	10.5	10.6	63.5	21.3	55.8
0.386000	34.7	18.3	1000.0	9.000	10.5	23.5	58.1	30.5	48.8
2.018000	18.8	10.2	1000.0	9.000	10.5	37.2	56.0	35.8	46.0
4.078000	25.0	12.5	1000.0	9.000	10.6	31.0	56.0	33.5	46.0
14.278000	40.0	31.0	1000.0	9.000	10.9	20.0	60.0	19.0	50.0
23.590000	36.3	29.0	1000.0	9.000	11.0	23.7	60.0	21.0	50.0

0.15-30MHz Conducted Emission Test

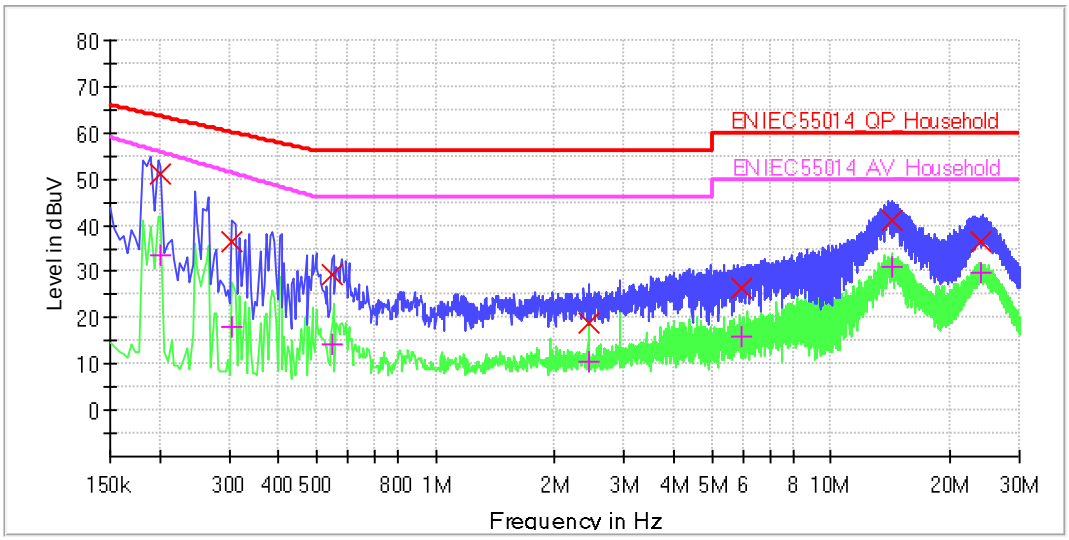
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on,charging, configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-003
Test Standard:	EN IEC 55014-1
Comment:	Phase N
Comment:	Temp.:25℃,Humi.:47%,Atm.:1016.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.202000	51.1	33.5	1000.0	9.000	10.5	12.4	63.5	22.3	55.8
0.306000	36.6	17.9	1000.0	9.000	10.5	23.5	60.1	33.4	51.3
0.546000	29.2	14.2	1000.0	9.000	10.5	26.8	56.0	31.9	46.0
2.442000	19.1	10.6	1000.0	9.000	10.6	36.9	56.0	35.4	46.0
5.958000	26.5	16.0	1000.0	9.000	10.7	33.5	60.0	34.0	50.0
14.222000	40.9	30.9	1000.0	9.000	10.9	19.1	60.0	19.1	50.0
23.834000	36.6	29.7	1000.0	9.000	11.1	23.4	60.0	20.3	50.0

0.15-30MHz Conducted Emission Test

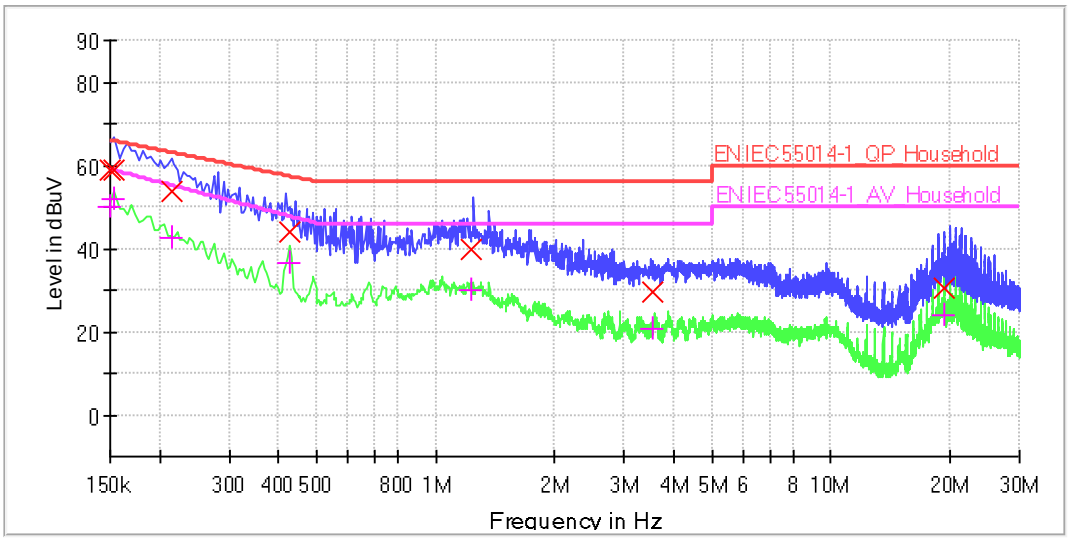
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Dust evacuation & charging, configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Phase L
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.150000	58.9	49.8	1000.0	19.6	7.1	66.0	9.2	59.0
0.154000	59.0	51.9	1000.0	19.6	6.8	65.8	6.8	58.7
0.214000	53.9	42.8	1000.0	19.7	9.1	63.0	12.4	55.2
0.426000	43.8	36.7	1000.0	19.7	13.5	57.3	11.0	47.7
1.234000	39.9	29.9	1000.0	19.7	16.1	56.0	16.1	46.0
3.526000	29.6	20.5	1000.0	19.7	26.4	56.0	25.5	46.0
19.446000	30.6	23.9	1000.0	19.8	29.4	60.0	26.1	50.0

0.15-30MHz Conducted Emission Test

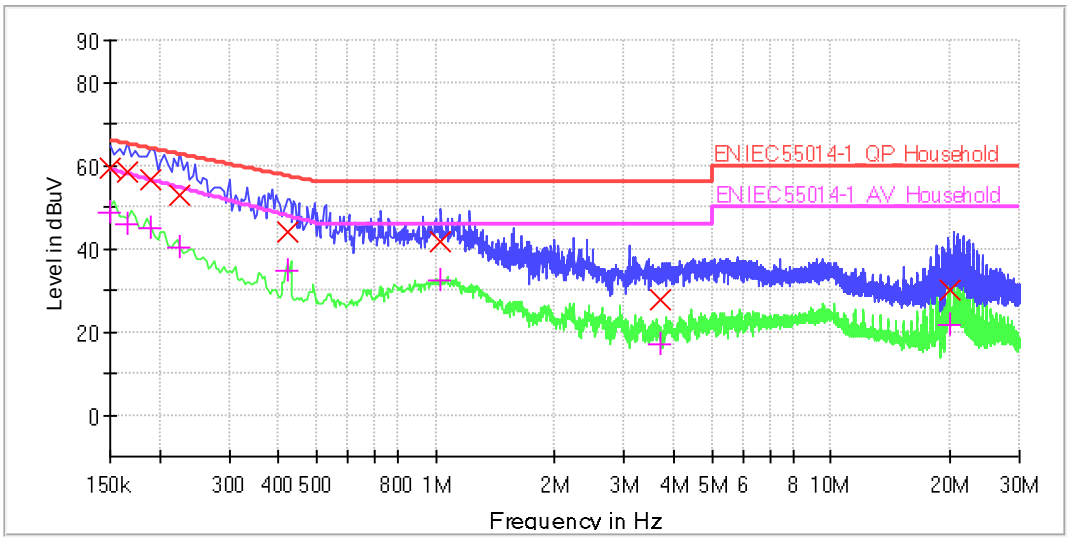
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Dust evacuation & charging, configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Phase N
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.150000	59.3	48.8	1000.0	19.6	6.7	66.0	10.3	59.0
0.166000	58.3	45.9	1000.0	19.6	6.9	65.2	12.0	57.9
0.190000	56.5	44.9	1000.0	19.7	7.5	64.0	11.6	56.4
0.226000	52.9	40.2	1000.0	19.7	9.7	62.6	14.4	54.6
0.422000	44.1	34.9	1000.0	19.7	13.3	57.4	13.0	47.8
1.030000	41.7	32.4	1000.0	19.7	14.3	56.0	13.7	46.0
3.714000	27.8	17.0	1000.0	19.7	28.2	56.0	29.0	46.0
20.070000	30.2	21.4	1000.0	19.8	29.8	60.0	28.6	50.0

0.15-30MHz Conducted Emission Test

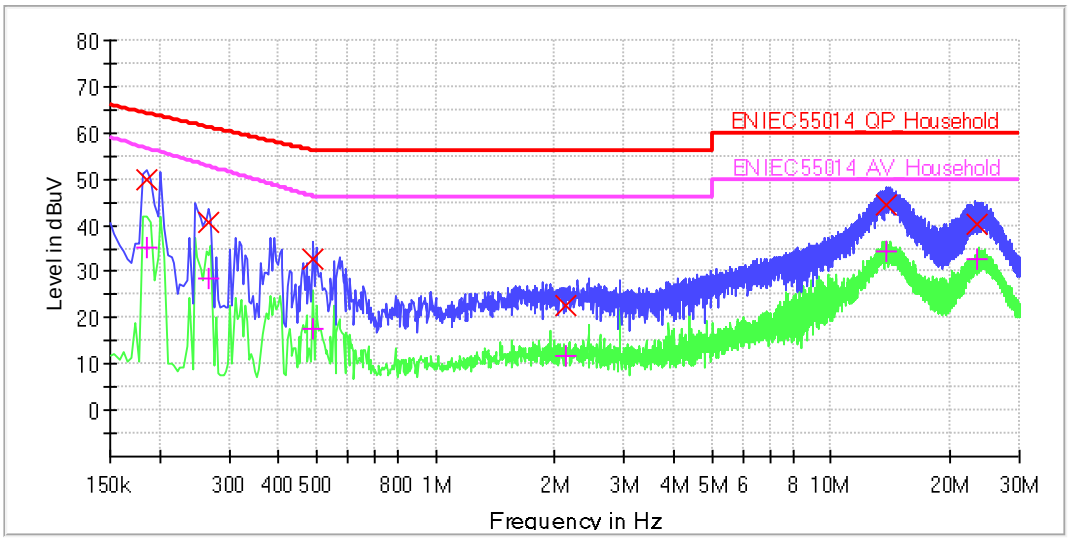
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on,dust evacuation & charging, configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Phase L
Comment:	Temp.:25℃,Humi.:47%,Atm.:1016.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.186000	50.0	35.3	1000.0	9.000	10.5	14.2	64.2	21.4	56.7
0.266000	40.8	28.3	1000.0	9.000	10.5	20.4	61.2	24.5	52.8
0.490000	32.9	17.8	1000.0	9.000	10.5	23.3	56.2	28.4	46.2
2.142000	22.6	11.6	1000.0	9.000	10.5	33.4	56.0	34.4	46.0
13.758000	44.2	34.5	1000.0	9.000	10.9	15.8	60.0	15.5	50.0
23.494000	40.2	32.8	1000.0	9.000	11.0	19.8	60.0	17.2	50.0

0.15-30MHz Conducted Emission Test

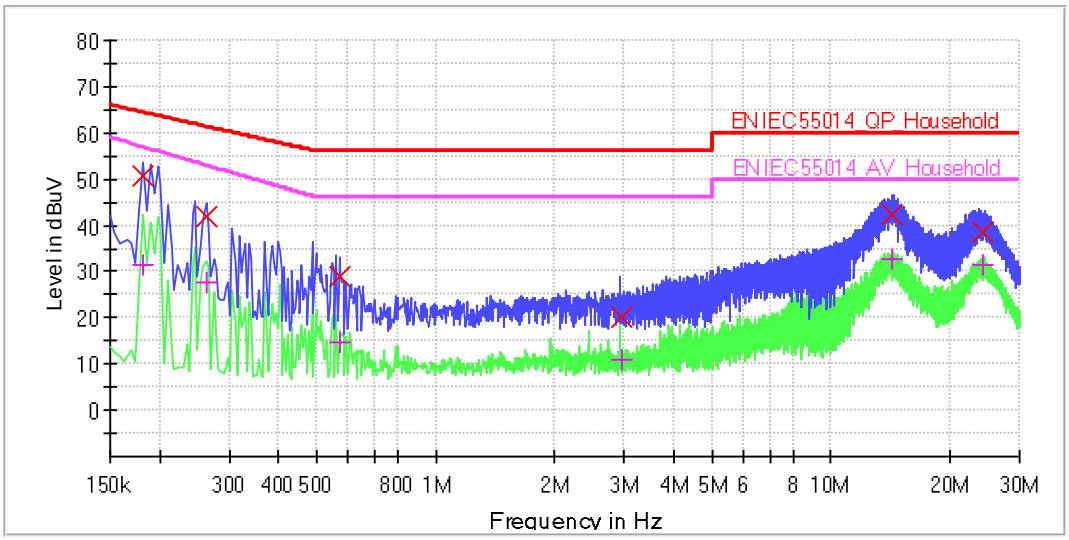
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on,dust evacuation & charging, configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-003
Test Standard:	EN IEC 55014-1
Comment:	Phase N
Comment:	Temp.:25℃,Humi.:47%,Atm.:1016.3hPa

Scan Setup: Mains Voltage LISN 2 Lines 150kHz-30MHz Pre [EMI conducted]

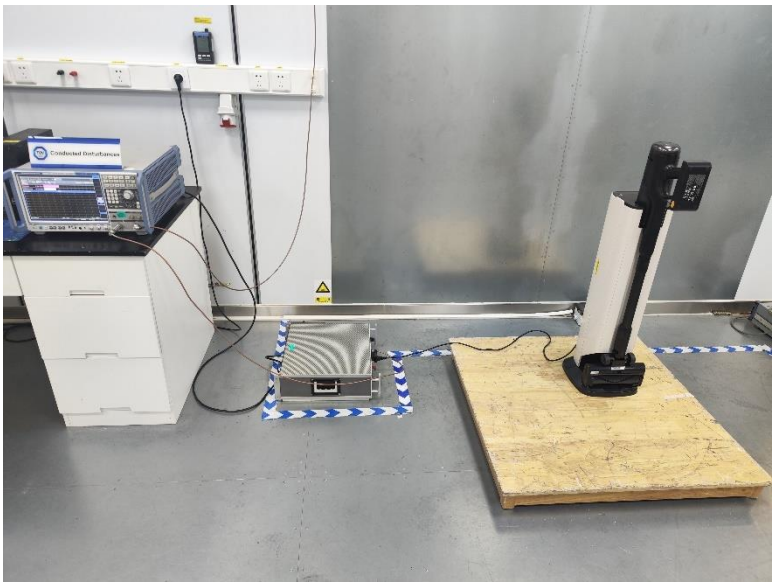
Hardware Setup:	Mains Voltage LISN 2 Lines 150kHz-30MHz
Receiver:	[ESW 8]
Level Unit:	dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.182000	50.8	31.4	1000.0	9.000	10.5	13.6	64.4	25.5	56.9
0.262000	42.0	27.8	1000.0	9.000	10.5	19.4	61.4	25.1	53.0
0.570000	29.0	14.7	1000.0	9.000	10.5	27.0	56.0	31.3	46.0
2.958000	20.3	11.0	1000.0	9.000	10.6	35.7	56.0	35.0	46.0
14.286000	42.4	32.9	1000.0	9.000	10.9	17.6	60.0	17.1	50.0
24.178000	38.5	31.6	1000.0	9.000	11.1	21.5	60.0	18.4	50.0



Setup

2.1.8 Test Location

This test was carried out in Room 119, SR-C.

2.2 Disturbance power

2.2.1 Specification Reference

Refer to 1.3

2.2.2 Equipment Under Test

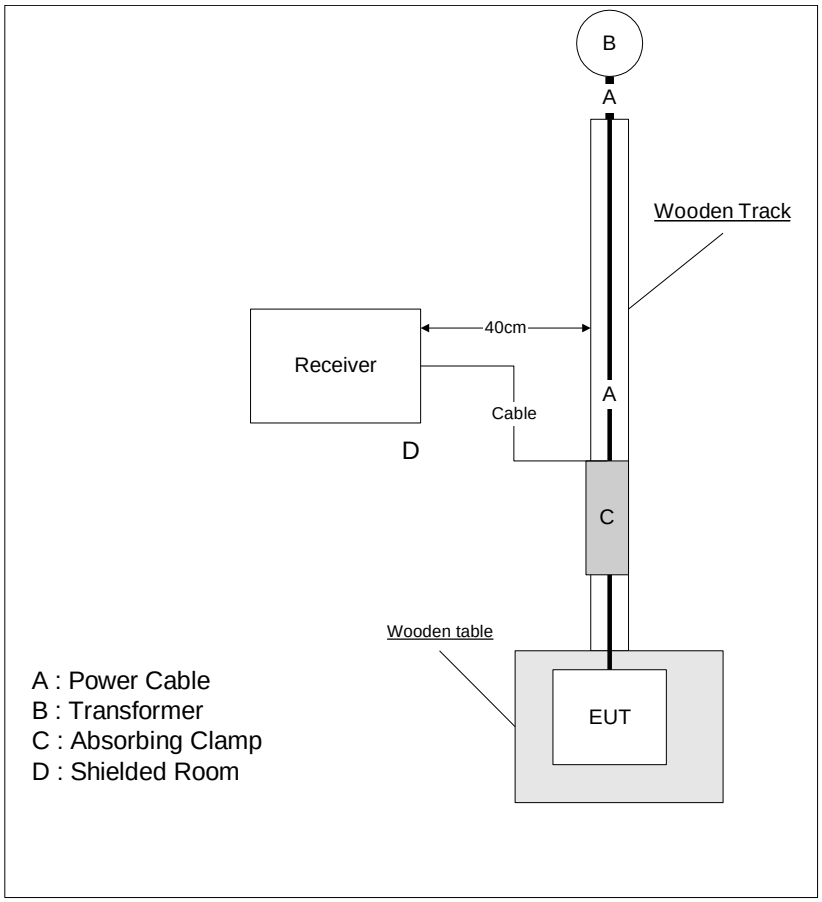
MDS23HRR

2.2.3 Date of Test

2025.03.20

2.2.4 Test Method

The associated equipment under test was placed on a non-metallic table of 0.8m above a reference ground plane and at least 0.8m from other metallic objects and from any person. The lead to be measured shall be stretched in a straight horizontal line for a length sufficient to accommondate the absorbing clamp. At each test frequency, the absorbing clamp shall be moved along the lead until the maximum value is found.



2.2.5 Environmental Conditions

Ambient Temperature	25.0 °C
Relative Humidity	53.0 %
Atmospheric Pressure	1009.3 mbar

2.2.6 Specification Limits

EN 55014-1

Disturbance power limits for frequency range 30MHz to 300MHz		
Frequency range	Household and similar appliances dB(pW)	
MHz	Quasi-peak	Average
30 to 300	45 to 55	35 to 45

Margin when performing disturbance power measurement in the frequency range 30MHz to 300MHz		
Frequency range	Household and similar appliances dB(pW)	
MHz	Quasi-peak	Average
	Increasing linearly with the frequency from	
200 to 300	0 to 10 dB	0

2.2.7 Test Results

Results for Configuration and Mode: Configuration 1 & Mode 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below

Line Under Test: Power line

30-300MHz Interference Power Test

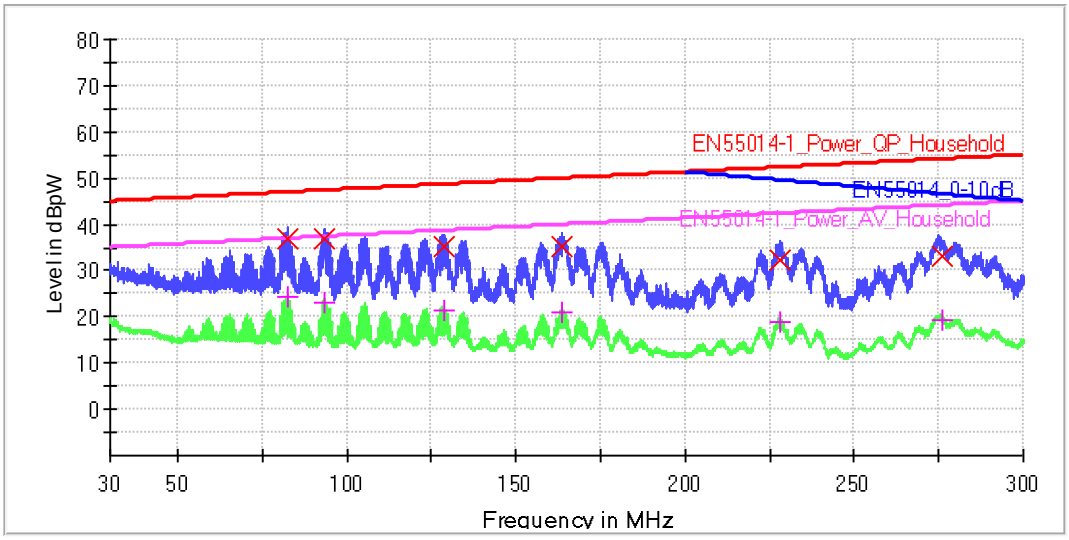
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Charging, Configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Disturbances Power_30M-300M_PRE [EMI conducted]

Hardware Setup:	Disturbances Power 30MHz-300MHz
Receiver:	[ESW 8]
Level Unit:	dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.003 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBpW)	CAverage (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Margin - CAV (dB)	Limit - CAV (dBpW)
82.360000	36.9	24.4	1000.0	120.000	7.3	10.1	46.9	12.5	36.9
93.280000	36.9	23.3	1000.0	120.000	7.0	10.5	47.3	14.1	37.3
128.480000	35.3	21.5	1000.0	120.000	6.8	13.4	48.6	17.1	38.6
163.520000	35.1	21.1	1000.0	120.000	6.6	14.9	49.9	18.9	39.9
227.960000	32.3	18.9	1000.0	120.000	5.6	20.0	52.3	23.4	42.3
275.760000	32.9	19.5	1000.0	120.000	5.9	21.2	54.1	24.6	44.1

30-300MHz Interference Power Test

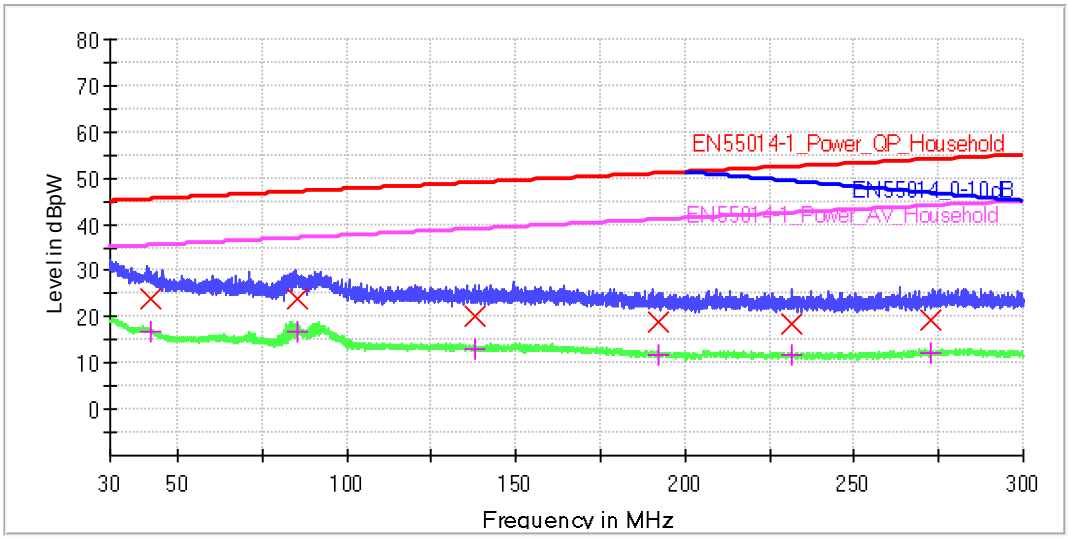
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Charging, Configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Disturbances Power_30M-300M_PRE [EMI conducted]

Hardware Setup:	Disturbances Power 30MHz-300MHz
Receiver:	[ESW 8]
Level Unit:	dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.003 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBpW)	CAverage (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Margin - CAV (dB)	Limit - CAV (dBpW)
42.080000	23.9	16.9	1000.0	120.000	9.7	21.5	45.4	18.5	35.4
85.560000	23.9	16.9	1000.0	120.000	7.2	23.2	47.1	20.2	37.1
138.000000	20.3	13.2	1000.0	120.000	6.7	28.7	49.0	25.8	39.0
191.840000	19.0	11.9	1000.0	120.000	5.7	32.0	51.0	29.1	41.0
231.600000	18.7	11.6	1000.0	120.000	5.6	33.8	52.5	30.8	42.5
272.640000	19.2	12.2	1000.0	120.000	5.9	34.7	54.0	31.8	44.0

30-300MHz Interference Power Test

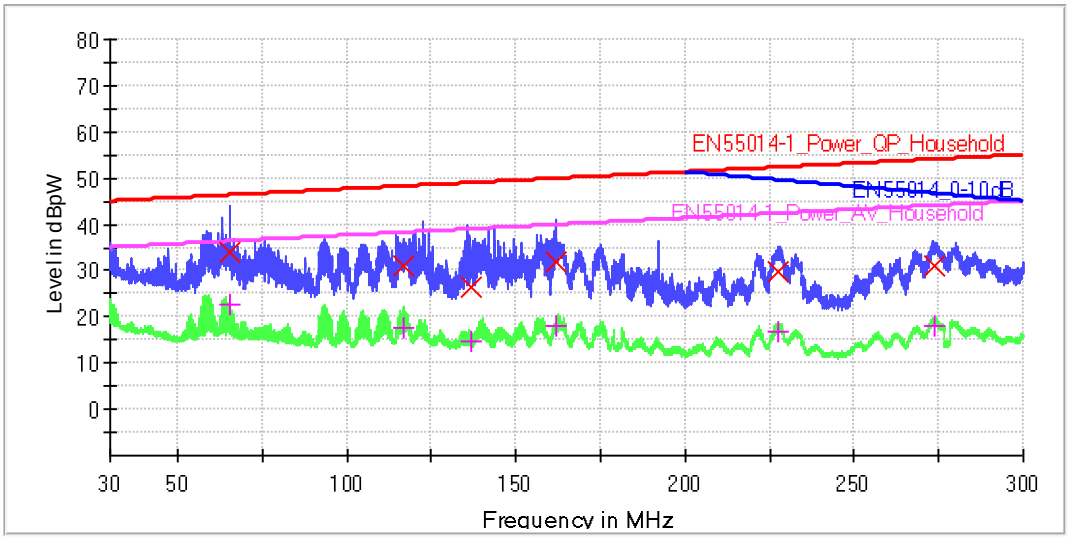
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Dust evacuation & charging, Configuration 1
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-004
Test Standard:	EN IEC 55014-1
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Disturbances Power_30M-300M_PRE [EMI conducted]

Hardware Setup:	Disturbances Power 30MHz-300MHz
Receiver:	[ESW 8]
Level Unit:	dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.003 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBpW)	CAverage (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Margin - CAV (dB)	Limit - CAV (dBpW)
65.120000	34.1	22.9	1000.0	120.000	8.4	12.2	46.3	13.5	36.3
116.840000	31.2	17.6	1000.0	120.000	6.8	17.0	48.2	20.6	38.2
136.480000	26.4	14.7	1000.0	120.000	6.7	22.5	48.9	24.3	38.9
161.800000	32.0	17.9	1000.0	120.000	6.6	17.9	49.9	22.0	39.9
227.240000	29.6	16.9	1000.0	120.000	5.6	22.7	52.3	25.4	42.3
274.000000	30.9	18.1	1000.0	120.000	5.9	23.2	54.0	26.0	44.0

30-300MHz Interference Power Test

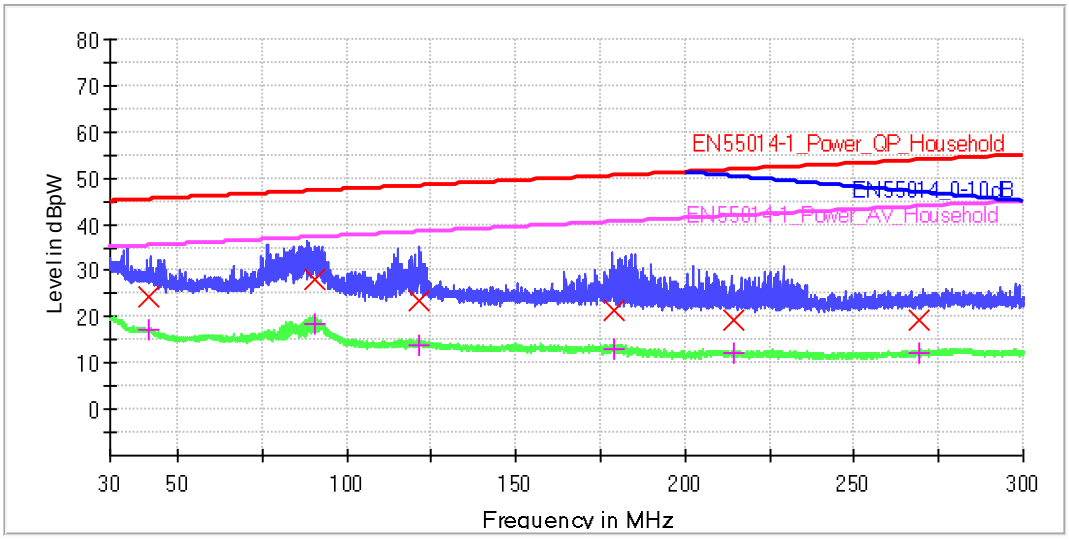
Common Information

EUT:	Auto-Empty Dock
Model:	MDS23HRR
Client:	Shenzhen Roborock Innovation Technology Co., Ltd.
Operating Conditions:	Power on, Dust evacuation & charging, Configuration 2
Operator Name:	Wang Haoyu
Input:	AC 230V 50Hz
Sample No.:	WUX-0889314-003
Test Standard:	EN IEC 55014-1
Comment:	Temp.:25℃,Humi.:53%,Atm.:1009.3hPa

Scan Setup: Disturbances Power_30M-300M_PRE [EMI conducted]

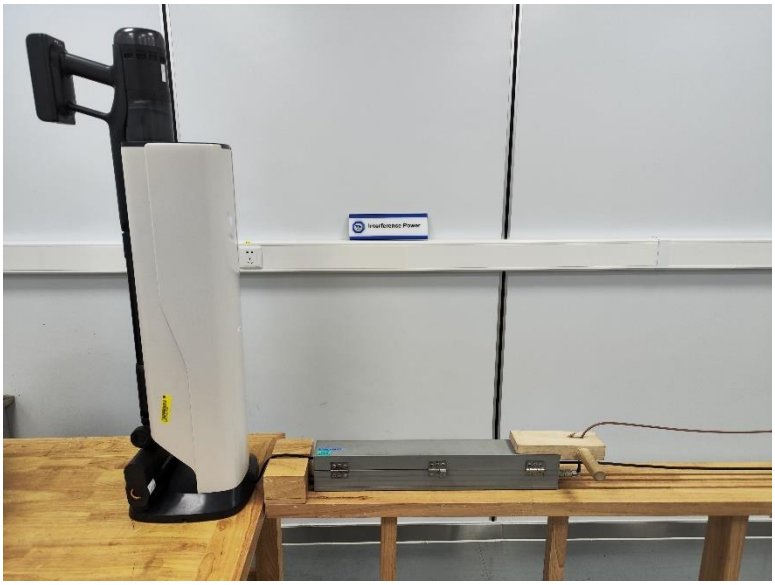
Hardware Setup:	Disturbances Power 30MHz-300MHz
Receiver:	[ESW 8]
Level Unit:	dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.003 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBpW)	CAverage (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Margin - CAV (dB)	Limit - CAV (dBpW)
41.400000	24.3	17.1	1000.0	120.000	9.8	21.1	45.4	18.4	35.4
90.640000	28.0	18.5	1000.0	120.000	7.1	19.3	47.2	18.8	37.2
121.440000	23.3	14.0	1000.0	120.000	6.8	25.1	48.4	24.4	38.4
179.000000	21.4	12.8	1000.0	120.000	6.1	29.1	50.5	27.7	40.5
214.640000	19.5	12.0	1000.0	120.000	5.5	32.3	51.8	29.8	41.8
269.440000	19.1	12.1	1000.0	120.000	5.8	34.7	53.9	31.8	43.9



2.2.1 Test Location

This test was carried out in Room 119, SR-C.

2.3 Harmonic current emission

2.3.1 Specification Reference

Refer to 1.3

2.3.2 Equipment Under Test

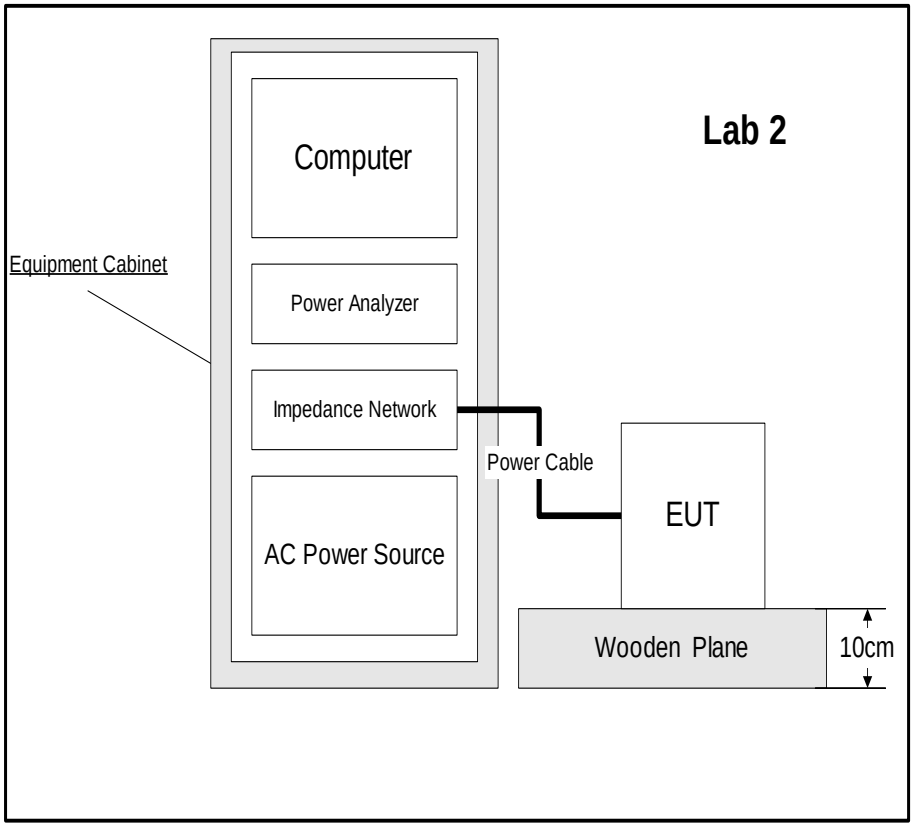
MDS23HRR

2.3.3 Date of Test

2025.02.26-2025.03.26

2.3.4 Test Method

Harmonic current test should be conducted with the user's operation control or automatic programs set to the mode expected to produce the maximum total harmonic current under normal operating conditions.
Specific test conditions for the measurement of harmonic currents associated with some types of equipment are given in Annex C.



2.3.5 Environmental Conditions

Ambient Temperature	18.0 °C
Relative Humidity	53.0%
Atmospheric Pressure	1018.0 mbar

2.3.6 Specification Limits

Limits for class A Equipment	
Harmonic order n	Maximum permissible harmonic current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15≤ n≤ 39	0.15(15/n)
Even harmonics	
2	1.08
4	0.43
6	0.30
8≤ n ≤40	0.23(8/n)

2.3.7 Test Results

Results for Configuration and Mode: With Auto-Empty Dock: Configuration 1 & Operation mode 1/2.

Performance assessment of the EUT made during this test: *Pass*.

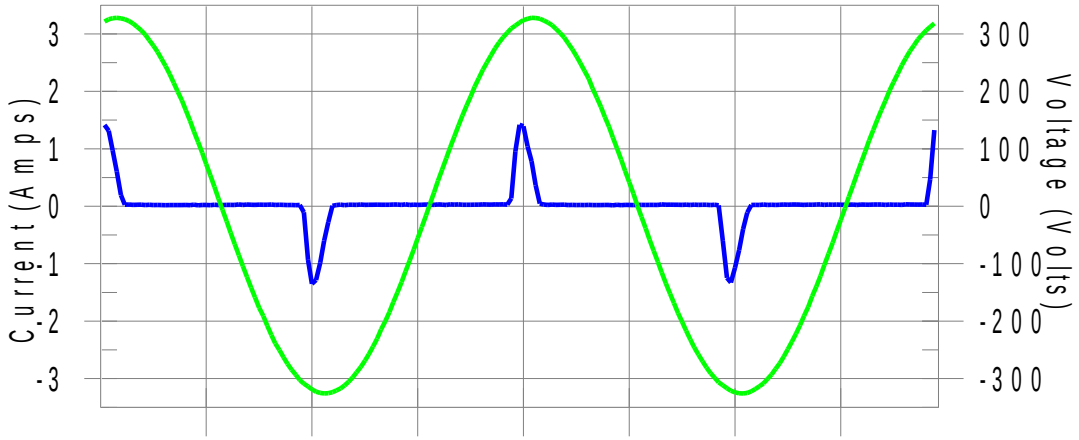
Detailed results are shown below.

Classification of EUT: Class A

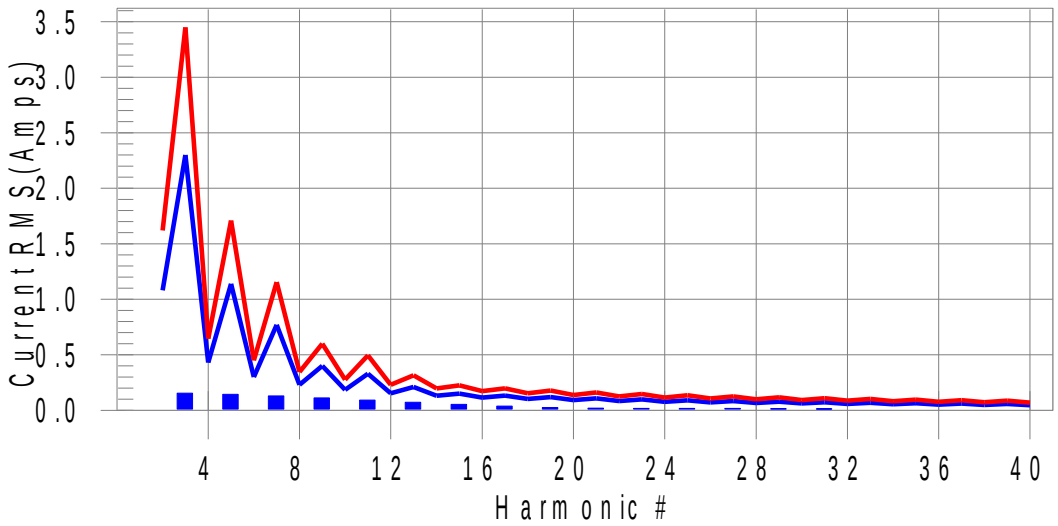
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.02.26 **Start time: 13:46:46** **End time: 13:49:28**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000115.cts_data**
Comment: Power on, Charging;Model:MDS23HRR;T:16C,H:39%,P:1025hPa;SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H15-25.0% of 150% limit, H15-35.8% of 100% limit.

Current Test Result Summary (Run time)

EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.02.26 **Start time: 13:46:46** **End time: 13:49:28**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000115.cts_data**
Comment: Power on, Charging;Model:MDS23HRR;T:16C,H:39%,P:1025hPa;SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Source qualification: Normal**
THC(A): 0.307 **I-THD(%): 188.8** **POHC(A): 0.043** **POHC Limit(A): 0.251**

Highest parameter values during test:

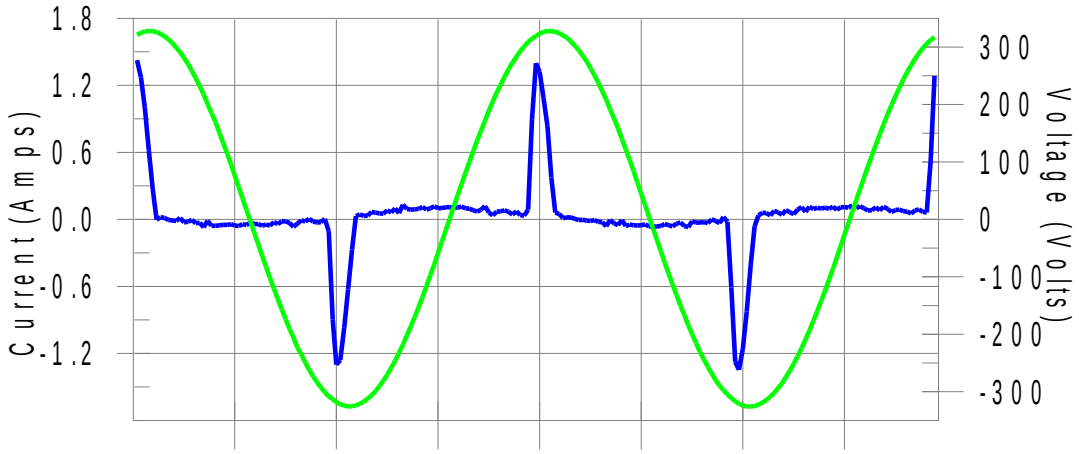
V_RMS (Volts):	230.904	Frequency(Hz):	50.00
I_Peak (Amps):	1.598	I_RMS (Amps):	0.353
I_Fund (Amps):	0.163	Crest Factor:	4.525
Power (Watts):	37.3	Power Factor:	0.466

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	1.080	N/A	0.004	1.620	N/A	Pass
3	0.155	2.300	6.7	0.157	3.450	4.6	Pass
4	0.003	0.430	N/A	0.004	0.645	N/A	Pass
5	0.144	1.140	12.6	0.146	1.710	8.5	Pass
6	0.003	0.300	N/A	0.003	0.450	N/A	Pass
7	0.129	0.770	16.8	0.132	1.155	11.4	Pass
8	0.003	0.230	N/A	0.003	0.345	N/A	Pass
9	0.112	0.400	27.9	0.114	0.600	19.0	Pass
10	0.002	0.184	N/A	0.003	0.276	N/A	Pass
11	0.092	0.330	27.9	0.095	0.495	19.1	Pass
12	0.002	0.153	N/A	0.002	0.230	N/A	Pass
13	0.072	0.210	34.4	0.075	0.315	23.8	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.054	0.150	35.8	0.056	0.225	25.0	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.038	0.132	28.5	0.040	0.198	20.3	Pass
18	0.002	0.102	N/A	0.002	0.153	N/A	Pass
19	0.026	0.118	21.7	0.028	0.178	15.7	Pass
20	0.002	0.092	N/A	0.002	0.138	N/A	Pass
21	0.019	0.107	17.7	0.020	0.161	12.8	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.017	0.098	17.6	0.018	0.147	12.3	Pass
24	0.002	0.077	N/A	0.002	0.115	N/A	Pass
25	0.017	0.090	19.2	0.018	0.135	13.3	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.017	0.083	20.2	0.017	0.125	14.0	Pass
28	0.002	0.066	N/A	0.002	0.099	N/A	Pass
29	0.015	0.078	19.5	0.016	0.116	13.7	Pass
30	0.002	0.061	N/A	0.002	0.092	N/A	Pass
31	0.012	0.073	17.2	0.013	0.109	12.3	Pass
32	0.002	0.058	N/A	0.002	0.086	N/A	Pass
33	0.009	0.068	13.8	0.010	0.102	10.1	Pass
34	0.001	0.054	N/A	0.002	0.081	N/A	Pass
35	0.007	0.064	10.4	0.007	0.096	7.7	Pass
36	0.001	0.051	N/A	0.002	0.077	N/A	Pass
37	0.005	0.061	8.5	0.006	0.091	6.2	Pass
38	0.001	0.048	N/A	0.002	0.073	N/A	Pass
39	0.005	0.058	8.9	0.005	0.087	6.3	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

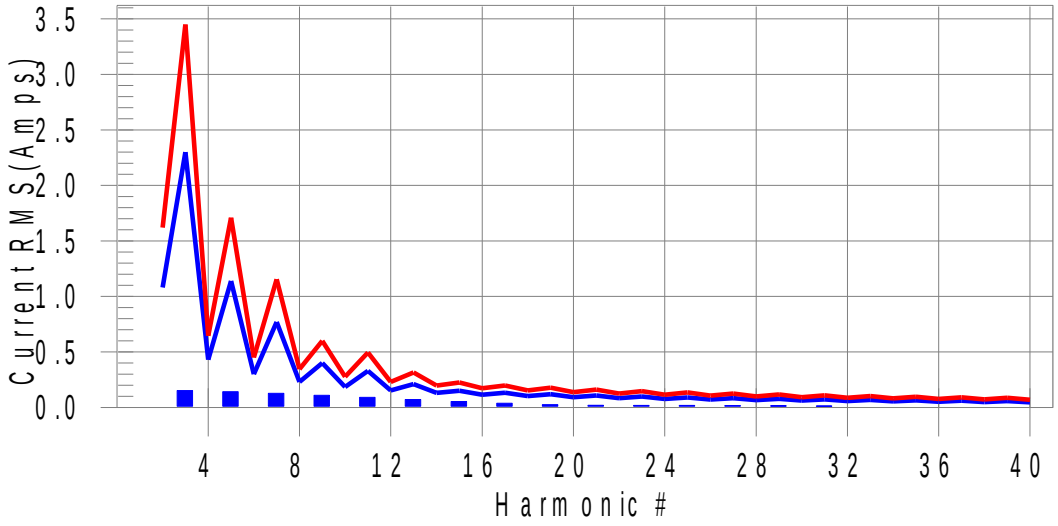
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.12 **Start time: 14:52:45** **End time: 14:55:27**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000278.cts_data**
Comment: Power on,Charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H15-24.6% of 150% limit, H15-35.3% of 100% limit.

Current Test Result Summary (Run time)

EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.12 **Start time: 14:52:45** **End time: 14:55:27**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000278.cts_data**
Comment: Power on,Charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Source qualification: Normal**
THC(A): 0.302 **I-THD(%): 171.1** **POHC(A): 0.045** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	**230.942**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**1.545**	**I_RMS (Amps):**	**0.357**
I_Fund (Amps):	**0.177**	**Crest Factor:**	**4.369**
Power (Watts):	**36.6**	**Power Factor:**	**0.452**

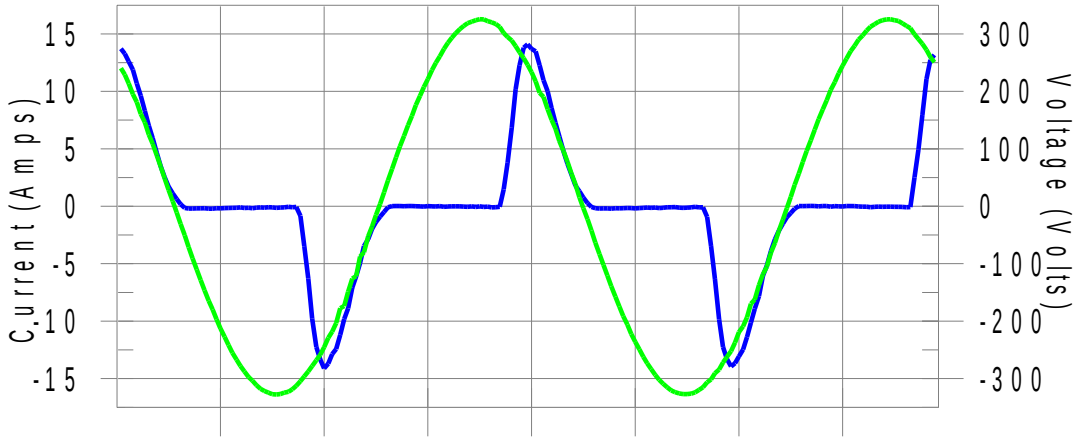
Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	1.080	N/A	0.003	1.620	N/A	Pass
3	0.152	2.300	6.6	0.154	3.450	4.5	Pass
4	0.003	0.430	N/A	0.003	0.645	N/A	Pass
5	0.141	1.140	12.4	0.143	1.710	8.4	Pass
6	0.002	0.300	N/A	0.003	0.450	N/A	Pass
7	0.127	0.770	16.5	0.129	1.155	11.2	Pass
8	0.002	0.230	N/A	0.003	0.345	N/A	Pass
9	0.110	0.400	27.4	0.112	0.600	18.7	Pass
10	0.002	0.184	N/A	0.002	0.276	N/A	Pass
11	0.090	0.330	27.4	0.093	0.495	18.8	Pass
12	0.002	0.153	N/A	0.002	0.230	N/A	Pass
13	0.071	0.210	33.9	0.074	0.315	23.4	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.053	0.150	35.3	0.055	0.225	24.6	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.037	0.132	28.3	0.040	0.198	20.0	Pass
18	0.002	0.102	N/A	0.002	0.153	N/A	Pass
19	0.026	0.118	21.8	0.028	0.178	15.6	Pass
20	0.002	0.092	N/A	0.002	0.138	N/A	Pass
21	0.020	0.107	18.3	0.021	0.161	12.9	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.018	0.098	18.4	0.019	0.147	12.8	Pass
24	0.002	0.077	N/A	0.002	0.115	N/A	Pass
25	0.018	0.090	20.0	0.019	0.135	13.8	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.018	0.083	21.1	0.018	0.125	14.6	Pass
28	0.002	0.066	N/A	0.002	0.099	N/A	Pass
29	0.016	0.078	20.4	0.017	0.116	14.2	Pass
30	0.002	0.061	N/A	0.002	0.092	N/A	Pass
31	0.013	0.073	18.0	0.014	0.109	12.8	Pass
32	0.002	0.058	N/A	0.002	0.086	N/A	Pass
33	0.010	0.068	14.6	0.011	0.102	10.6	Pass
34	0.002	0.054	N/A	0.002	0.081	N/A	Pass
35	0.007	0.064	11.2	0.008	0.096	8.3	Pass
36	0.002	0.051	N/A	0.002	0.077	N/A	Pass
37	0.006	0.061	9.8	0.006	0.091	7.0	Pass
38	0.003	0.048	N/A	0.004	0.073	N/A	Pass
39	0.006	0.058	10.4	0.006	0.087	7.3	Pass
40	0.002	0.046	N/A	0.002	0.069	N/A	Pass

Harmonics – Class-A per IEC 61000-3-2:2018/AMD1:2020(Run time)

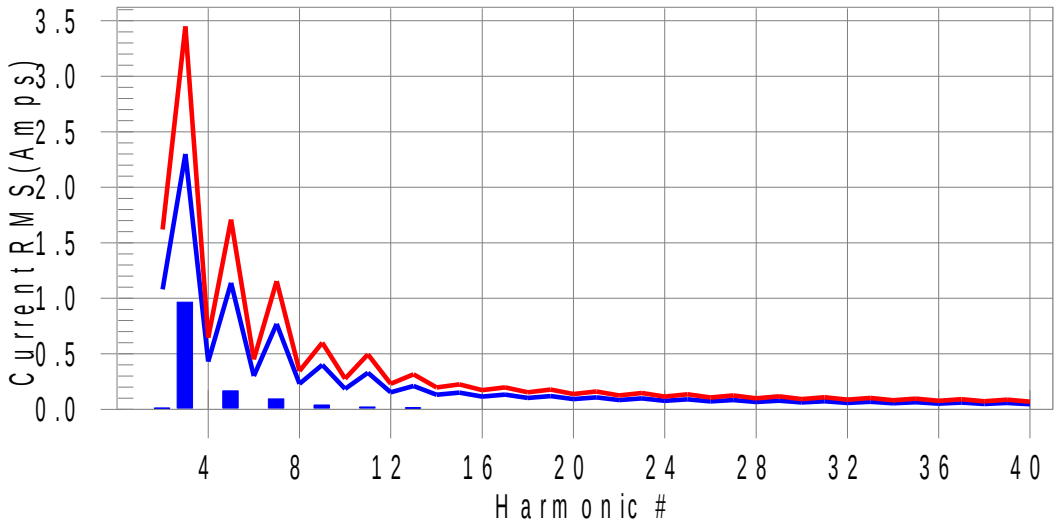
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.26 **Start time: 17:28:56** **End time: 17:31:39**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000435.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Source qualification: OK**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H3-45.7% of 150% limit, H3-41.9% of 100% limit.

Current Test Result Summary (Run time)

EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.26 **Start time: 17:28:56** **End time: 17:31:39**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000435.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Source qualification: OK**
THC(A): 0.985 **I-THD(%): 21.7** **POHC(A): 0.010** **POHC Limit(A): 0.251**

Highest parameter values during test:

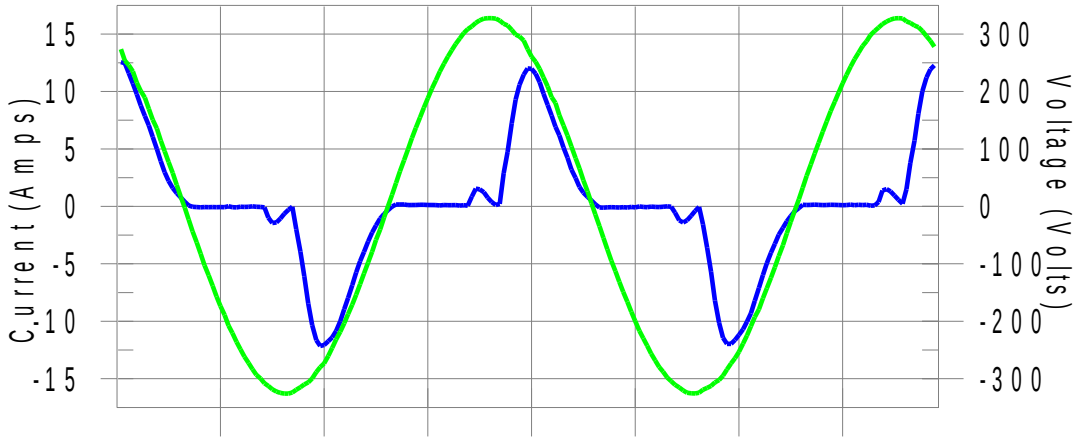
V_RMS (Volts):	**230.949**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**14.192**	**I_RMS (Amps):**	**5.727**
I_Fund (Amps):	**4.539**	**Crest Factor:**	**14.297**
Power (Watts):	**1045.9**	**Power Factor:**	**0.978**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.011	1.080	N/A	0.037	1.620	N/A	Pass
3	0.965	2.300	41.9	1.578	3.450	45.7	Pass
4	0.008	0.430	N/A	0.035	0.645	N/A	Pass
5	0.167	1.140	14.6	0.682	1.710	39.9	Pass
6	0.006	0.300	N/A	0.027	0.450	N/A	Pass
7	0.093	0.770	12.1	0.329	1.155	28.5	Pass
8	0.005	0.230	N/A	0.021	0.345	N/A	Pass
9	0.039	0.400	9.7	0.178	0.600	29.6	Pass
10	0.004	0.184	N/A	0.015	0.276	N/A	Pass
11	0.021	0.330	N/A	0.099	0.495	N/A	Pass
12	0.003	0.153	N/A	0.011	0.230	N/A	Pass
13	0.013	0.210	N/A	0.056	0.315	N/A	Pass
14	0.002	0.131	N/A	0.007	0.197	N/A	Pass
15	0.008	0.150	N/A	0.030	0.225	N/A	Pass
16	0.002	0.115	N/A	0.005	0.173	N/A	Pass
17	0.005	0.132	N/A	0.016	0.198	N/A	Pass
18	0.002	0.102	N/A	0.005	0.153	N/A	Pass
19	0.003	0.118	N/A	0.009	0.178	N/A	Pass
20	0.001	0.092	N/A	0.003	0.138	N/A	Pass
21	0.002	0.107	N/A	0.007	0.161	N/A	Pass
22	0.001	0.084	N/A	0.003	0.125	N/A	Pass
23	0.002	0.098	N/A	0.006	0.147	N/A	Pass
24	0.002	0.077	N/A	0.004	0.115	N/A	Pass
25	0.002	0.090	N/A	0.005	0.135	N/A	Pass
26	0.002	0.071	N/A	0.007	0.107	N/A	Pass
27	0.002	0.083	N/A	0.005	0.125	N/A	Pass
28	0.002	0.066	N/A	0.004	0.099	N/A	Pass
29	0.002	0.078	N/A	0.005	0.116	N/A	Pass
30	0.003	0.061	N/A	0.013	0.092	N/A	Pass
31	0.003	0.073	N/A	0.016	0.109	N/A	Pass
32	0.005	0.058	N/A	0.041	0.086	N/A	Pass
33	0.004	0.068	N/A	0.017	0.102	N/A	Pass
34	0.006	0.054	N/A	0.044	0.081	N/A	Pass
35	0.004	0.064	N/A	0.009	0.096	N/A	Pass
36	0.004	0.051	N/A	0.019	0.077	N/A	Pass
37	0.002	0.061	N/A	0.006	0.091	N/A	Pass
38	0.002	0.048	N/A	0.006	0.073	N/A	Pass
39	0.003	0.058	N/A	0.006	0.087	N/A	Pass
40	0.004	0.046	N/A	0.010	0.069	N/A	Pass

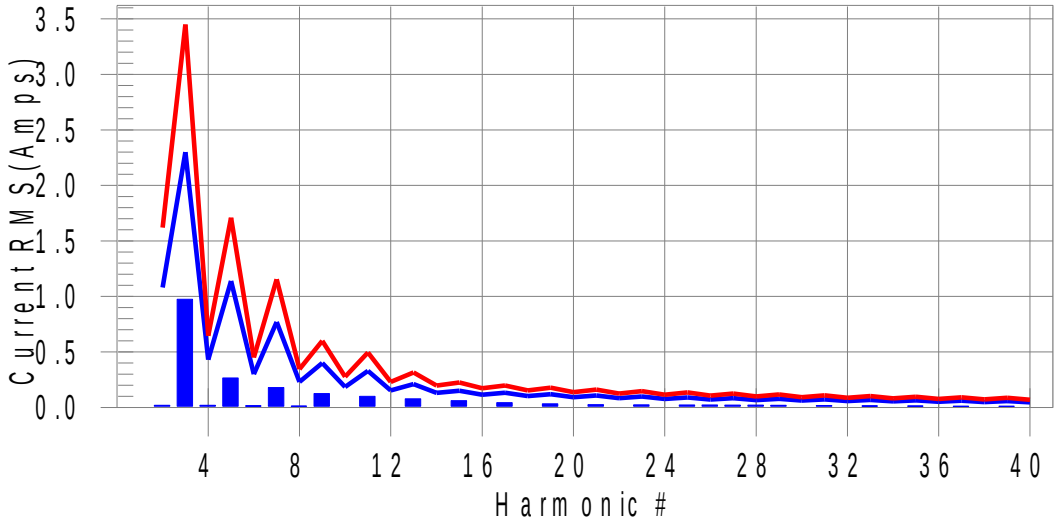
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.12 **Start time: 14:56:24** **End time: 14:59:07**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000279.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H3-42.1% of 150% limit, H3-42.4% of 100% limit.

Current Test Result Summary (Run time)

EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: Class-A (European limits) **Test Margin: 100**
Test date: 2025.03.12 **Start time: 14:56:24** **End time: 14:59:07**
Test duration (min): 2.5 **Data file name: CTSMXL_H-000279.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDS23HRR;T:18℃,H:53%,P:1018hPa;SN: SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Source qualification: Normal**
THC(A): 1.047 **I-THD(%): 22.8** **POHC(A): 0.059** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	**230.932**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**12.751**	**I_RMS (Amps):**	**5.481**
I_Fund (Amps):	**4.592**	**Crest Factor:**	**4.586**
Power (Watts):	**1068.3**	**Power Factor:**	**0.977**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.020	1.080	N/A	0.064	1.620	N/A	Pass
3	0.974	2.300	42.4	1.451	3.450	42.1	Pass
4	0.019	0.430	N/A	0.079	0.645	N/A	Pass
5	0.265	1.140	23.3	0.627	1.710	36.7	Pass
6	0.015	0.300	N/A	0.057	0.450	N/A	Pass
7	0.179	0.770	23.2	0.324	1.155	28.0	Pass
8	0.011	0.230	N/A	0.042	0.345	N/A	Pass
9	0.126	0.400	31.4	0.214	0.600	35.7	Pass
10	0.009	0.184	N/A	0.029	0.276	N/A	Pass
11	0.100	0.330	30.4	0.141	0.495	28.5	Pass
12	0.007	0.153	N/A	0.021	0.230	N/A	Pass
13	0.078	0.210	37.1	0.101	0.315	32.1	Pass
14	0.006	0.131	N/A	0.015	0.197	N/A	Pass
15	0.060	0.150	40.2	0.077	0.225	34.4	Pass
16	0.005	0.115	N/A	0.013	0.173	N/A	Pass
17	0.043	0.132	32.7	0.053	0.198	26.7	Pass
18	0.005	0.102	N/A	0.012	0.153	N/A	Pass
19	0.033	0.118	27.8	0.045	0.178	25.5	Pass
20	0.006	0.092	N/A	0.012	0.138	N/A	Pass
21	0.026	0.107	N/A	0.036	0.161	N/A	Pass
22	0.005	0.084	N/A	0.012	0.125	N/A	Pass
23	0.023	0.098	N/A	0.032	0.147	N/A	Pass
24	0.008	0.077	N/A	0.014	0.115	N/A	Pass
25	0.022	0.090	N/A	0.033	0.135	N/A	Pass
26	0.023	0.071	N/A	0.030	0.107	N/A	Pass
27	0.021	0.083	N/A	0.029	0.125	N/A	Pass
28	0.021	0.066	N/A	0.028	0.099	N/A	Pass
29	0.019	0.078	N/A	0.026	0.116	N/A	Pass
30	0.009	0.061	N/A	0.012	0.092	N/A	Pass
31	0.017	0.073	N/A	0.023	0.109	N/A	Pass
32	0.007	0.058	N/A	0.010	0.086	N/A	Pass
33	0.015	0.068	N/A	0.020	0.102	N/A	Pass
34	0.009	0.054	N/A	0.014	0.081	N/A	Pass
35	0.013	0.064	N/A	0.018	0.096	N/A	Pass
36	0.009	0.051	N/A	0.013	0.077	N/A	Pass
37	0.010	0.061	N/A	0.016	0.091	N/A	Pass
38	0.008	0.048	N/A	0.011	0.073	N/A	Pass
39	0.011	0.058	N/A	0.022	0.087	N/A	Pass
40	0.008	0.046	N/A	0.019	0.069	N/A	Pass

Test setup

2.3.8 Test Location

This test was carried out in Room 134, Harmonic & Flicker Test area.

2.4 Flicker

2.4.1 Specification Reference

Refer to 1.3

2.4.2 Equipment Under Test

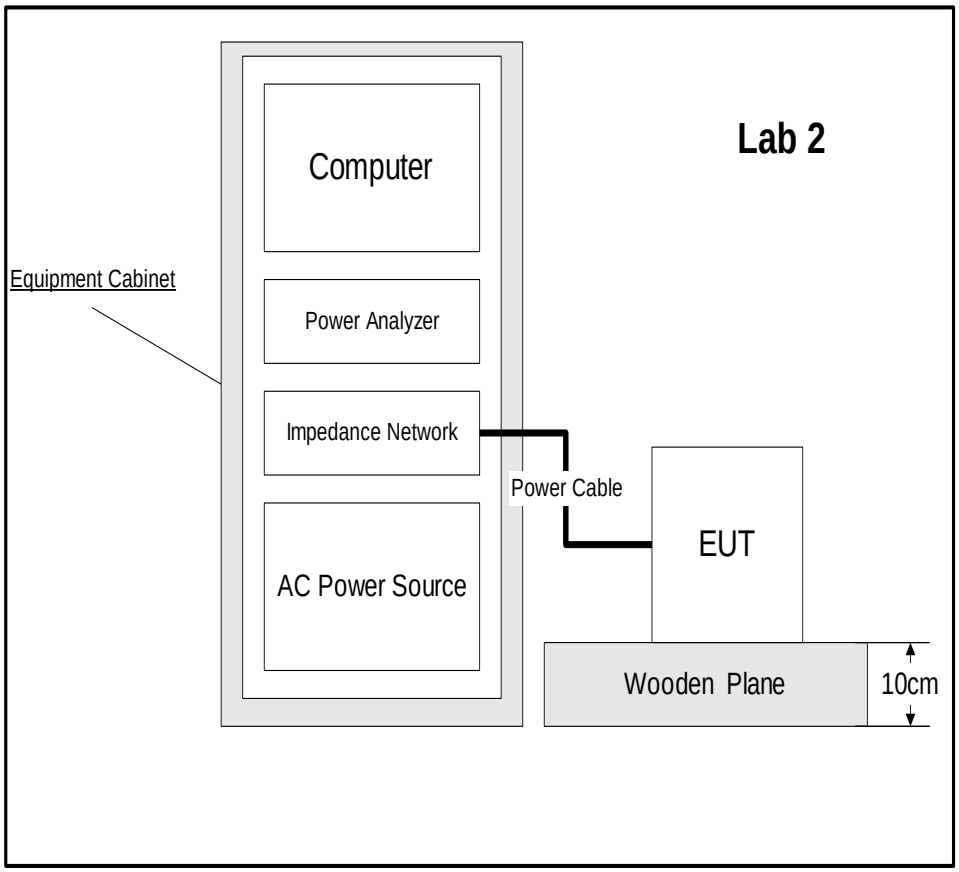
MDS23HRR

2.4.3 Date of Test

2025.02.26-2025.03.26

2.4.4 Test Method

For equipment not mentioned in annex A, controls or automatic programs should be set to produce the most unfavorable sequence of voltage change, using only those combinations of controls and programmes which are mentioned by the manufacturer in the instruction manual, or are otherwise likely to be used



2.4.5 Environmental Conditions

Ambient Temperature	16.0-18.0 °C
Relative Humidity	39.0-53.0 %
Atmospheric Pressure	1025.0-1029.0 mbar

2.4.6 Specification Limits

The value of *P*st shall not be greater than 1.0
The value of *P*lt shall not be greater than 0.65
*T*max, the accumulated time value of *d*(t) with a deviation exceeding 3.3% during a single voltage change at the EUT terminals, shall not exceed 500ms
The maximum relative steady-state voltage change, *d*c, shall not exceed 3.3%
The maximum relative voltage change *d*max, shall not exceed

a) 4% without additional conditions

b) 6% for equipment which is:

- Switched manually, or

- Switched automatically more frequently than twice per day, and also has either a delayed start, or manual restart, after a power supply interruption

c) 7% for equipment which is:

- Attended whilst in use, or

- Switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart or manual restart, after a power supply interruption

2.4.7 Test Results

Results for Configuration and Mode: With Auto-Empty Dock: Configuration 1 & Operation mode1/2.

Performance assessment of the EUT made during this test: *Pass*.

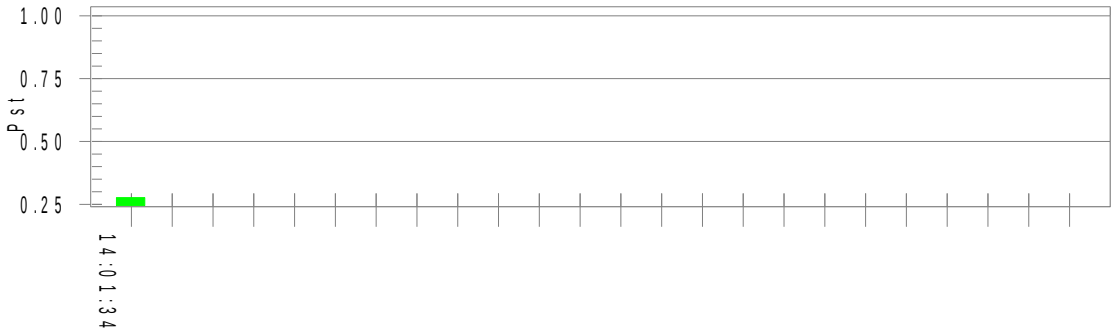
Detailed results are shown below.

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

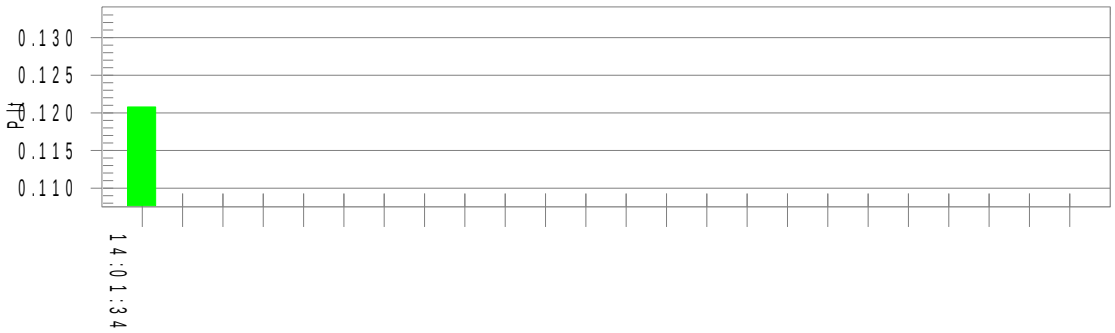
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 2025.02.26 **Start time: 13:51:13** **End time: 14:01:40**
Test duration (min): 10 **Data file name: CTSMXL_F-000116.cts_data**
Comment: Power on, Charging;Model:MDS23HRR;T:16C,H:39%,P:1025hPa;SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

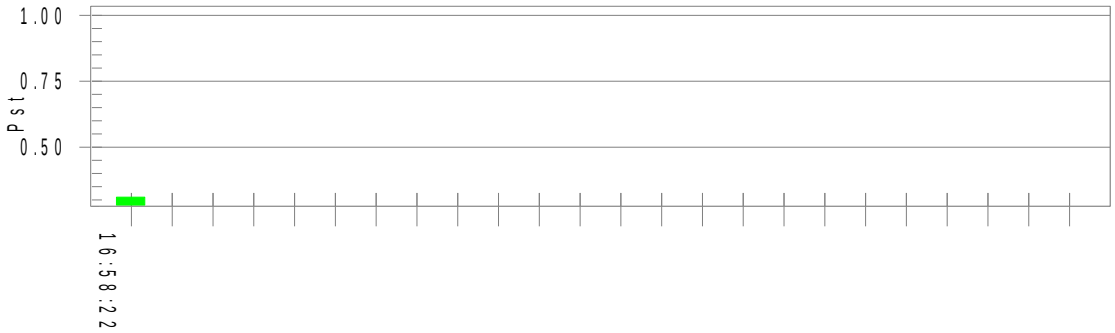
Vrms at the end of test (Volt):	**230.72**			
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-0.08**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.277**	**Test limit:**	**1.000**	**Pass**

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

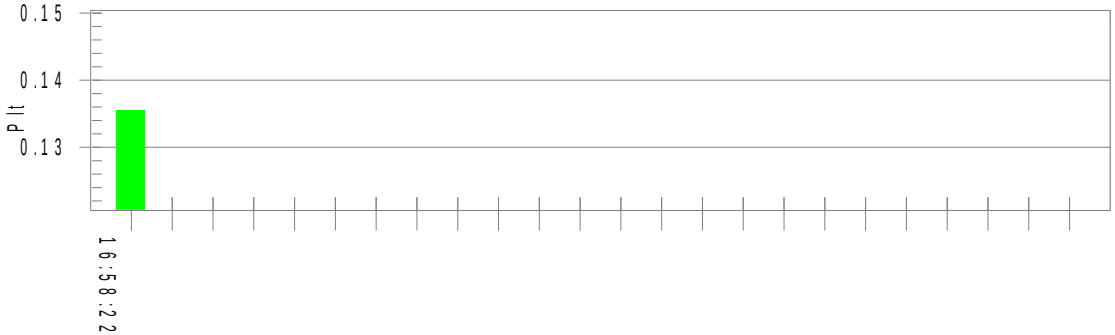
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 2025.03.03 **Start time: 16:48:01** **End time: 16:58:28**
Test duration (min): 10 **Data file name: CTSMXL_F-000155.cts_data**
Comment: Power on, Charging;Model:MDS23HRR;T:18℃,H:46%,P:1016hPa; SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

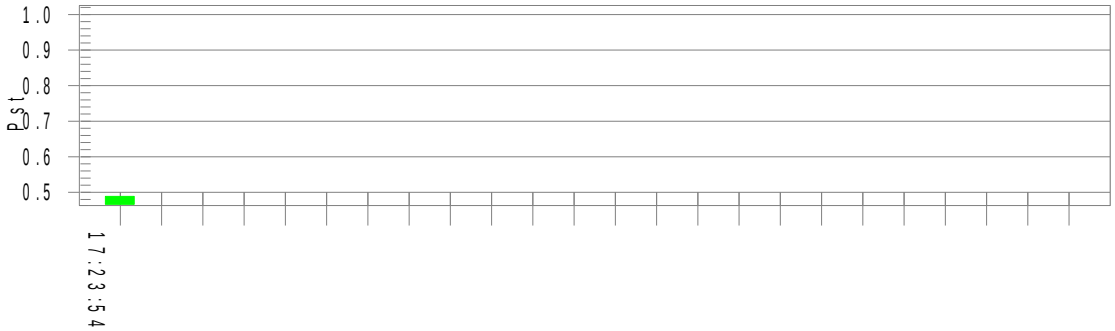
Vrms at the end of test (Volt):	**230.88**			
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-0.19**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.310**	**Test limit:**	**1.000**	**Pass**

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

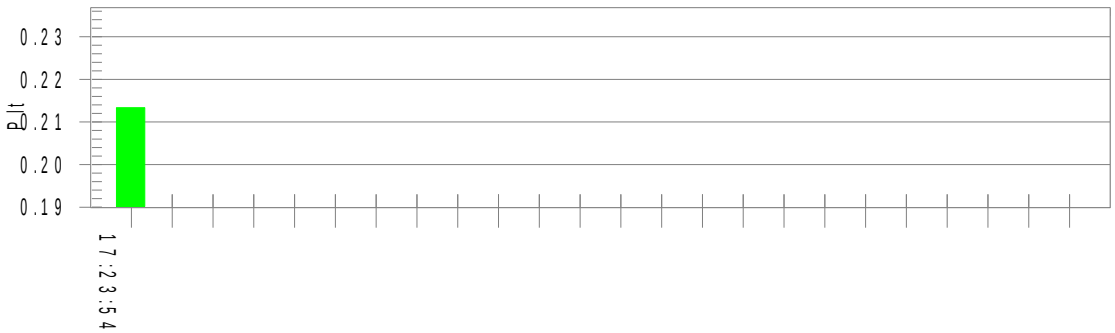
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 2025.03.26 **Start time: 17:13:33** **End time: 17:24:00**
Test duration (min): 10 **Data file name: CTSMXL_F-000434.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDSHRR;T:18℃,H:53%,P:1018hPa; SN: WUX-0889314-004
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 1

Test Result: Pass **Status: Test Completed**

Pst_t and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

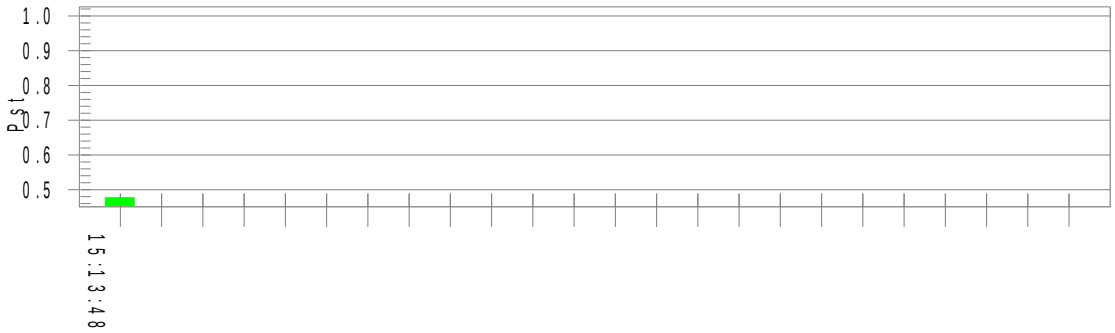
Vrms at the end of test (Volt):	**230.93**			
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**1.68**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.488**	**Test limit:**	**1.000**	**Pass**

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

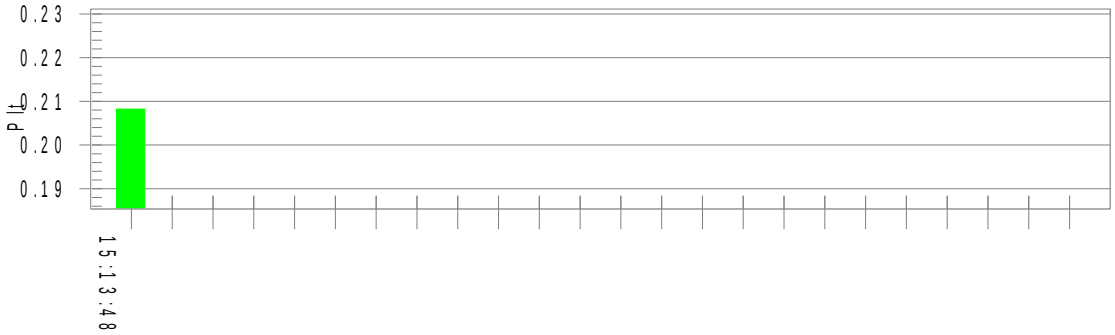
EUT: Auto-Empty Dock **Tested by: Wang Haoyu**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 2025.03.12 **Start time: 15:03:27** **End time: 15:13:54**
Test duration (min): 10 **Data file name: CTSMXL_F-000280.cts_data**
Comment: Power on, Dust evacuation & charging;Model:MDSHRR;T:18℃,H:53%,P:1018hPa; SN: WUX-0889314-003
Customer: Shenzhen Roborock Innovation Technology Co., Ltd. Configuration 2

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.87**			
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.90**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**1.47**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.477**	**Test limit:**	**1.000**	**Pass**

Test setup

2.4.8 Test Location

This test was carried out in in Room 134, Harmonic & Flicker Test area.

2.5 Electrostatic discharge immunity test

2.5.1 Specification Reference

Refer to 1.3

2.5.2 Equipment Under Test

MDS23HRR

2.5.3 Date of Test

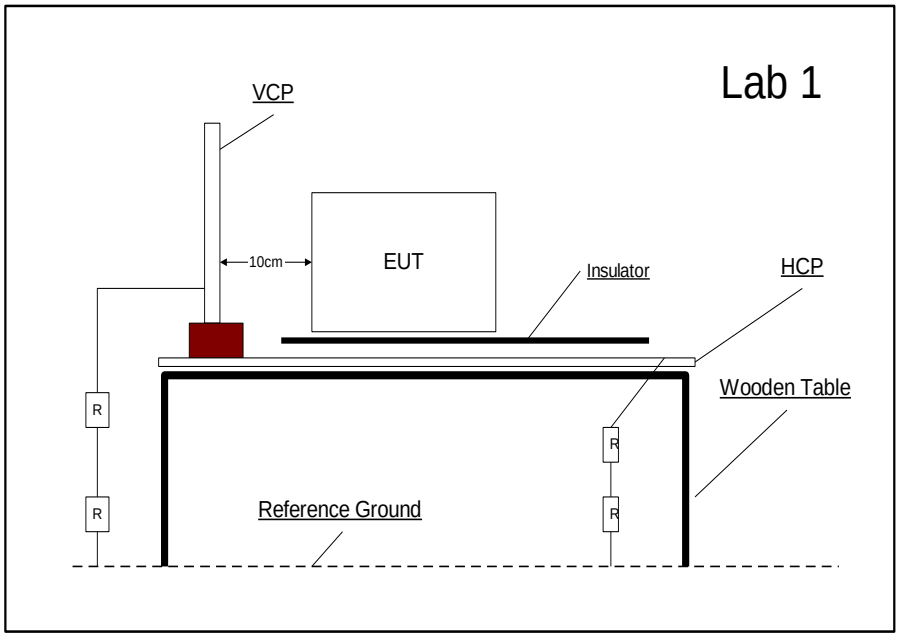
2025.03.15

2.5.4 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.5mm isolator, a horizontal coupling plane fitted to the top of a 0.8m non-conductive table for table-top equipment; and on a 0.1m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using the air discharge method for non-metallic parts, contact discharge method for metallic parts with both vertical and horizontal couple plane discharge methods for the sides of the equipment under test, the required electrostatic discharge voltage levels in both voltage polarities were applied at the detailed pulse repartition rate.

During this testing any anomalies in the equipment under tests performance was recorded.



2.5.5 Environmental Conditions

Ambient Temperature	19.4°C
Relative Humidity	48.2 %
Atmospheric Pressure	1023.5 mbar

2.5.6 Specification Limits

Required Test Levels				Performance Criteria
Discharge type	Discharge Level (kV)		Number of discharges per location (each polarity)	
	Positive	Negative		
Air – Direct	2, 4 and 8	2, 4 and 8	<10>	B
Contact – Direct	2 and 4	2 and 4	<10>	B
Contact – Indirect	2 and 4	2 and 4	<10>	B

2.5.7 Test Results

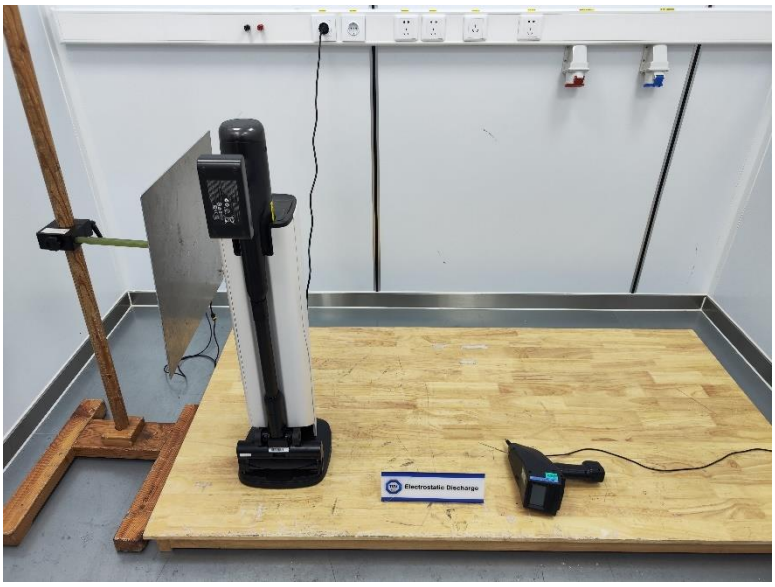
Results for Configuration and Mode: Configuration 1 & operation 1/2,
Configuration 2 & operation 3/4

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

ID	Test Point	Discharge	Results									
			2kV		4kV		6kV		8kV		15kV	
			+	-	+	-	+	-	+	-	+	-
1	HCP	Contact	✓	✓	✓	✓						
2	VCP	Contact	✓	✓	✓	✓						
3	Bolt	Contact	✓	✓	✓	✓						
4	Gap	Air	✓*	✓*	✓*	✓*			✓*	✓*		
5	button	Air	✓*	✓*	✓*	✓*			✓*	✓*		

Key to Results	
✓	The EUTs performance was not impacted when the ESD pulse was applied.
✓*	No discharge occurred at this point when the ESD pulse was applied
Ox	
Fx	
N/A	Not Appliance



Test Setup

2.5.8 Test Location

This test was carried out in room 127, ESD-TR.

2.6 Electrical fast transient /burst immunity test

2.6.1 Specification Reference

Refer to 1.3

2.6.2 Equipment Under Test

MDS23HRR

2.6.3 Date of Test

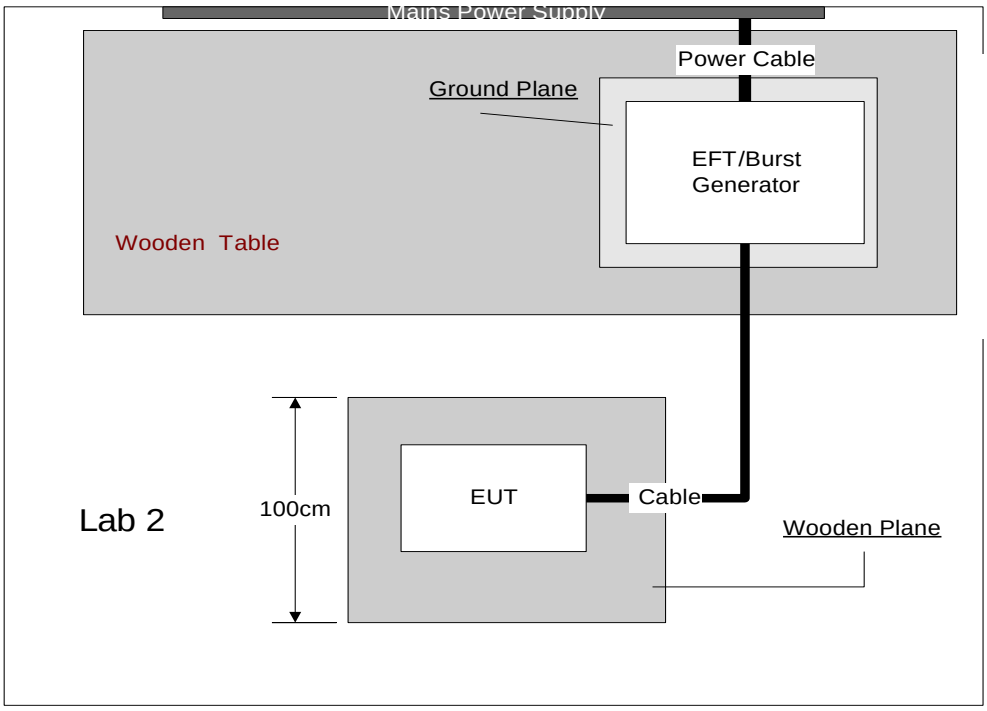
2025.03.15

2.6.4 Test Method

The equipment under test including associated cabling was configured on but insulted from, using a 0.1 m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

Using a CDN for power ports, capacitive coupling clamp for signal and control ports and a 33nF coupling capacitor for earth ports, the required fast transient burst voltage levels in both voltage polarities were applied at the detailed pulse repartition rate and duration of test.

During this testing any anomalies in the equipment under tests performance was recorded.



2.6.5 Environmental Conditions

Ambient Temperature	23.5 °C
Relative Humidity	42.5 %
Atmospheric Pressure	1017.8 mbar

2.6.6 Specification Limits

Required Test Levels Input and output a.c. power ports					
Line Under Test	Level (kV)	Repetition Rate (kHz)	Test Duration	Coupling Method	Performance Criteria
AC power port	± 1	5 kHz	2 min per polarity	Direct	B
For extra low voltage a.c. ports and output a.c. ports, this testing is only applicable to ports interfacing with cables whose total length may exceed 3m according to the manufacturer's functional specification.					

2.6.7 Test Results

Results for Configuration and Mode: Configuration 1 & operation 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Tabulated Results for Fast Transient Burst Immunity					
Line under test	Test Level	Repetition Rate	Test Duration	Coupling Method	Result
Power line	± 0.5 & 1.0 kV	5 kHz	2 min	CDN	Pass PC A

Test Setup

2.6.8 Test Location

This test was carried out in Room 120, SR-C.

2.7 Surge immunity test

2.7.1 Specification Reference

Refer to 1.3

2.7.2 Equipment Under Test

MDS23HRR

2.7.3 Date of Test

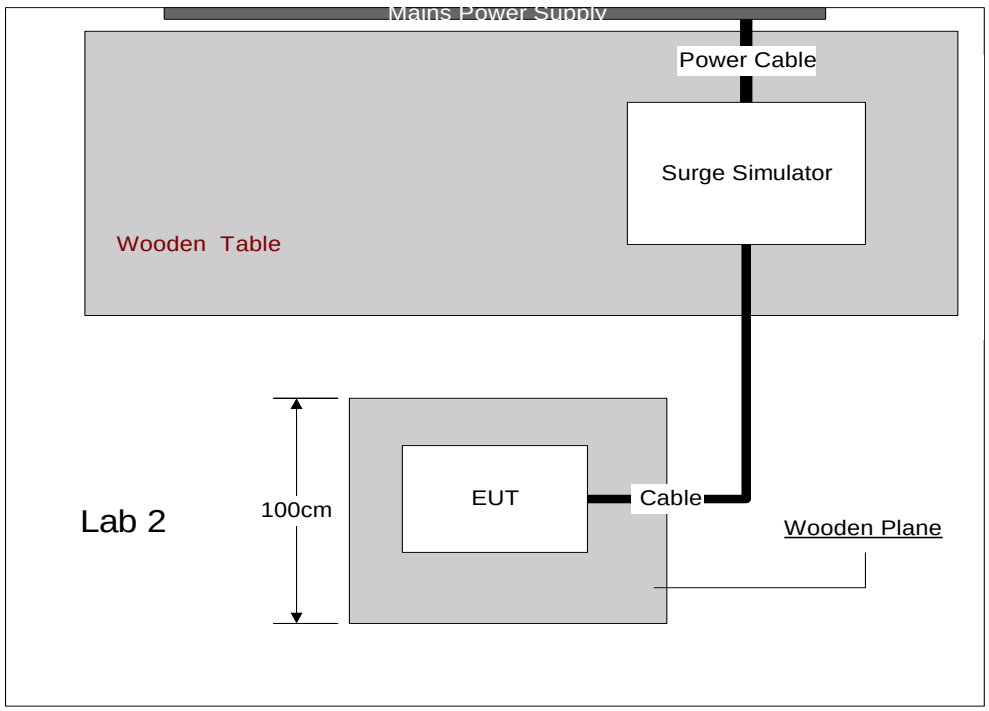
2025.03.15

2.7.4 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using CDNs for power ports and appropriate coupling methods for applicable signal and control ports, the required number of surges was applied for each surge voltage level using both positive and negative surge voltage polarities. Surges were applied at the power line frequency phase angles and repartition rates detailed.

During this testing any anomalies in the equipment under tests performance was recorded.



2.7.5 Environmental Conditions

Ambient Temperature	17.2 °C
Relative Humidity	50.1 %
Atmospheric Pressure	1021.3 mbar

2.7.6 Specification Limits

Characteristics	Test Levels	Performance Criteria
Wave- shape data Test levels line to line with 2Ω impedance line to earth with 12Ω impedance	1.2/50 µs ± 1.0 kV ±2.0 kV	B
Note In addition to the specified test level, all lower levels as detailed in IEC 61000-4-5 should also be satisfied.		

2.7.7 Test Results

Results for Configuration and Mode: Configuration 1 & operation 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Tabulated Results for Surge Immunity (Power Ports)							
Line Name	Coupling	Level	Polarity	Phase Angle	No of Pulses	Repetition Rate	Result
Power line	Live to Neutral	-1.0kV	NEGATIVE	270 deg	5	60 sec	Pass PC A
Power line	Live to Neutral	+1.0kV	POSITIVE	90 deg	5	60 sec	Pass PC A

Test Setup

2.7.8 Test Location

This test was carried out in Room 120, SR-C.

2.8 Immunity to conducted disturbances, induced by radio-frequency fields

2.8.1 Specification Reference

Refer to 1.3

2.8.2 Equipment Under Test

MDS23HRR

2.8.3 Date of Test

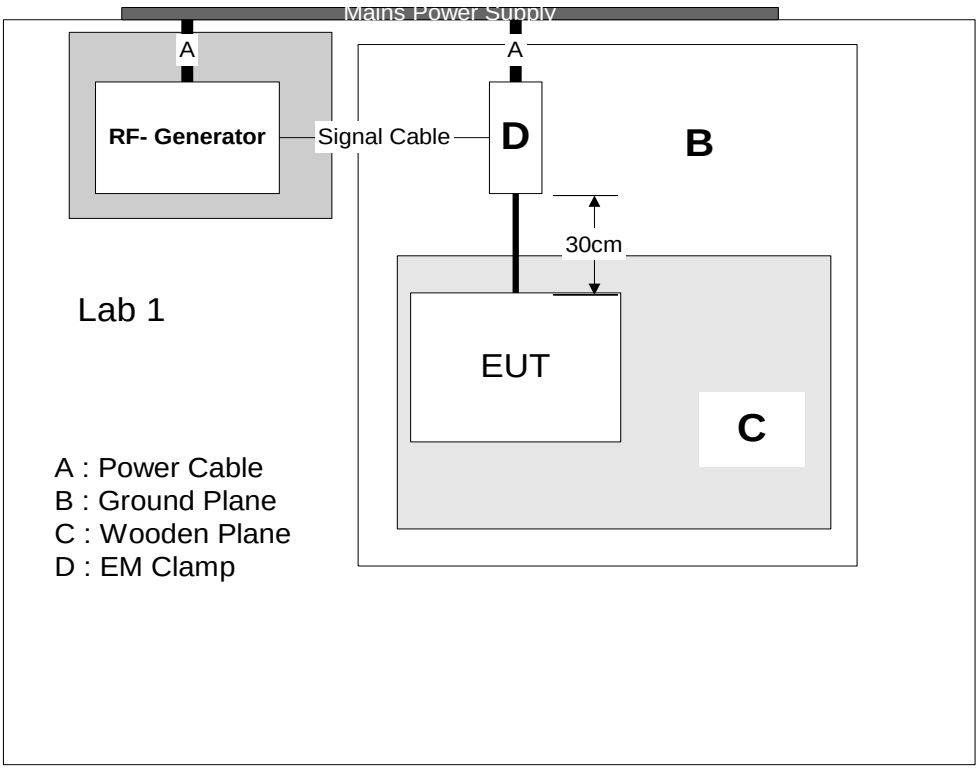
2025.03.15

2.8.4 Test Method

The equipment under test was configured, on but insulted from, using a 0.1 m isolator, a horizontal coupling plane fitted to the top of a 0.8 m non-conductive table for table-top equipment; and on a 0.1 m insulated support for floor standing equipment; above a ground reference plane all within a test laboratory.

All associated cabling was configured, on but insulted from, using a 50 mm isolator, the same horizontal coupling plane as the equipment under test.

Using CDNs, EM Clamps or current clamps as appropriate, the power ports and applicable signal and control ports were subjected to the required, pre calibrated RF injected signal strength, modulated as described, swept over the frequency range of test.
During this testing any anomalies in the equipment under tests performance was recorded.



2.8.5 Environmental Conditions

Ambient Temperature	17.2 °C
Relative Humidity	50.1 %
Atmospheric Pressure	1021.3 mbar

2.8.6 Specification Limits

Required Test Levels Input and output a.c. power ports						Performance Criteria
Line Under Test	Frequency Range (MHz)	Level (V)	Modulation	Step Size (%)	Dwell (s)	
AC power port	0.15 to 230	3	AM (80 %,1 kHz, sine wave)	1	3	A
For extra low voltage a.c. ports and output a.c. ports, this testing is only applicable to ports interfacing with cables whose total length may exceed 3m according to the manufacturer's functional specification.						

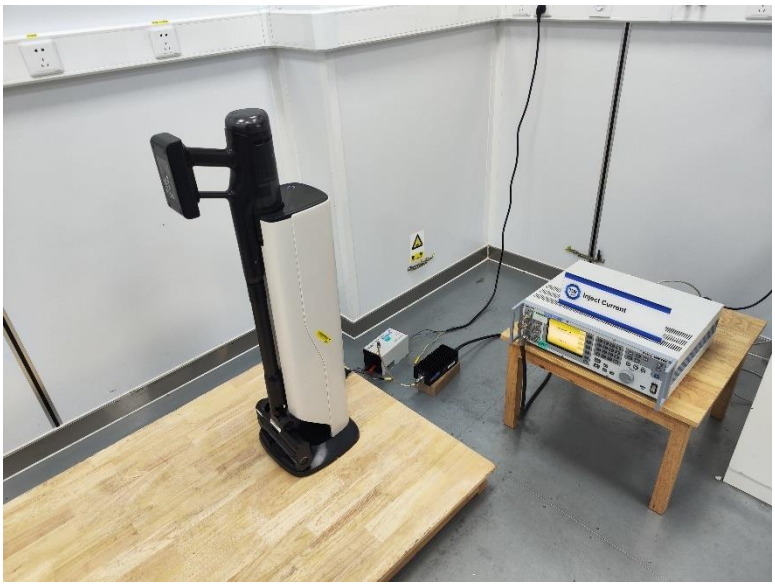
2.8.7 Test Results

Results for Configuration and Mode: Configuration 1 & operation 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Tabulated Results for Injected current						
Line under test	Test Level	Step	Dwell Time	Coupling Method	Modulation	Result
Power line	3V	1%	3S	CDN	1KHZ 80%	Pass PC A



Test Setup

2.8.8 Test Location

This test was carried out Room 120, SR-C.

2.9 Voltage dips, short interruptions and voltage variations immunity tests

2.9.1 Specification Reference

Refer to 1.3

2.9.2 Equipment Under Test

MDS23HRR

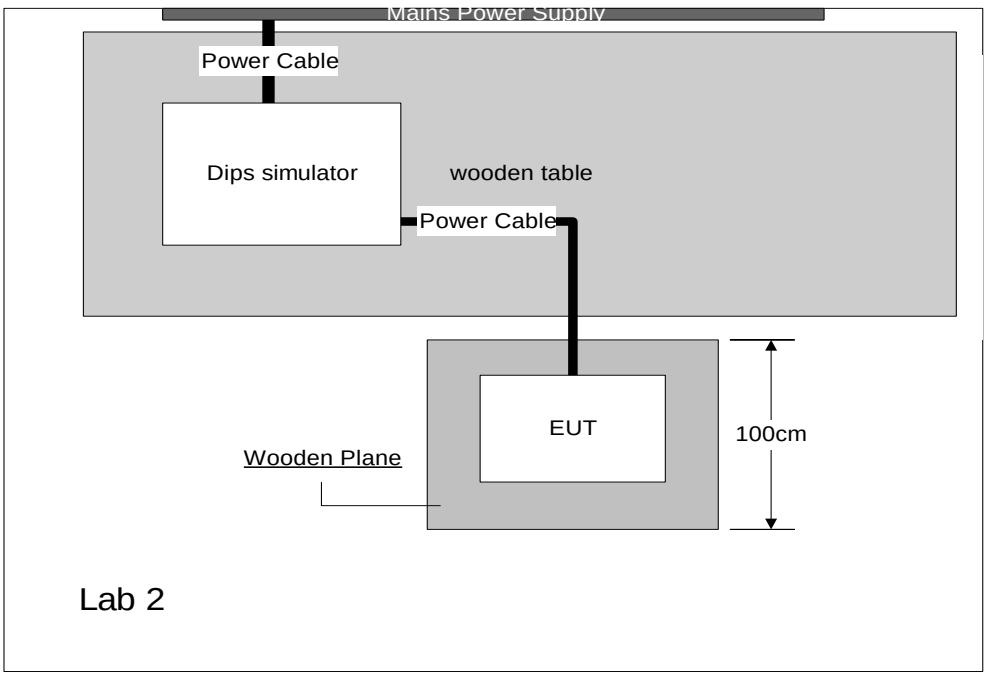
2.9.3 Date of Test

2025.03.15

2.9.4 Test Method

The equipment under test including associated cabling was configured, on a 0.8 m non-conductive table for table-top equipment and on a 0.1 m insulated support for floor standing equipment above a ground reference plane all within a test laboratory.

Using a programmable power supply the equipment under test was subjected to the detailed supply voltage dips and interruptions. The required supply phase synchronization and test repetition rate, detailed, was controlled by the programmable power supply.
During this testing any anomalies in the equipment under tests performance was recorded.



2.9.5 Environmental Conditions

Ambient Temperature	17.2 °C
Relative Humidity	50.1 %
Atmospheric Pressure	1021.3 mbar

2.9.6 Specification Limits

Voltage dips & interruption				
Voltage Dip in % Ut	Test level in % Ut	Duration		Performance Criteria
		50Hz	60Hz	
100	0	½ cycle	½ cycle	B
60	40	10 cycles	12 cycles	B
30	70	25 cycles	30 cycles	B
Ut is the rated voltage of the Equipment Under Test				

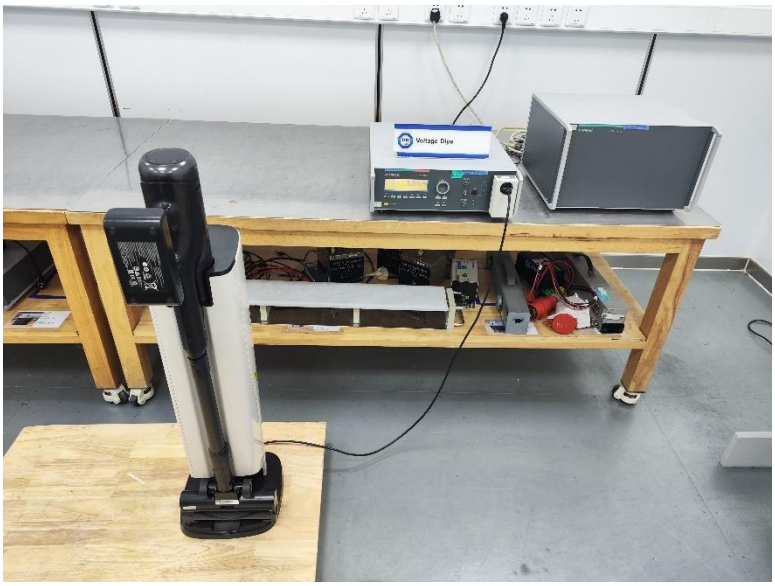
2.9.7 Test Results

Results for Configuration and Mode: Configuration 1 & operation 1/2

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Tabulated Results for Voltage Dip and Short Interruption					
Line under test	Vnom	Operating Frequency	Test Level	Duration	Result
Power line	230 Vac	50 Hz	0% of Vnom	½ cycle	Pass PC A
Power line	230 Vac	50 Hz	40% of Vnom	10 cycles (50Hz)	Pass PC A
Power line	230 Vac	50 Hz	70% of Vnom	25 cycles (50Hz)	Pass PC A



Test Setup

2.9.8 Test Location

This test was carried out in Room 120, SR-C.

3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESW8	487/631911	2024.04.08	2025.04.07
LISN	Schwarzbeck	NSLK8127	487/601428	2024.09.02	2025.09.01
Disturbance Power					
EMI Test Receiver	Rohde & Schwarz	ESW8	487/631911	2024.04.08	2025.04.07
Absorbing Clamp	Rohde & Schwarz	MDS-21	487/601426	2024.11.23	2025.11.22
Radiated Emission					
EMI Test Receiver	Rohde & Schwarz	ESR3	487/632314	2024.04.08	2025.04.07
Antenna	Schwarzbeck	VULB 9168	487/622345	2025.03.14	2026.03.13
Semi-anechoic Chamber	Beijing Yice	3m SAC	487/772307	2024.06.13	2027.06.12
Harmonic and Flicker					
AC Power Supply Testing System	California Instruments	MX45-3PI	487/681243	2024.09.02	2025.09.01
Immunity					
ESD Simulator	HAEFELY	ONYX 30	487/751520	2024.04.12	2025.04.11
EMS Multifunction test	Skylark	MIS-CH6	487/752431	2024.12.09	2025.12.08
RF-Generator	EM test	NSC-4070C-80	487/752227	2024.04.09	2025.04.08
Coupling/decoupling Network	TeseQ	CDN M0216S	487/571842	2024.09.02	2025.09.01
Voltage Drop Generator	EM test	UCS500N5-PFS	487/751117	2024.11.23	2025.11.22

EMC Testing software

software	version	Testing items
EMC32	10.6	Conducted Emission; Disturbance Power; Radiated Emission; Radiated, radio-frequency, electromagnetic field immunity test
ICD CONTROL	7.1.2	Immunity to conducted disturbances, induced by radio-frequency fields

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

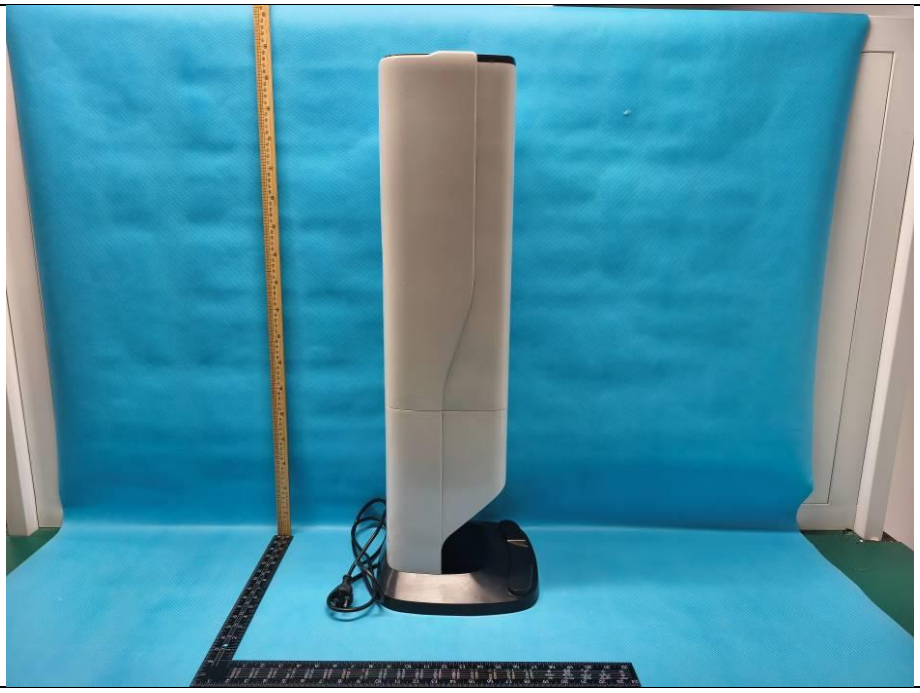
Test Name	Measurement Uncertainty
Conducted Disturbance at Mains Terminals	150kHz to 30MHz, LISN, 2.97dB
Radiated Disturbance	30MHz to 1GHz, Horizontal:4.39dB, Vertical: 4.57dB
Harmonic current emission	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2.
Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-3
Electrostatic discharge immunity test	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2
Radiated, radio-frequency, electromagnetic field immunity test	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-3
Electrical fast transient /burst immunity test	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4
Immunity to conducted disturbances, induced by radio-frequency fields	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-6
Surge immunity test	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5
Voltage dips, short interruptions and voltage variations immunity tests	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3.

5 Photographs

Details of:	Overview
View: ☐ General ☒ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

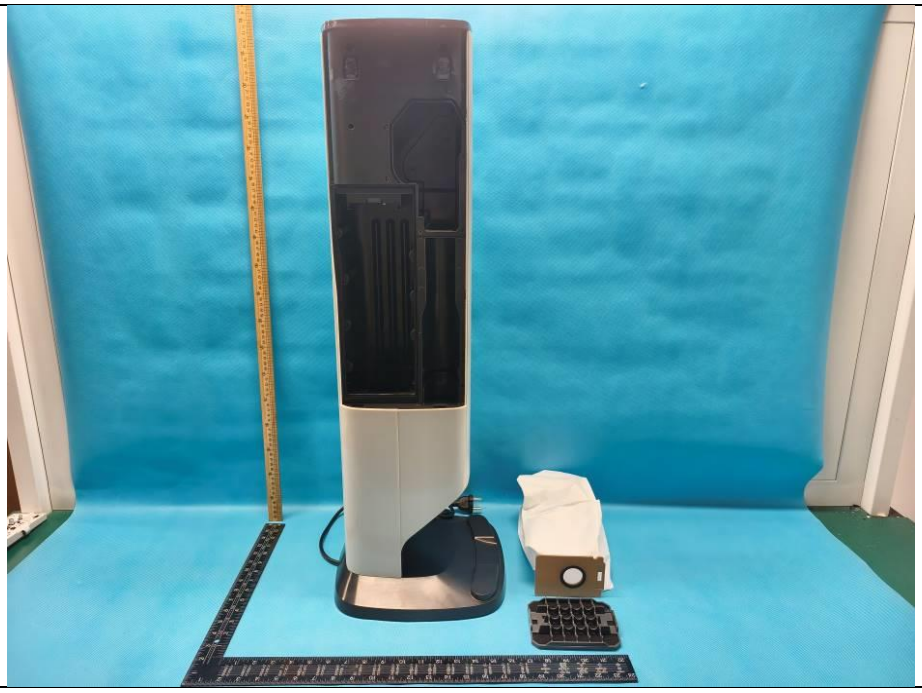
Details of:	Overview
View: ☐ General ☐ Front ☒ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Overview
View: ☐ General ☐ Front ☐ Rear ☐ Right ☒ Left ☐ Top ☐ Bottom	

Details of:	Overview
View: ☐ General ☐ Front ☐ Rear ☒ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Overview
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☒ Top ☐ Bottom	

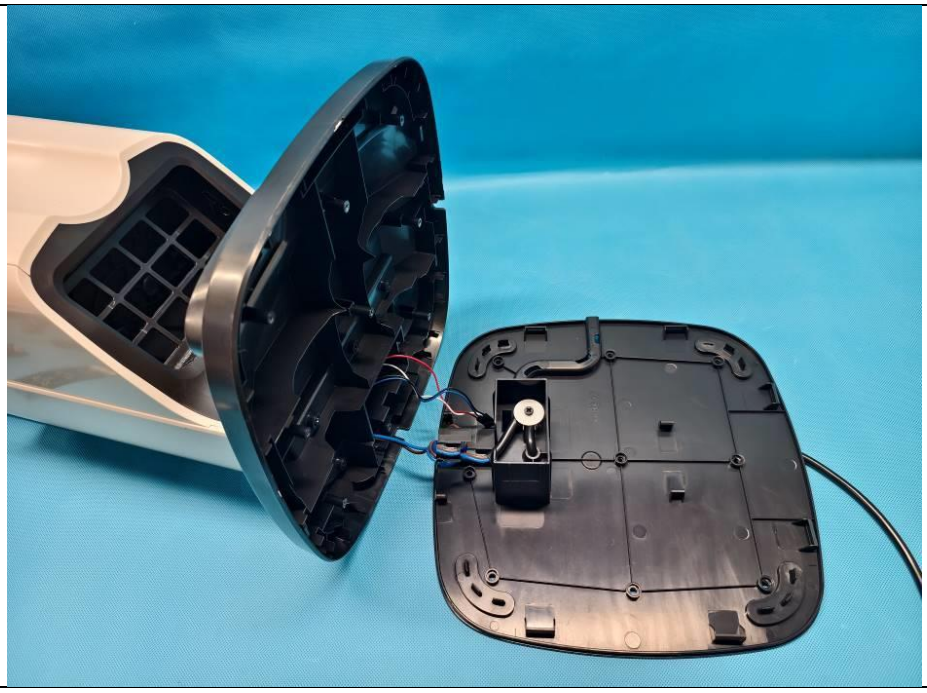
Details of:	Overview
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☒ Bottom	

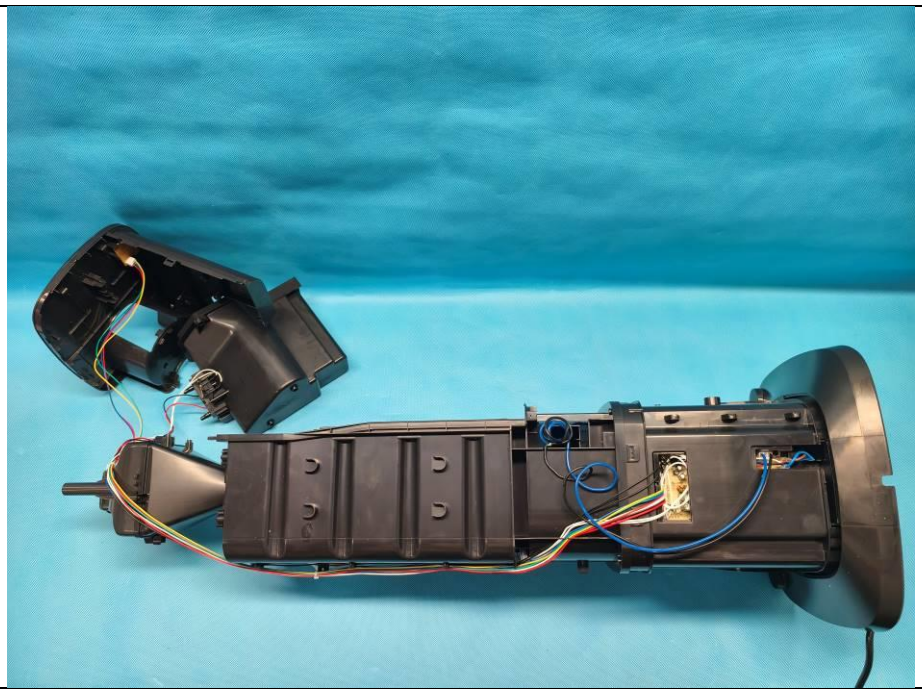
Details of:	Overview (Dust bag removed)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

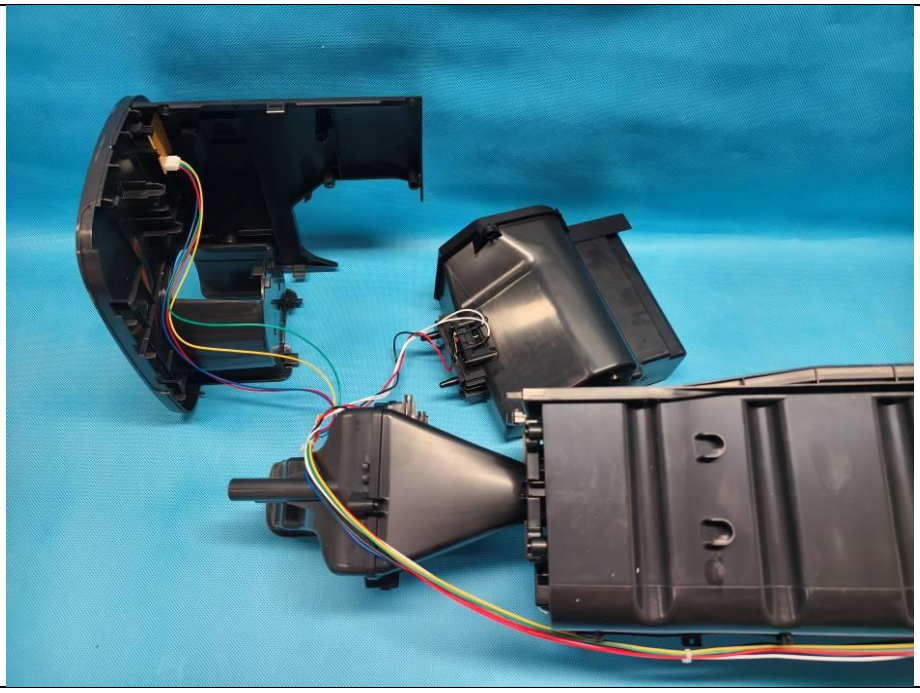
Details of:	Overview (Filter removed)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

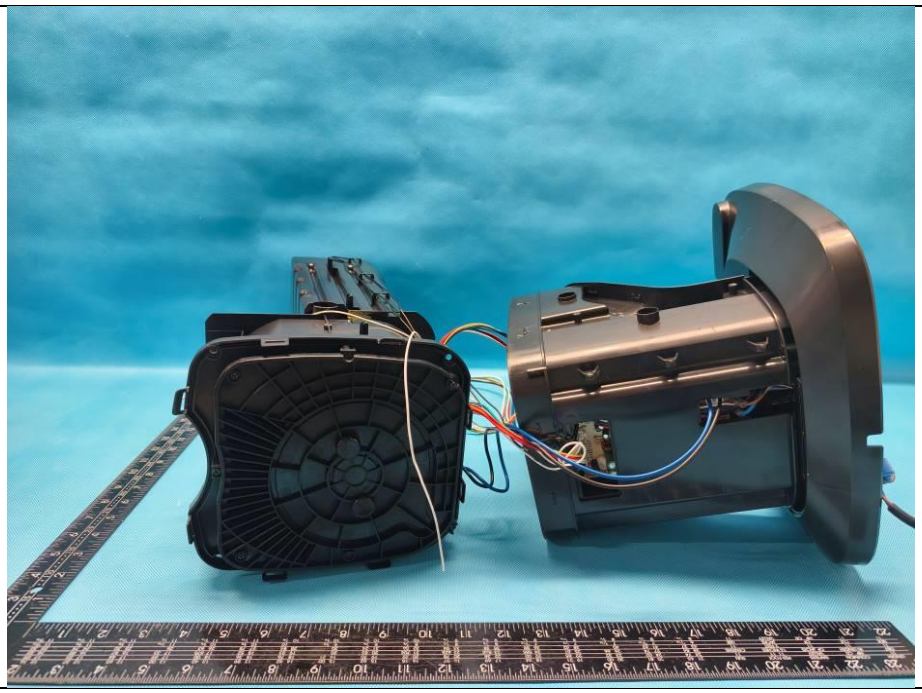
Details of:	Overview (Charging port)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

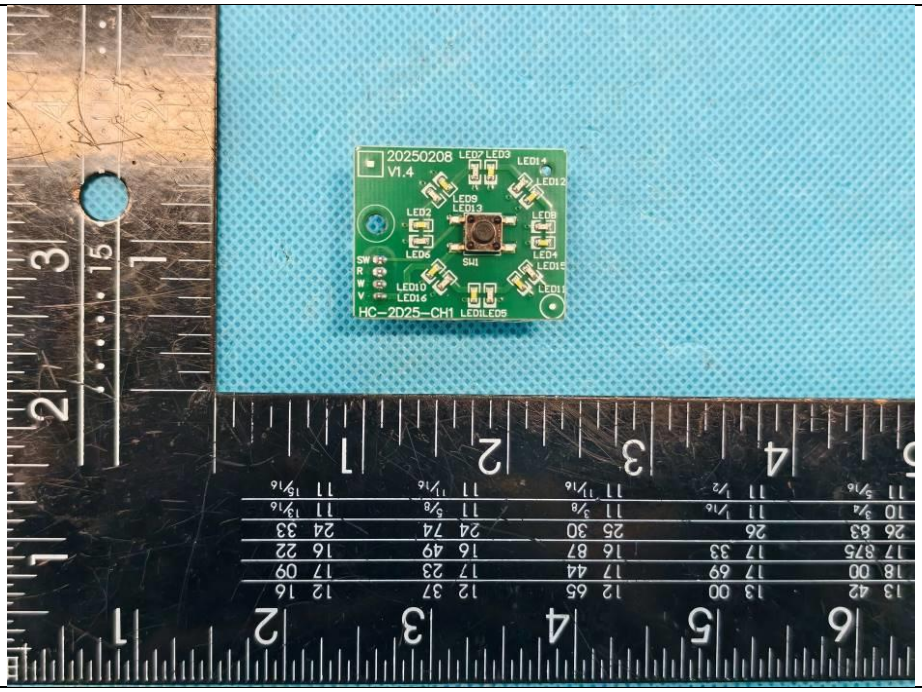
Details of:	Internal view
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

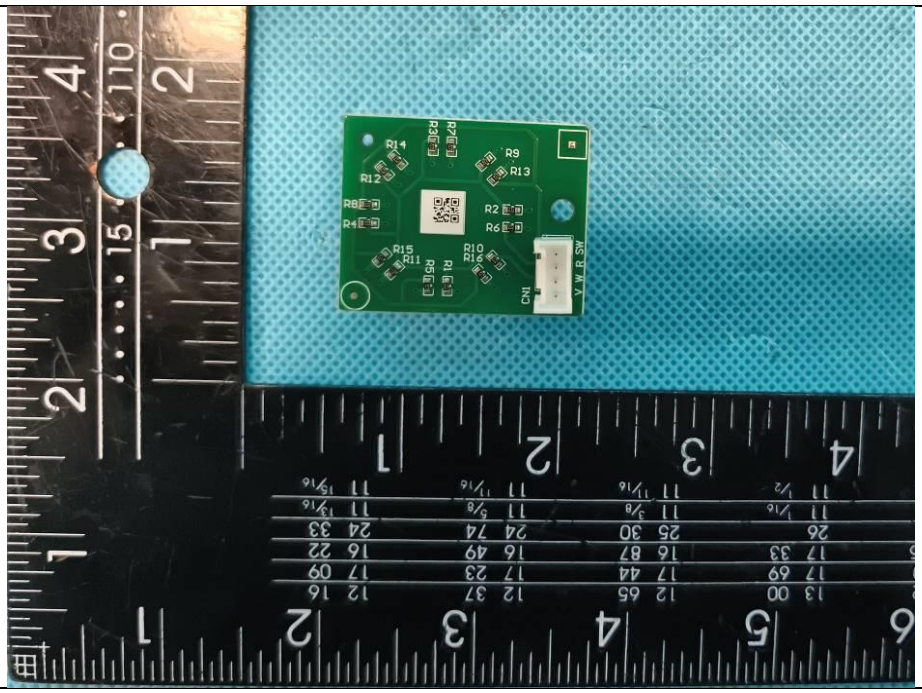
Details of:	Internal view
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

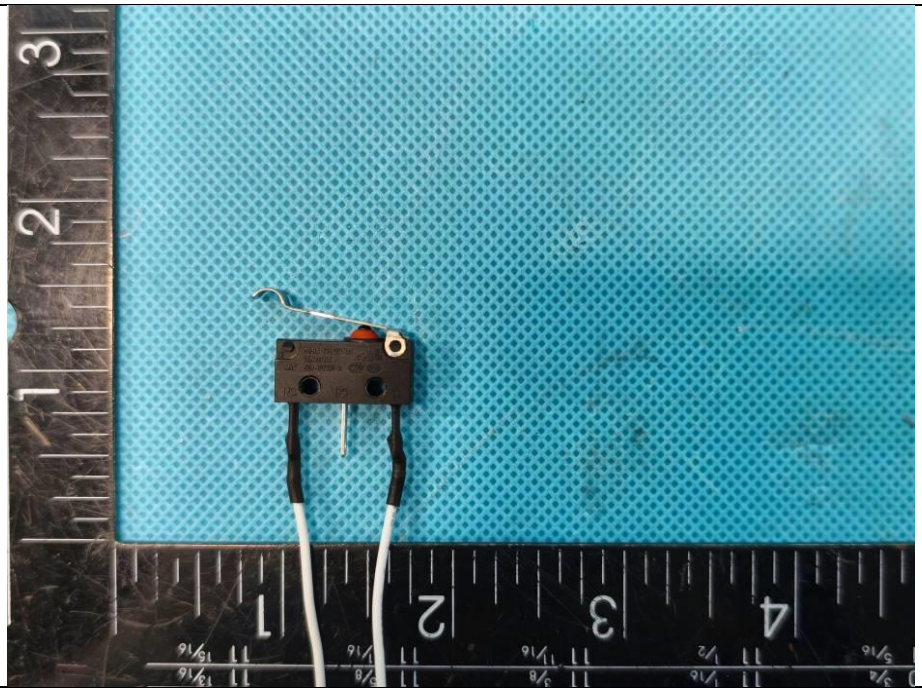
Details of:	Internal view
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

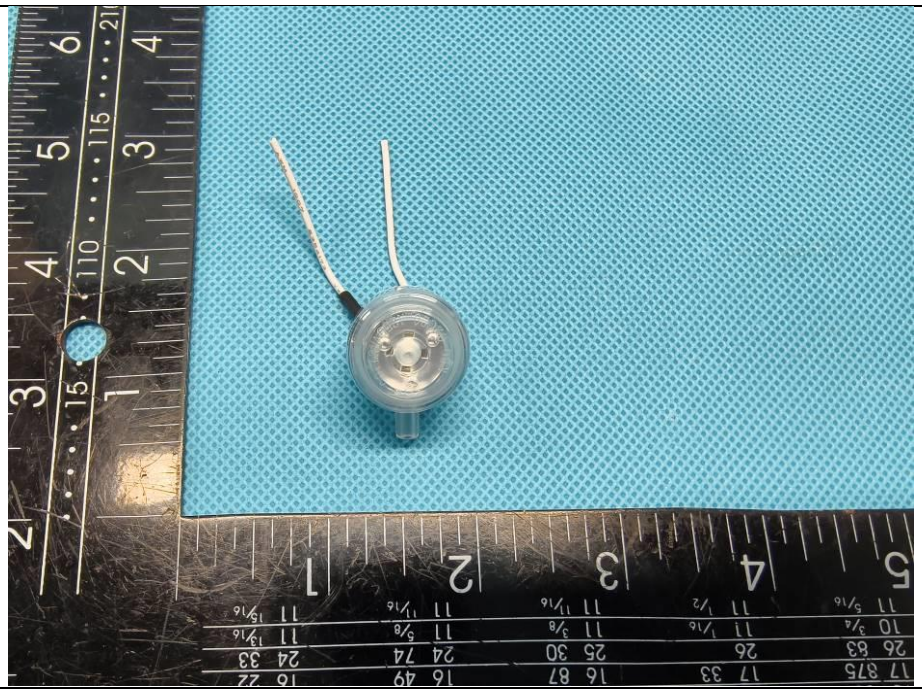
Details of:	Internal view
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Internal view
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

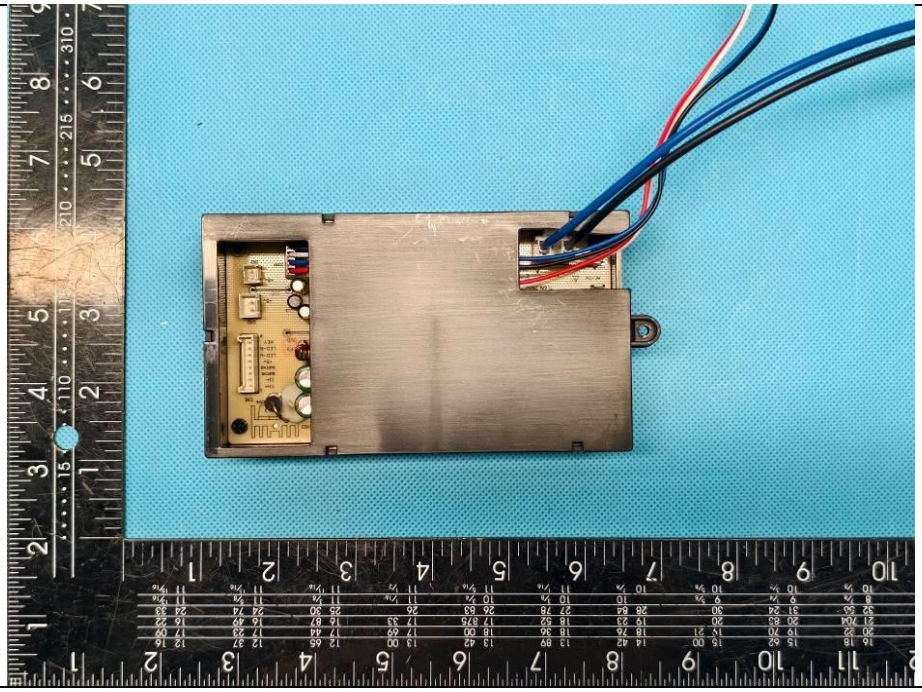
Details of:	Light PCB
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

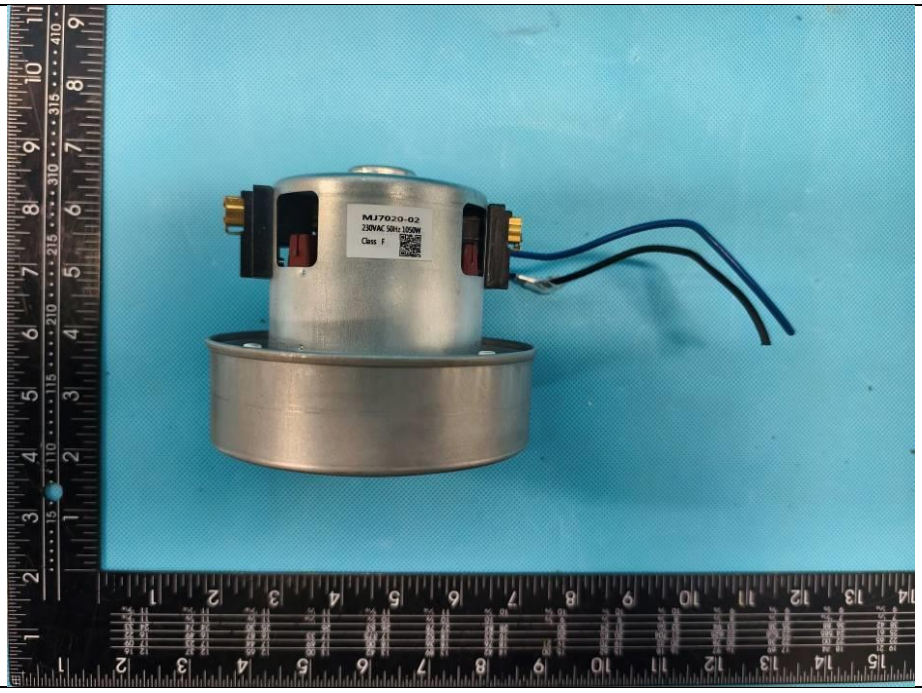
Details of:	Light PCB
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Micro Switch
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

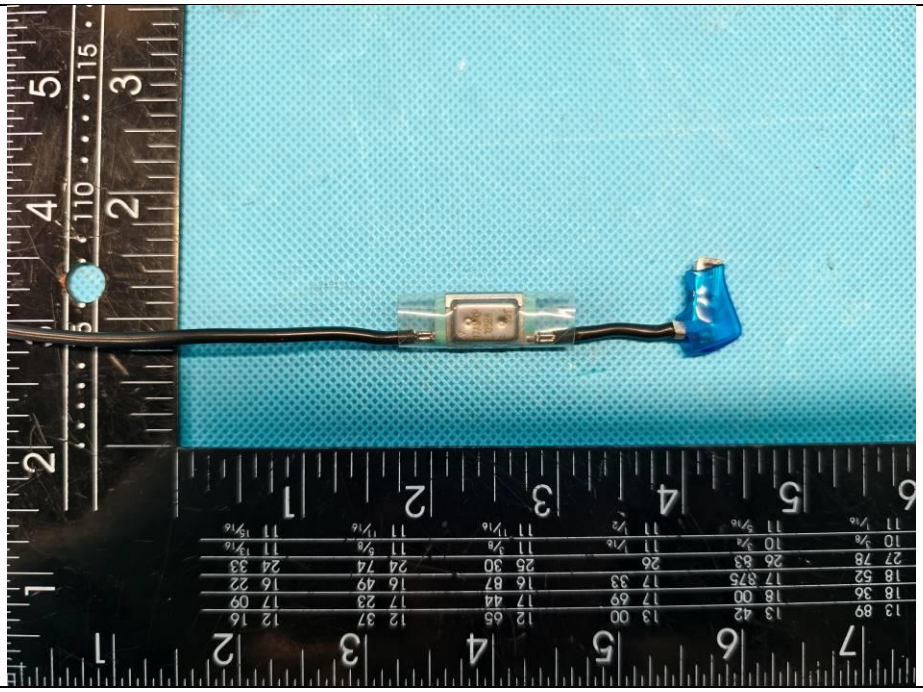
Details of:	Senser
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

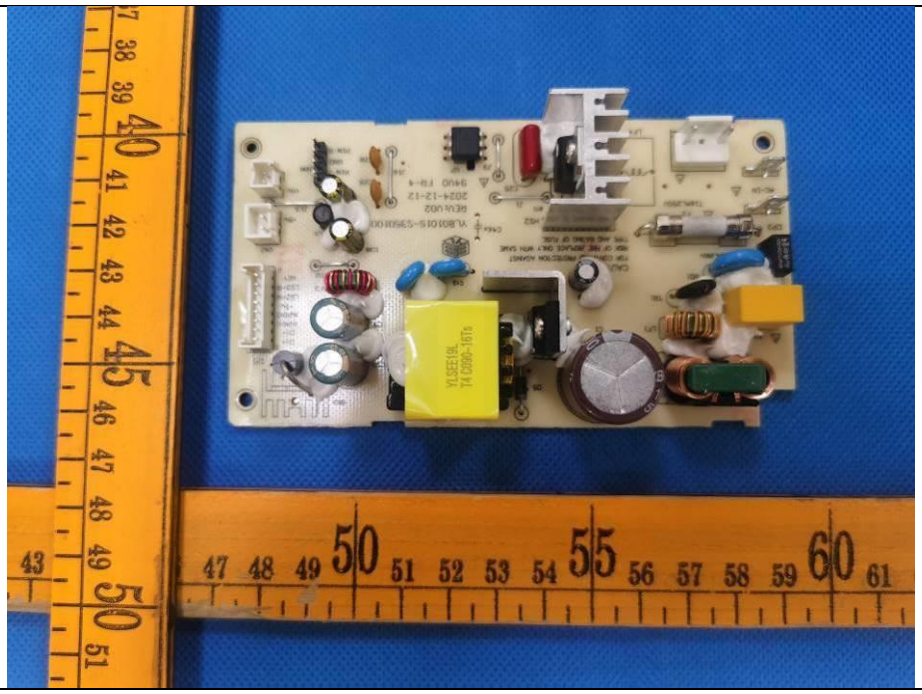
Details of:	Motor cover
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

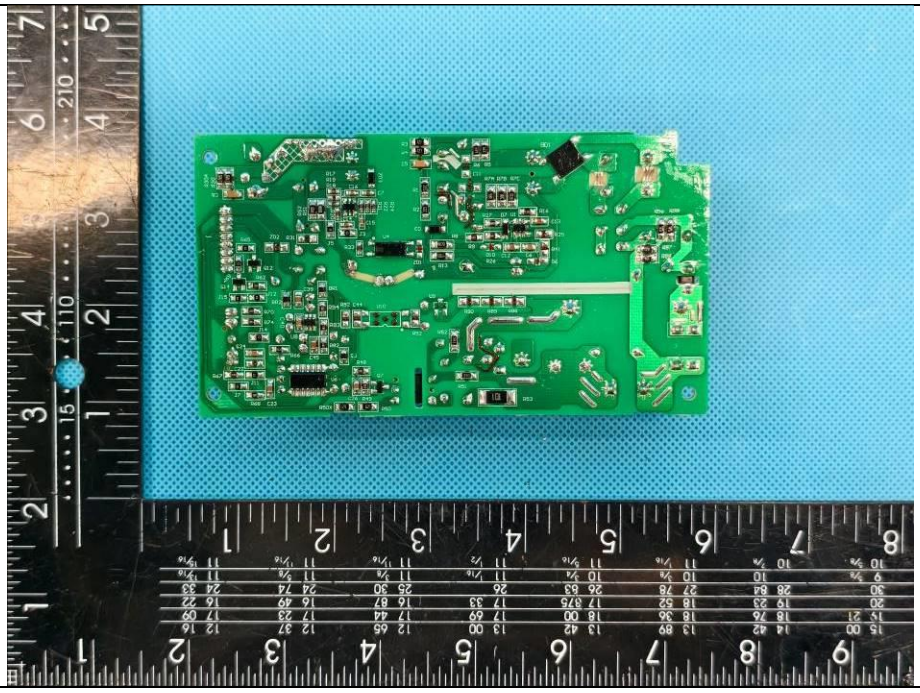
Details of:	Main PCB box
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

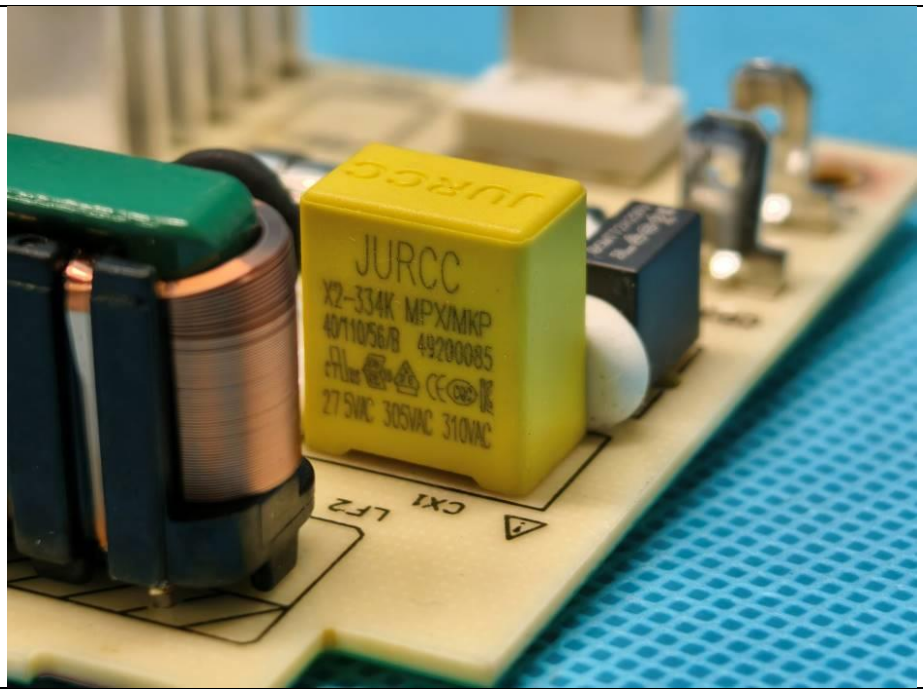
Details of:	Motor (MJ7020-02)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

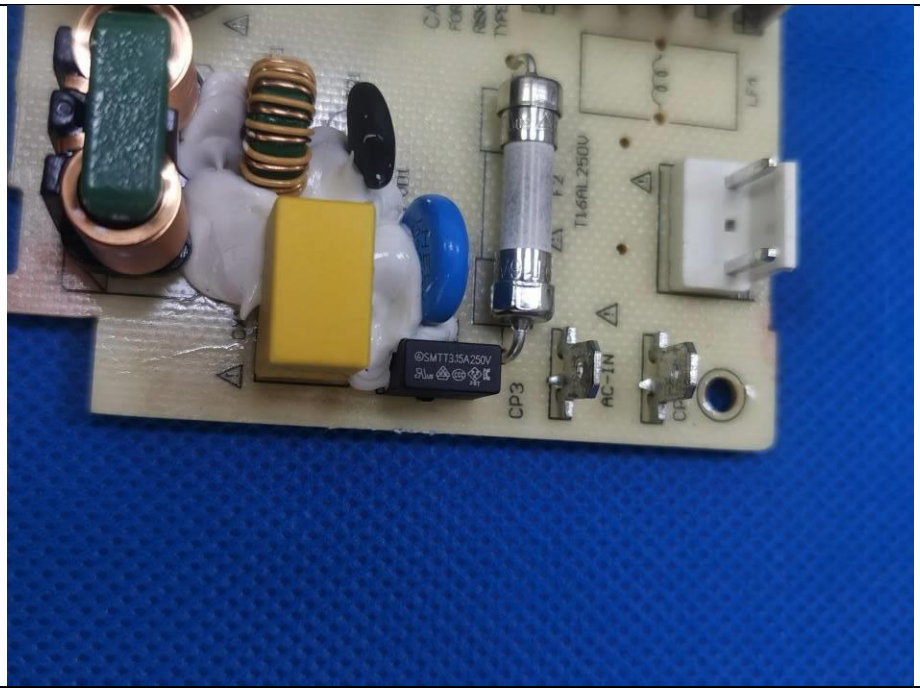
Details of:	Motor (CG-61-02L)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

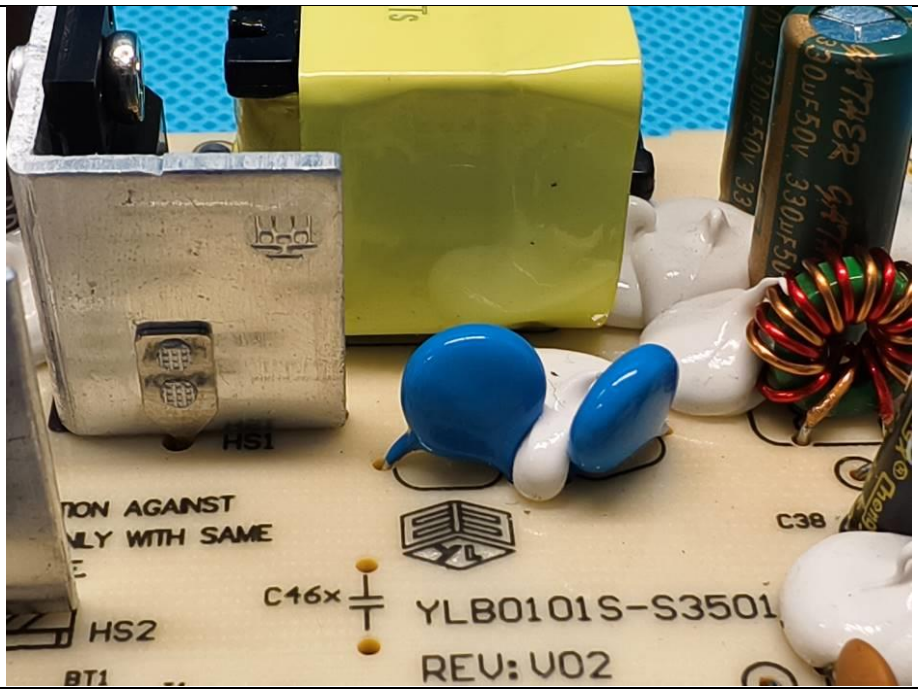
Details of:	Thermal cut-out of suction motor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

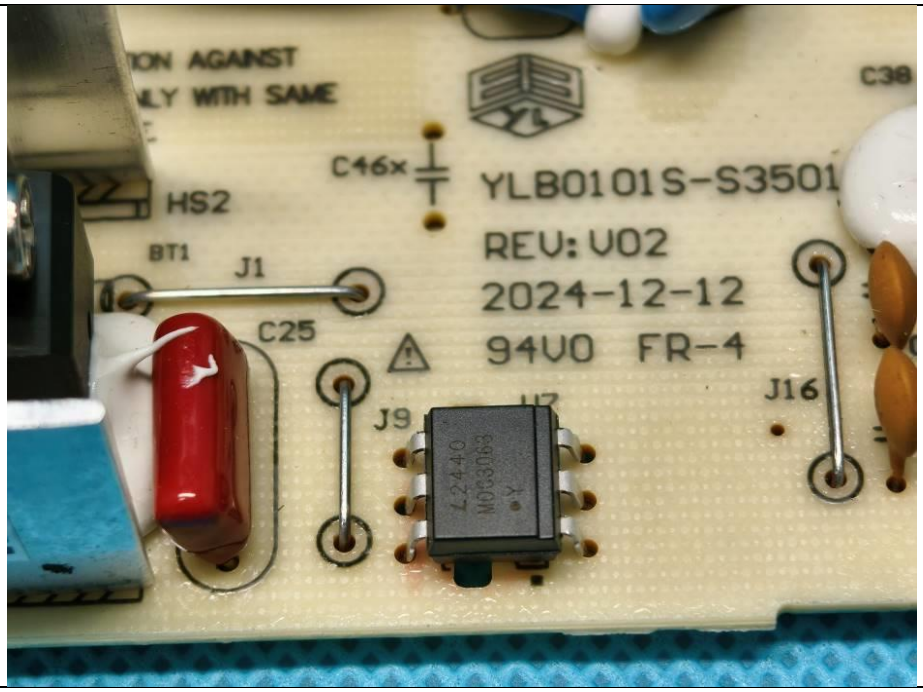
Details of:	Power supply board (Yinli)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

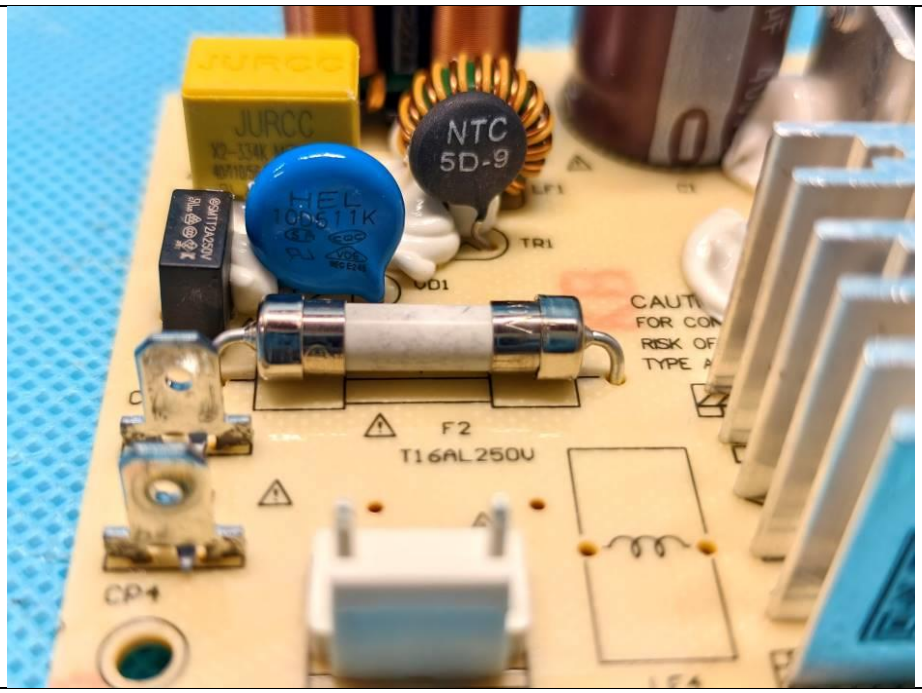
Details of:	Power supply board (Yinli)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

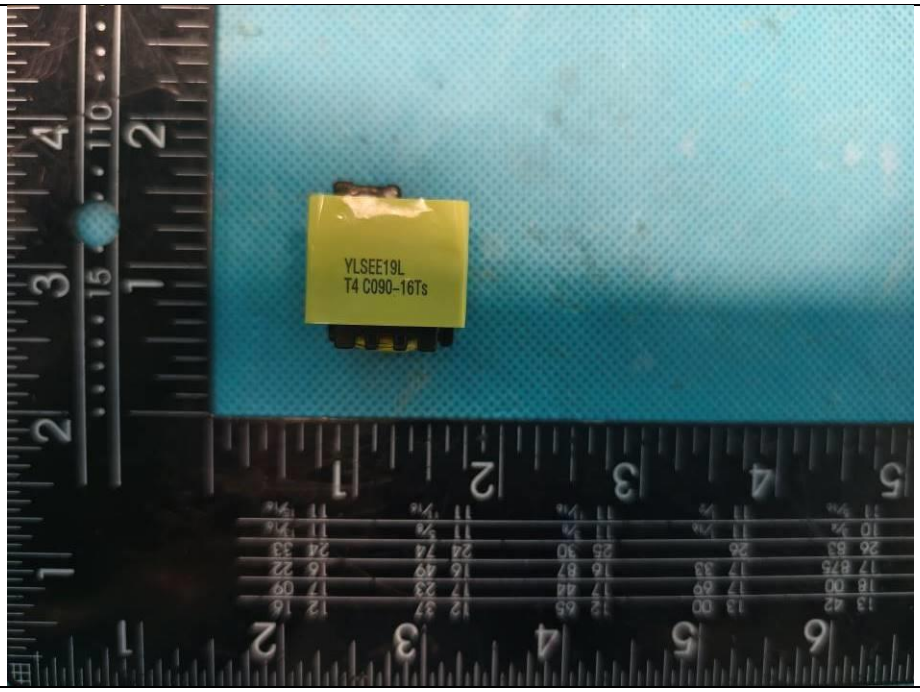
Details of:	X Capacitor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

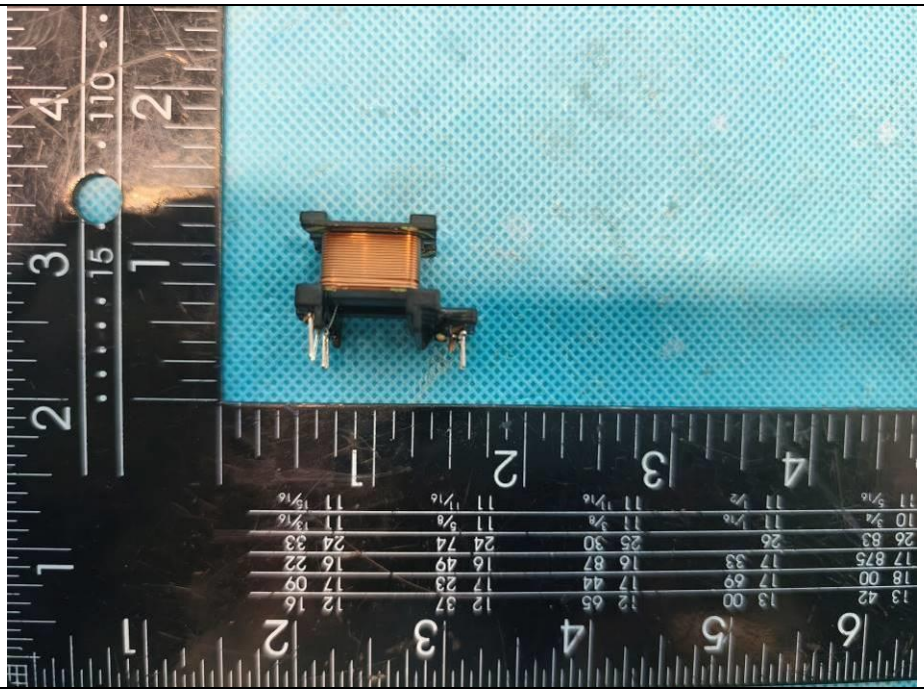
Details of:	Fuse
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

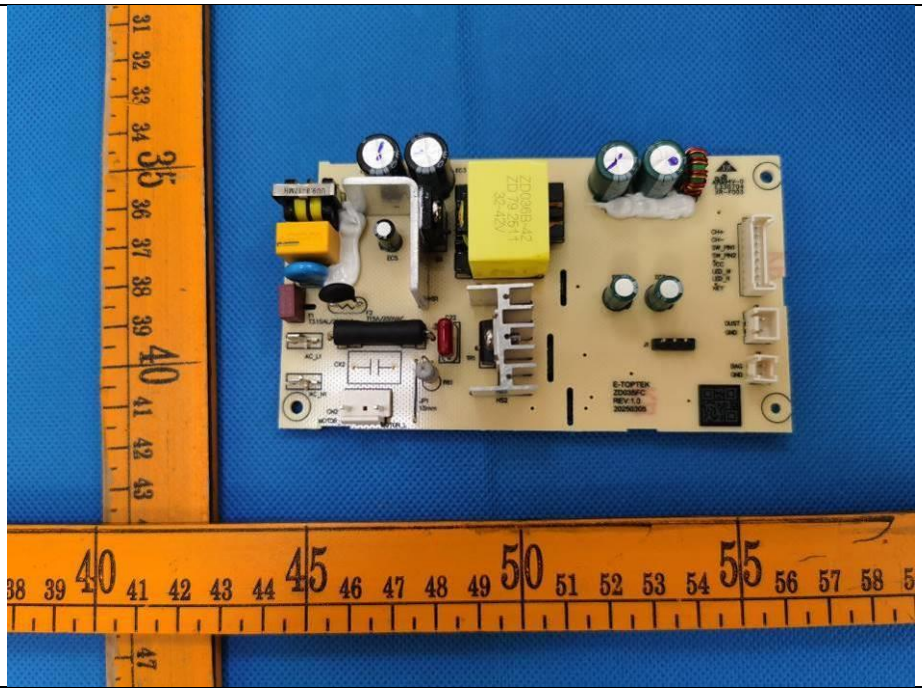
Details of:	Y-Capacitor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

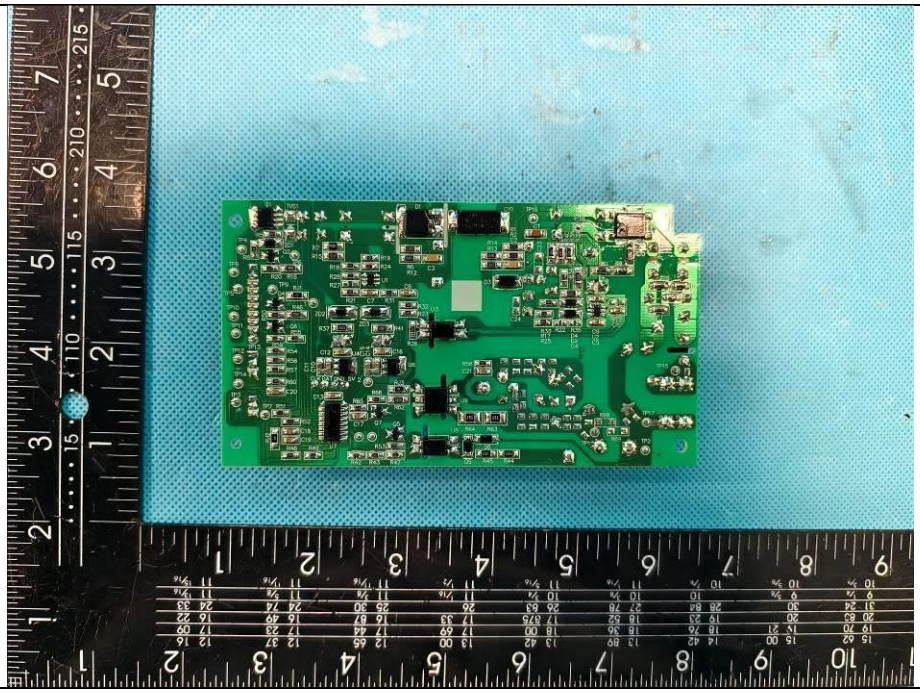
Details of:	Optocoupler
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

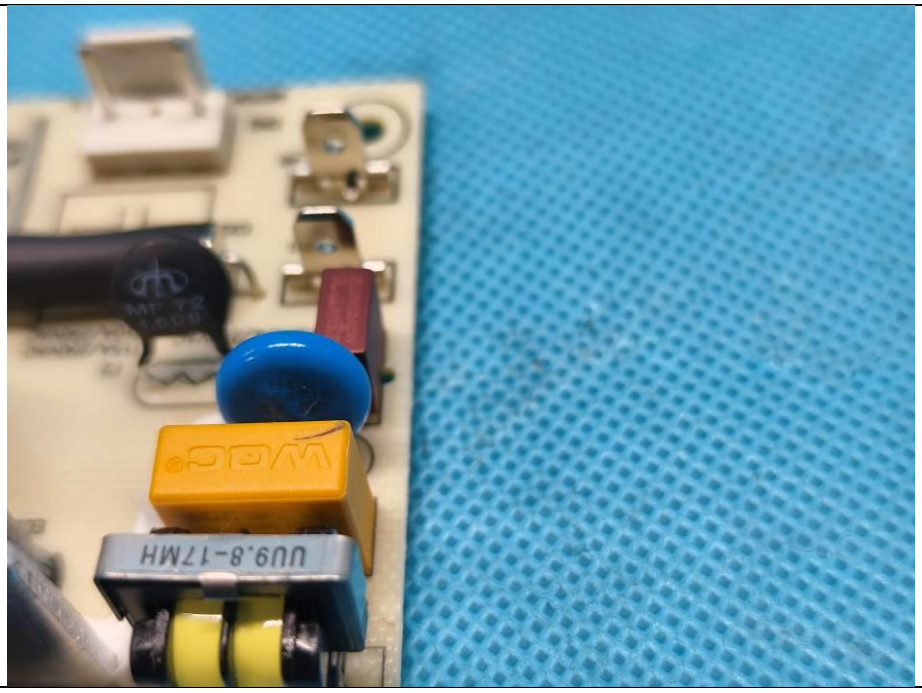
Details of:	Varistor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

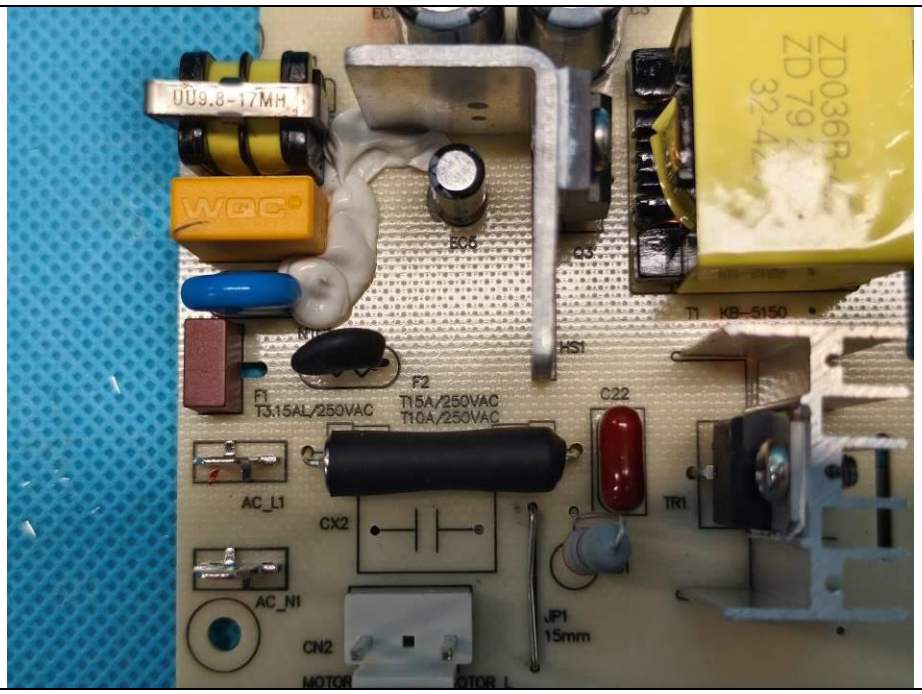
Details of:	Transformer (YLSEE19L T4)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

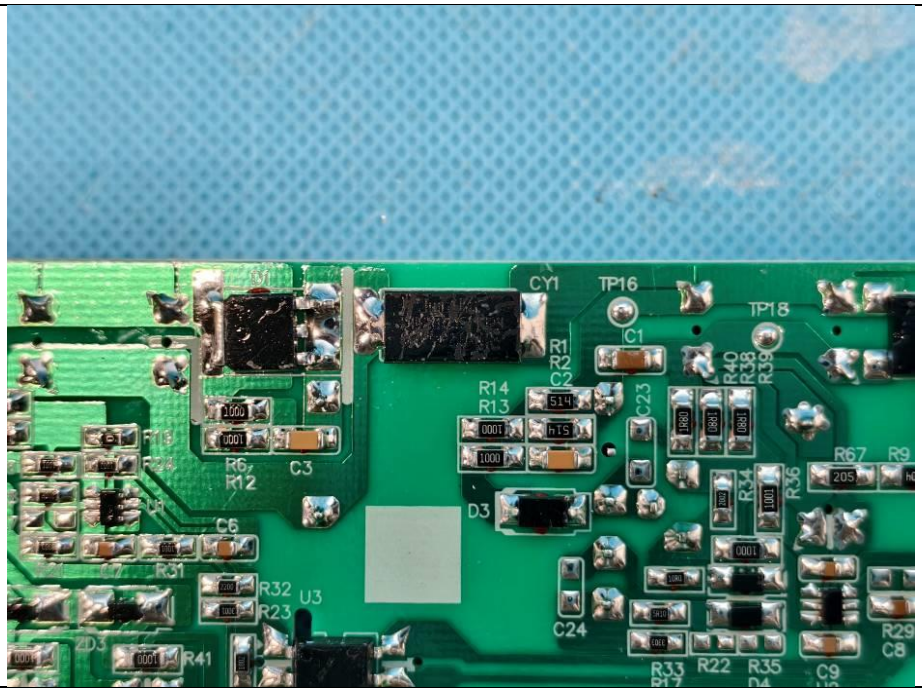
Details of:	Transformer (YLSEE19L T4)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

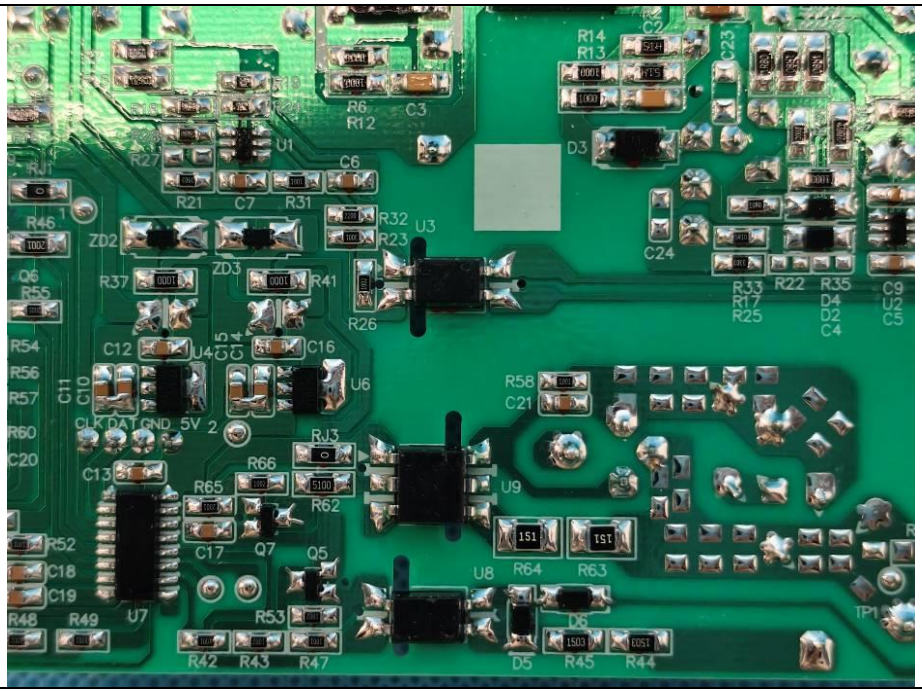
Details of:	Power supply board (E-TEK)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Power supply board (E-TEK)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	X capacitor & Varistor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Fuse
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Y capacitor
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Opto-coupler
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Transformer (ZD036B-42)
View: ☒ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom