

EMC Test Report

Product: Fan heater

Model: Refer to model list on section 1.4.1

Applicant: Ningbo Baogong Electrical Appliance
Co., Ltd

Fuhai Industrial Zone 315332 Cixi, Ningbo, Zhejiang
PEOPLE'S REPUBLIC OF CHINA

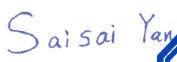


**Add value.
Inspire trust.**

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

COMMERCIAL-IN-CONFIDENCE

Issue Date: May 07, 2025
Report Number: 878882213004-04

RESPONSIBLE FOR	NAME	SIGNATURE	DATE
Approved By	Saisai YANG	 	May 07. 2025
Prepared By	Li ZHANG	 	May 07. 2025

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

EXECUTIVE SUMMARY

Four samples of this product were tested and found to be in compliance with EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019/A2:2024 and EN 61000-3-3:2013/A2:2021.

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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	May 07, 2025

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	Ningbo Baogong Electrical Appliance Co., Ltd
Address	Fuhai Industrial Zone 315332 Cixi, Ningbo, Zhejiang PEOPLE'S REPUBLIC OF CHINA
Manufacturer	Same as above
Address	Same as above
Factory	Same as above
Address	Same as above
Model Number(s)	Refer to model list on section 1.4.1
Rated Voltage/Frequency	AC 220-240V, 50Hz
Rated Power	Refer to model list on section 1.4.1
Sample Number(s)	NIB-895670-1, NIB-895670-2, NIB-895670-3, NIB-895670-4
Number of Samples Tested	4
Test Specification	EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019/A2:2024 and EN 61000-3-3:2013/A2:2021
Date of Receipt of EUT	03/06/2025
Start of Test	03/12/2024
Finish of Test	04/24/2024
Name of Engineer(s)	Li ZHANG

1.3 Brief Summary of Results

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

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

Section	Specification	Clause	Test Description	Result	Comments/Base Standard
For models BGP3102-30, BGP3102-20: AC Powered Power on, mid & max temperature, mid & max power; For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid & max temperature, mid & max power, timer on					
2.1	EN IEC 55014-1:2021	4.3.3.6	Conducted Disturbance	Pass (Minimum limit margin: 3.8dB)	
2.2	EN IEC 55014-1:2021	4.4	Discontinuous Disturbance	Pass	
2.3	EN IEC 55014-1:2021	4.3.4.4	Disturbance power	Pass (Minimum limit margin: 3.2dB)	
2.4	EN IEC 61000-3-2:2019/A2:2024	7	Harmonic current emission	Pass	
2.6	EN IEC 55014-2:2021	5.1	Electrostatic discharge immunity test	Pass	IEC 61000-4-2
2.7	EN IEC 55014-2:2021	5.2	Electrical fast transient /burst immunity test	Pass	IEC 61000-4-4
2.8	EN IEC 55014-2:2021	5.3	Immunity to conducted disturbances, induced by radio-frequency fields	Pass	IEC 61000-4-6
2.9	EN IEC 55014-2:2021	5.6	Surge immunity test	Pass	IEC 61000-4-5
2.10	EN IEC 55014-2:2021	5.7	Voltage dips, short interruptions and voltage variations immunity tests	Pass	IEC 61000-4-11
AC Powered, switch on/off					
2.5	EN 61000-3-3:2013/A2:2021	5	Flicker	Pass	

1.4 Product Information

1.4.1 Technical Description

NOTICE: This report is a SUPPLEMENT OF PROJECT 878882213004-00, 878882213004-01, 878882213004-02 and 878882213004-03. So the report is not valid without the report of 878882213004-00, 878882213004-01, 878882213004-02 and 878882213004-03.

Standard EN IEC 61000-3-2:2019/A1:2021 is updated to EN IEC 61000-3-2:2019/A2:2024. As to the product, the test requirements on EN IEC 61000-3-2:2019/A2:2024 are same as EN IEC 61000-3-2:2019/A1:2021, so no additional test about EN IEC 61000-3-2:2019/A2:2024 is needed.

According to the client's request and declaration:

1. Added thirty-eight new models which highlight in the model list on the E8A attestation and report.
2. The new models BGP1401-02-01, BGP1401-02B-01, BGP1506-02-01, BGP1506-02-1-01, BGP1506-02-2-01, BGP1506-02-17-01, BGP1606-02-01, BGP1815-02-01, BGP1506-02-16-01 and BGP1506-02-19-01 are same as the original certified model BGP1506-02-03 except for appearance.
3. The new models BGP1401-02-02, BGP1401-02B-02, BGP1506-02-02, BGP1506-02-1-02, BGP1506-02-2-02, BGP1506-02-17-02, BGP1606-02-02, BGP1506-02-16-02, BGP1506-02-19-02 and BGP3102-20 have same circuit diagram, PCB layout and motor except for appearance.
4. The new models BGP1506-03-1-01, BGP1506-03-2-01, BGP1606-03-01, BGP1815-03-01, BGP1606-28-01 and BGP1815-28-01 are same as the original certified model BGP1506-03-06 except for appearance and rated power, the different rated power because of the different heating tube size.
5. The new models BGP3103-28R and BGP3103-30R have same circuit diagram, PCB layout and motor except for rated power, the different rated power because of the different heating tube size.
6. The new models BGP1506-03-1-02, BGP1506-03-2-02, BGP1506-03-06-02, BGP1606-03-02, BGP1606-28-02, BGP3102-30, BGP3102-28 and BGP1506-28-06-02 have same circuit diagram, PCB layout and motor except for appearance and rated power, the different rated power because of the different heating tube size.
7. The new model BGP1506-02-1-03 is same as the original certified model BGP1506-02-1 except for appearance.

Model list:

Model	Rated Power
BGP1401-02, BGP1401-02B, BGP1506-02, BGP1506-02-1, BGP1506-02-2, BGP1506-02-16, BGP1506-02-17, BGP1606-02, BGP1815-02, BGP2305-20, BGP2305-20-01, BGP1506-02-03, BGP1506-02-06, BGP1506-02-07, BGP1506-02-08, BGP1506-02-09, BGP1506-02-10, BGP1401-02-01, BGP1401-02B-01, BGP1506-02-01, BGP1506-02-1-01, BGP1506-02-2-01, BGP1506-02-17-01, BGP1606-02-01, BGP1815-02-01, BGP1506-02-16-01, BGP1506-02-19-01, BGP1401-02-02, BGP1401-02B-02, BGP1506-02-02, BGP1506-02-1-02, BGP1506-02-2-02, BGP1506-02-17-02, BGP1606-02-02, BGP1506-02-16-02, BGP1506-02-19-02, BGP3102-20, BGP3103-20R, BGP1506-02-1-03	2000W
BGP1506-25	2500W

BGP1401-28, BGP1506-28, BGP1606-28, BGP1815-28, BGP2305-28, BGP2305-28-01, BGP1506-28-03, BGP1506-28-06, BGP1506-28-07, BGP1506-28-08, BGP1506-28-09, BGP1506-28-10, BGP1606-28-01, BGP1815-28-01, BGP1606-28-02, BGP3102-28, BGP3103-28R, BGP1506-28-06-02	2800W
BGP1401-03, BGP1401-03B, BGP1506-03, BGP1506-03-1, BGP1506-03-2, BGP1506-03-16, BGP1506-03-17, BGP1606-03, BGP1815-03, BGP2305-30, BGP2305-30-01, BGP1506-03-03, BGP1506-03-06, BGP1506-03-07, BGP1506-03-08, BGP1506-03-09, BGP1506-03-10, BGP1506-03-1-01, BGP1506-03-2-01, BGP1606-03-01, BGP1815-03-01, BGP3103-30R, BGP1506-03-1-02, BGP1506-03-2-02, BGP1606-03-02, BGP3102-30, BGP1506-03-06-02	3000W

So models BGP3103-30R, BGP3103-20R, BGP3102-30 and BGP3102-20 were chosen to perform all the tests.

For models BGP3102-30, BGP3102-20:

Tests are performed under mid & max output power, mid & max temperature, the worst test results are recorded below.

For models BGP3103-30R, BGP3103-20R:

Tests are performed under mid & max output power, mid & max temperature, timer on, the worst test results are recorded below.

1.4.2 EUT Port/Cable Identification

Port	Max Cable Length specified	Usage	Type	Screened
For models BGP3102-30, BGP3102-20: AC Powered Power on, mid & max temperature, mid & max power; For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid & max temperature, mid & max power, timer on				
AC mains port	1.5m	Power cord	3 core	No

1.4.3 Test Configuration

Configuration	Description
AC Powered	220-240V~, 50Hz

1.4.4 Modes of Operation

Mode	Description
For models BGP3102-30, BGP3102-20: AC Powered Power on, mid & max output power, mid & max temperature	The EUT was Power on, mid & max output power, mid & max temperature.
For models BGP3103-30R, BGP3103-20R: Power on, mid & max temperature, mid & max power, timer on	The EUT was Power on, mid & max output power, mid & max temperature, timer on.
switch on/off	The EUT was switch on/off.

1.4.5 Monitoring of Performance

The EUT works normally.

1.4.6 Performance Criteria

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

The following tests were performed at TÜV SÜD Certification and Testing (China) Co., Ltd. Ningbo branch

Address:

Building 2, Essence Adream of Space II, No.350,
Jinghua Road, National Hi-Tech Industrial Development Zone, Ningbo, Zhejiang, China

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

2 Test Details

2.1 Conducted Disturbance

2.1.1 Specification Reference

EN IEC 55014-1:2021, Clause 4.3.3.6

2.1.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.1.3 Date of Test

04/24/2025

2.1.4 Test Method

Table-top EUT shall be placed:

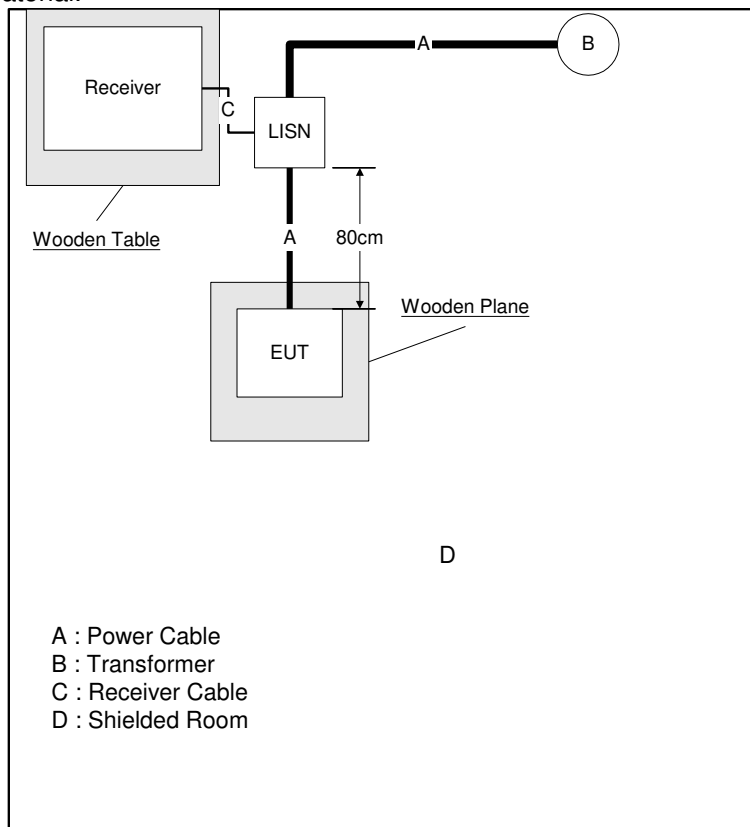
- at a distance of $(0,4 \pm 0,05)$ m from a RGP of at least $2 \text{ m} \times 2 \text{ m}$ in size;
- at a distance of 0,8 m from the AMN, and
- shall be kept at least 0,8 m from any other earthed conducting surface.

The RGP shall be either horizontal or vertical.

Floor standing EUT shall be:

- placed at a height of $(0,12 \pm 0,04)$ m above a horizontal RGP of at least $2 \text{ m} \times 2 \text{ m}$ in size,
- placed at a distance of 0,8 m from the AMN,
- kept at least 0,8 m from any other earthed conducting surface, and
- placed in a manner to ensure that the RGP extends at least 0,5 m beyond the EUT boundaries

Parts supporting the EUT and its parts at the required height shall be made of non-conductive material.



2.1.5 Environmental Conditions

Ambient Temperature 15-25 °C
 Relative Humidity 40-60 %
 Atmospheric Pressure 1010-1040 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 dB μ V	Average dB μ V	Quasi-peak dB μ V	Average dB μ V	Quasi-peak dB μ A	Average dB μ A
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:

For models BGP3102-30, BGP3102-20: AC Powered Power on, max temperature, max power;

For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid & max temperature, mid & max power, timer on

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

Detailed results are shown below.

150k-30MHz Conducted Emission Test

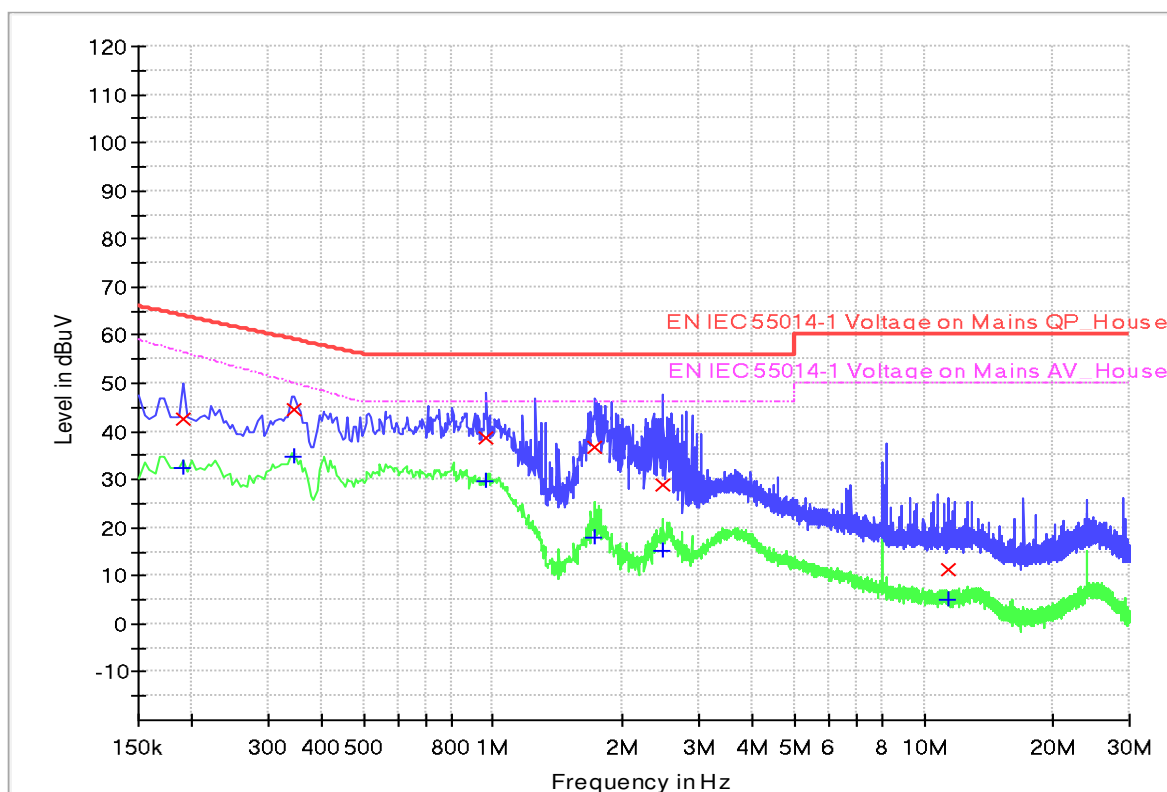
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-30R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase L
 Sample No.: NIB-895670-1

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.190500	42.4	32.2	1000.0	9.000	L1	9.6	21.635	64.015	24.179	56.419
0.343500	44.5	34.8	1000.0	9.000	L1	9.6	14.658	59.118	15.294	50.054
0.964500	38.6	29.8	1000.0	9.000	L1	9.6	17.390	56.000	16.170	46.000
1.725000	36.8	17.9	1000.0	9.000	L1	9.6	19.240	56.000	28.060	46.000
2.481000	28.9	15.2	1000.0	9.000	L1	9.6	27.150	56.000	30.800	46.000
11.404500	11.4	4.9	1000.0	9.000	L1	9.6	48.570	60.000	45.080	50.000

150k-30MHz Conducted Emission Test

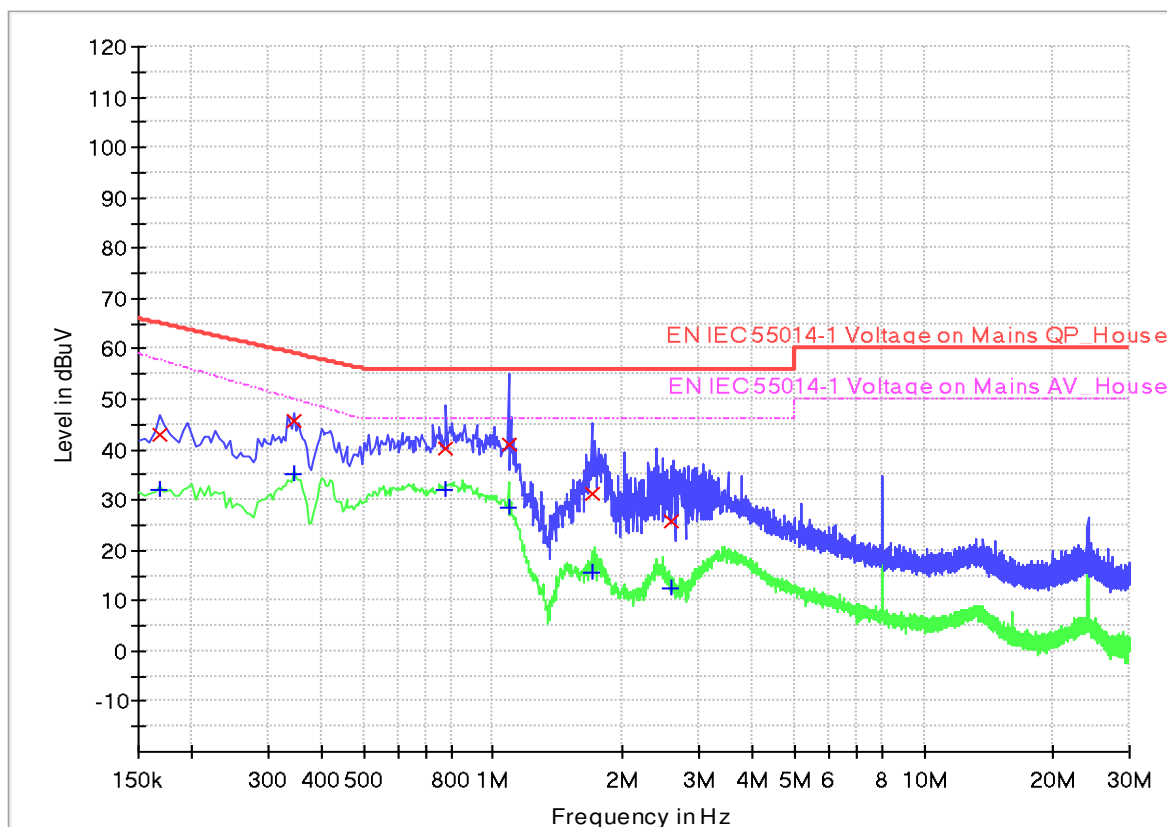
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-30R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase N
 Sample No.: NIB-895670-1

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.168000	43.0	31.8	1000.0	9.000	N	9.6	22.039	65.059	25.946	57.776
0.343500	45.6	35.2	1000.0	9.000	N	9.6	13.518	59.118	14.884	50.054
0.775500	40.2	32.0	1000.0	9.000	N	9.6	15.810	56.000	13.960	46.000
1.086000	41.0	28.6	1000.0	9.000	N	9.6	14.980	56.000	17.380	46.000
1.693500	31.2	15.5	1000.0	9.000	N	9.6	24.850	56.000	30.470	46.000
2.589000	25.8	12.4	1000.0	9.000	N	9.6	30.160	56.000	33.580	46.000

150k-30MHz Conducted Emission Test

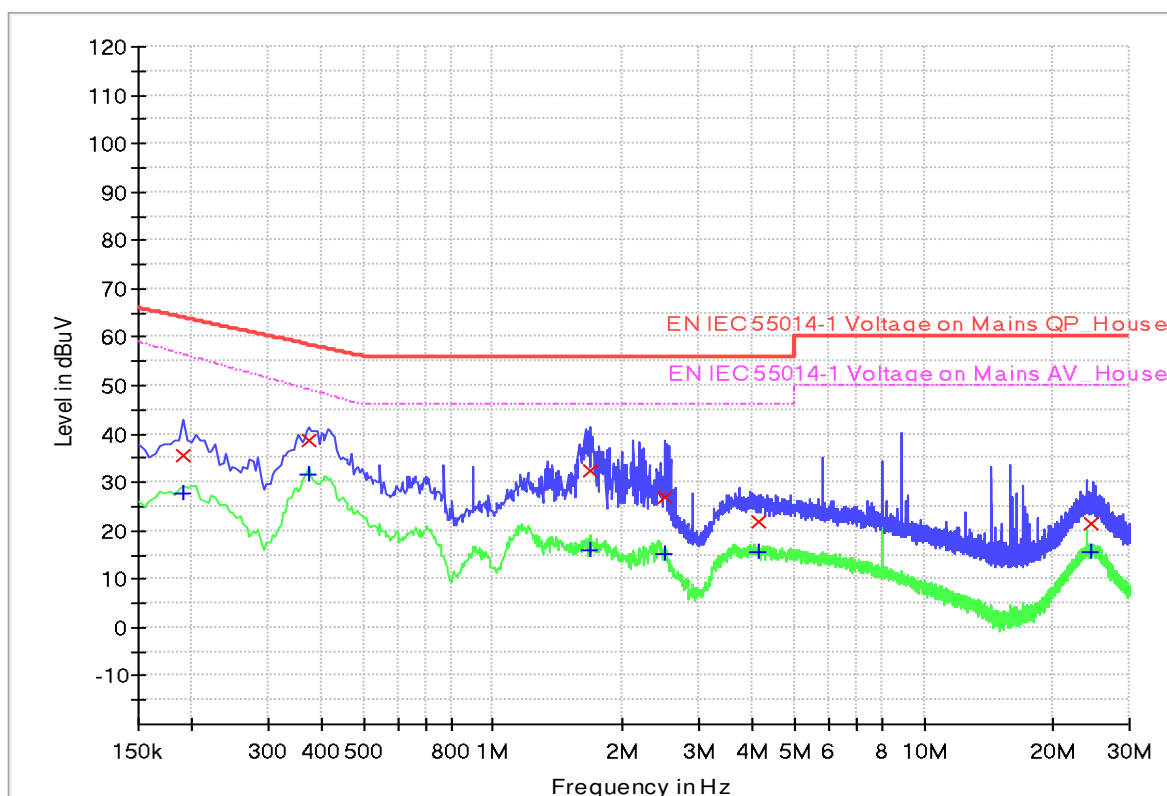
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-20R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase L
 Sample No.: NIB-895670-2

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.190500	35.4	27.6	1000.0	9.000	L1	9.6	28.625	64.015	28.779	56.419
0.375000	38.8	31.8	1000.0	9.000	L1	9.6	19.559	58.389	17.336	49.106
1.684500	32.5	16.0	1000.0	9.000	L1	9.6	23.470	56.000	30.000	46.000
2.512500	27.1	15.2	1000.0	9.000	L1	9.6	28.940	56.000	30.830	46.000
4.137000	21.8	15.6	1000.0	9.000	L1	9.6	34.220	56.000	30.410	46.000
24.445500	21.5	15.7	1000.0	9.000	L1	9.6	38.470	60.000	34.340	50.000

150k-30MHz Conducted Emission Test

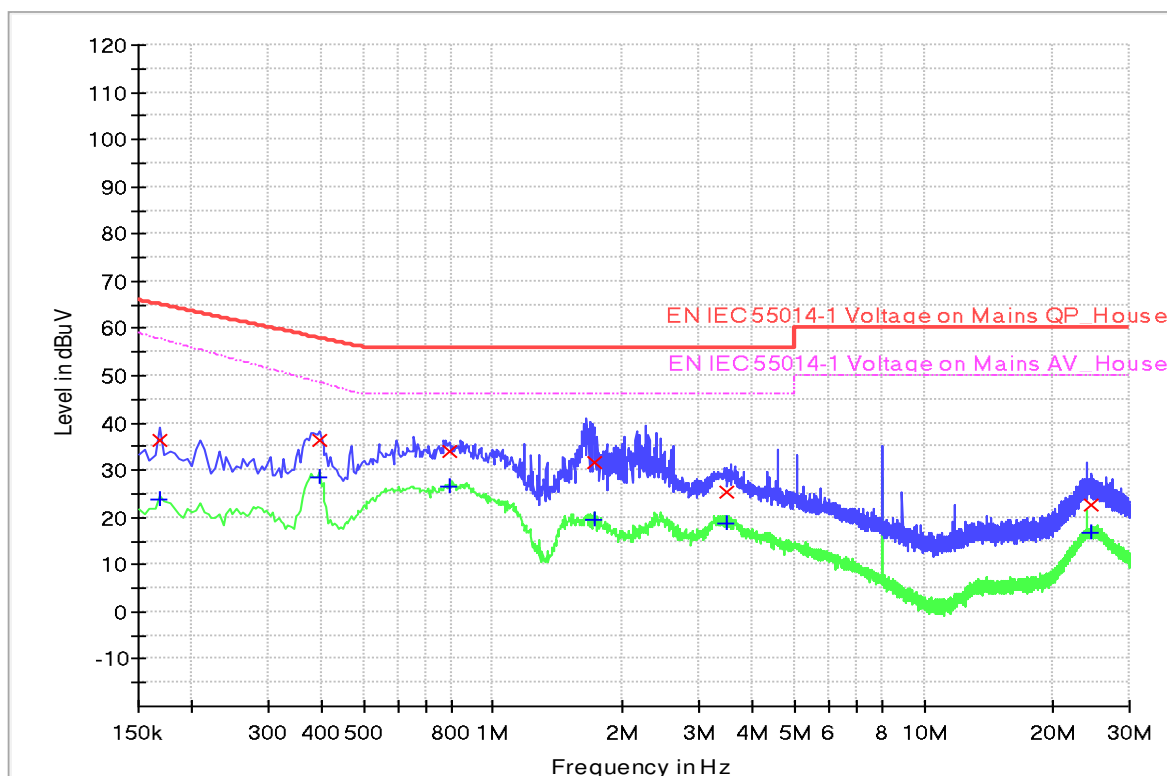
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-20R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase N
 Sample No.: NIB-895670-2

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.168000	36.2	23.9	1000.0	9.000	N	9.6	28.889	65.059	33.866	57.776
0.393000	36.4	28.3	1000.0	9.000	N	9.6	21.600	58.000	20.300	48.600
0.789000	33.8	26.5	1000.0	9.000	N	9.6	22.170	56.000	19.530	46.000
1.716000	31.5	19.5	1000.0	9.000	N	9.6	24.550	56.000	26.540	46.000
3.489000	25.4	18.8	1000.0	9.000	N	9.6	30.650	56.000	27.170	46.000
24.544500	22.5	16.6	1000.0	9.000	N	9.8	37.520	60.000	33.380	50.000

150k-30MHz Conducted Emission Test

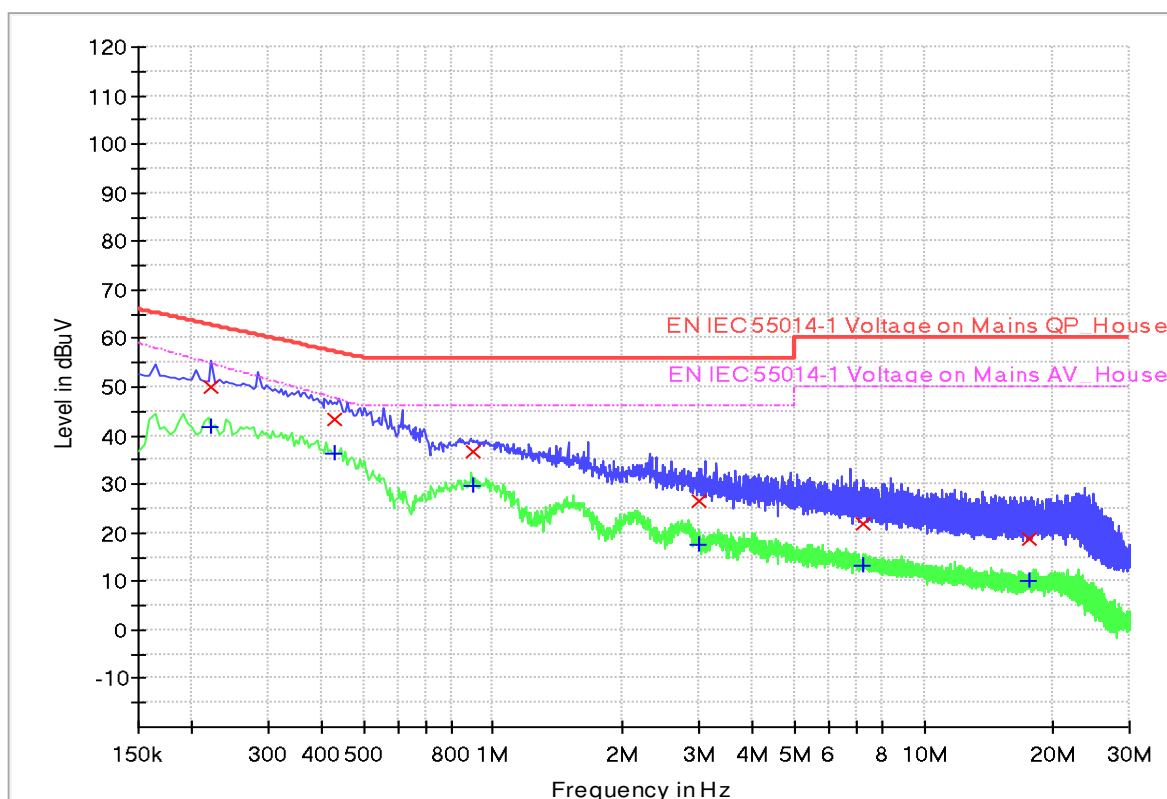
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-30
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase L
 Sample No.: NIB-895670-3

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.222000	50.1	41.7	1000.0	9.000	L1	9.6	12.684	62.744	13.077	54.767
0.429000	43.3	36.3	1000.0	9.000	L1	9.6	14.002	57.272	11.334	47.654
0.897000	36.9	29.9	1000.0	9.000	L1	9.6	19.110	56.000	16.150	46.000
3.016500	26.7	17.5	1000.0	9.000	L1	9.6	29.350	56.000	28.500	46.000
7.206000	22.0	13.4	1000.0	9.000	L1	9.6	38.020	60.000	36.590	50.000
17.547000	18.7	10.0	1000.0	9.000	L1	9.7	41.300	60.000	39.960	50.000

150k-30MHz Conducted Emission Test

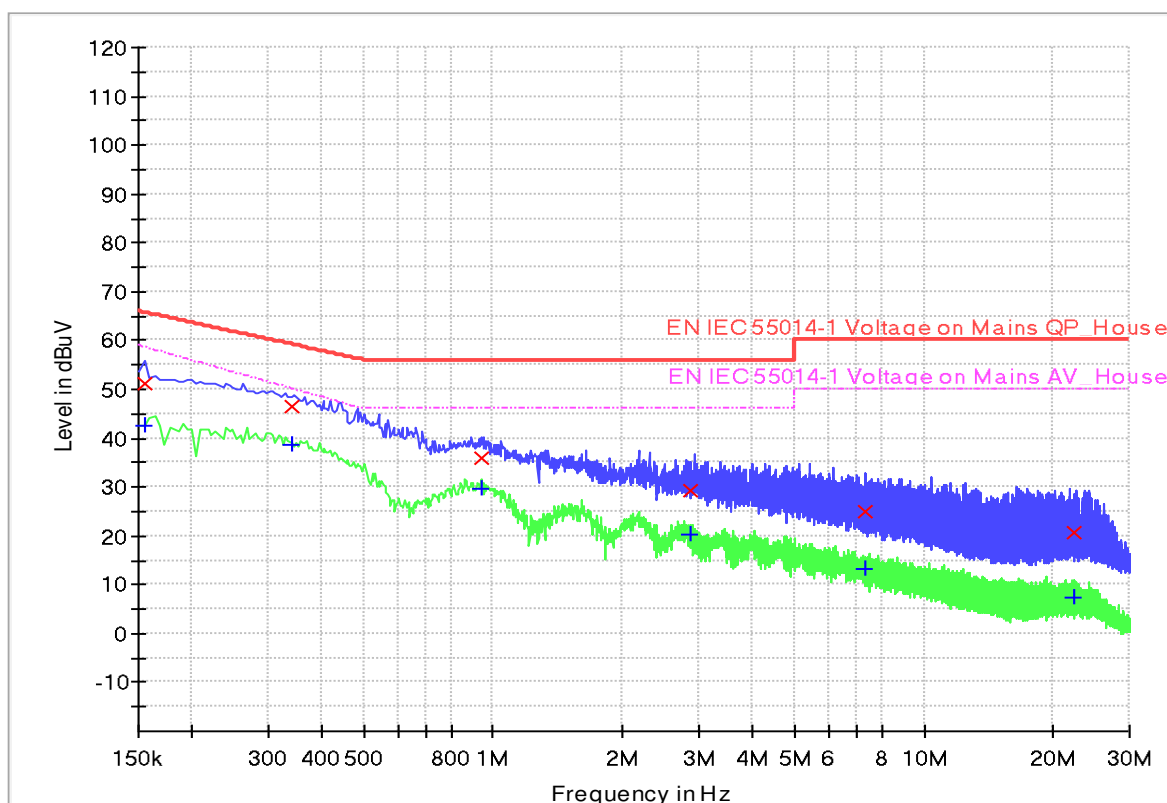
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-30
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase N
 Sample No.: NIB-895670-3

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.154500	51.2	42.6	1000.0	9.000	N	9.6	14.564	65.754	16.041	58.681
0.339000	46.3	38.7	1000.0	9.000	N	9.6	12.938	59.228	11.516	50.196
0.937500	36.0	29.6	1000.0	9.000	N	9.6	19.990	56.000	16.380	46.000
2.863500	29.3	20.2	1000.0	9.000	N	9.6	26.710	56.000	25.830	46.000
7.273500	25.1	13.2	1000.0	9.000	N	9.6	34.860	60.000	36.760	50.000
22.353000	20.7	7.4	1000.0	9.000	N	9.8	39.270	60.000	42.570	50.000

150k-30MHz Conducted Emission Test

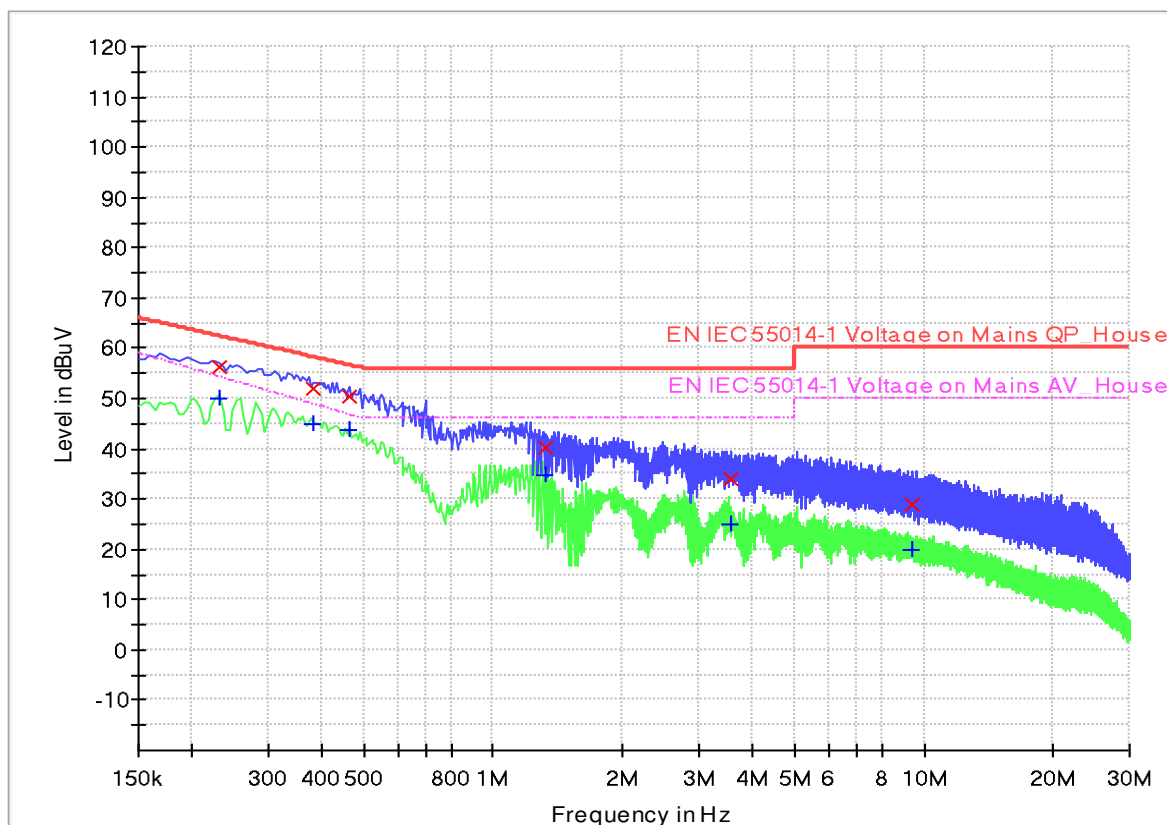
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-20
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase L
 Sample No.: NIB-895670-4

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.231000	56.3	50.0	1000.0	9.000	L1	9.6	6.164	62.414	4.358	54.338
0.384000	51.8	45.0	1000.0	9.000	L1	9.6	6.422	58.192	3.850	48.850
0.465000	50.4	43.9	1000.0	9.000	L1	9.6	6.173	56.603	2.904	46.784
1.329000	40.1	34.7	1000.0	9.000	L1	9.6	15.950	56.000	11.350	46.000
3.574500	34.1	25.0	1000.0	9.000	L1	9.6	21.860	56.000	21.040	46.000
9.433500	28.7	19.8	1000.0	9.000	L1	9.6	31.310	60.000	30.170	50.000

150k-30MHz Conducted Emission Test

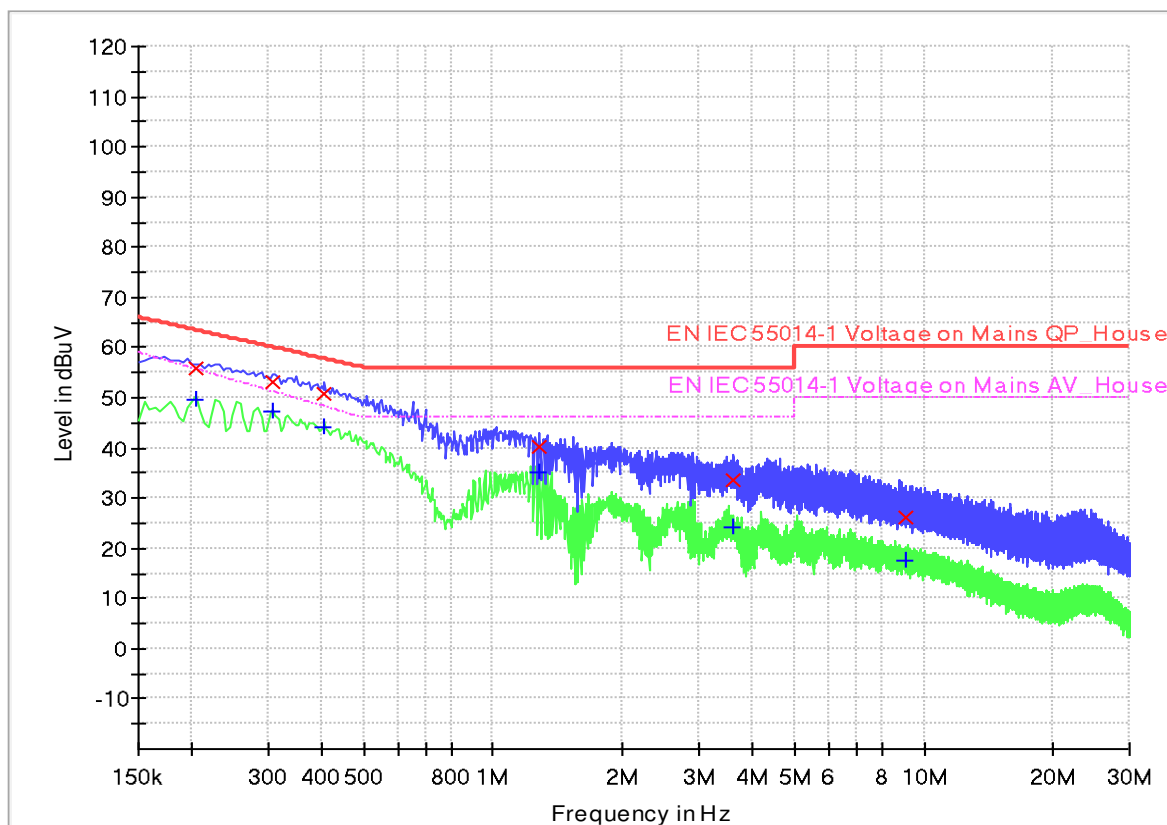
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-20
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: Phase N
 Sample No.: NIB-895670-4

Scan Setup: ENV216_150kHz-30MHz_Preview [EMI conducted]

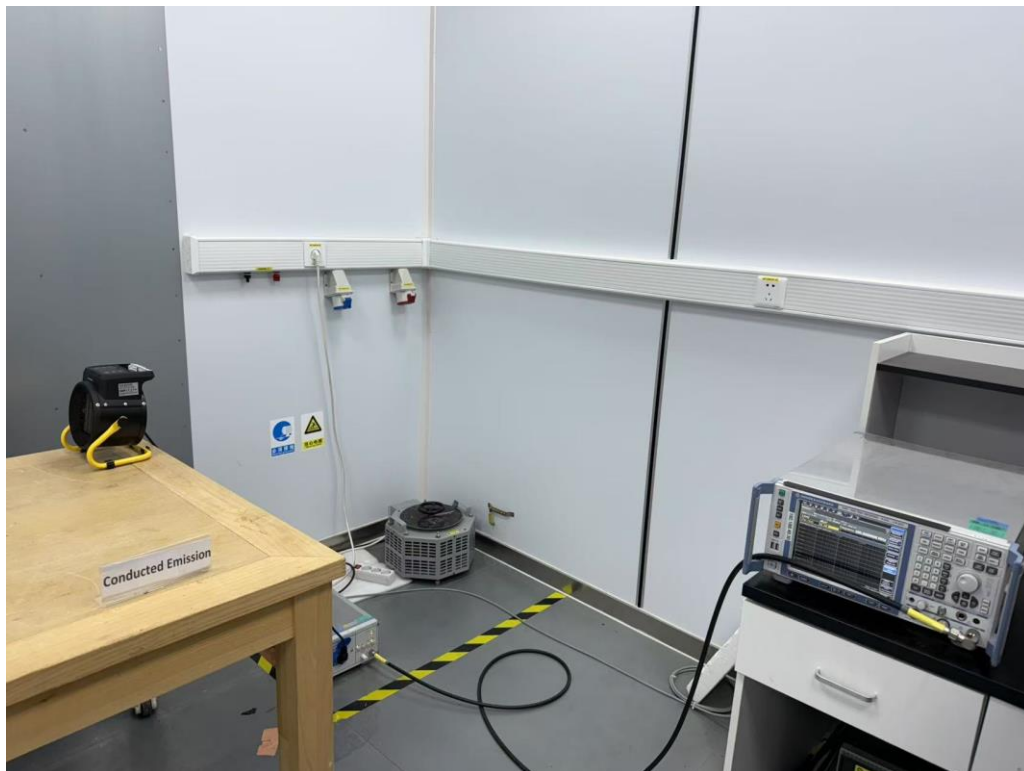
Hardware Setup: ENV216(Filter ON)
 Receiver: [ESR 3]
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	PK+ ; AVG	9 kHz	0.01 s	0 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV)	Margin - CAV (dB)	Limit - CAV (dBuV)
0.204000	55.9	49.4	1000.0	9.000	N	9.6	7.516	63.446	6.260	55.680
0.307500	53.3	47.2	1000.0	9.000	N	9.6	6.738	60.038	4.059	51.249
0.402000	50.7	44.1	1000.0	9.000	N	9.6	7.072	57.812	4.246	48.356
1.279500	40.3	35.2	1000.0	9.000	N	9.6	15.670	56.000	10.790	46.000
3.619500	33.4	24.4	1000.0	9.000	N	9.6	22.580	56.000	21.650	46.000
9.037500	26.3	17.6	1000.0	9.000	N	9.6	33.740	60.000	32.400	50.000



Test Setup

2.1.8 Test Location

This test was carried out in shielded room 120.

2.2 Discontinuous Disturbance

2.2.1 Specification Reference

EN IEC 55014-1:2021, Clause 4.3.3.6

2.2.2 Equipment Under Test

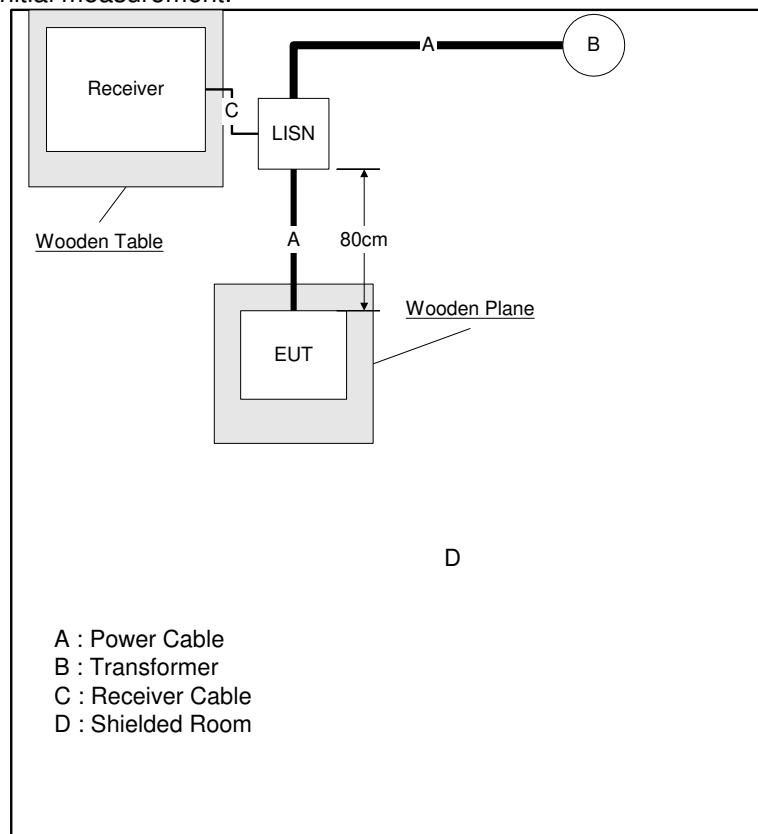
BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.2.3 Date of Test

04/24/2025

2.2.4 Test Method

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. An initial measurement was made in an observation period of 120 minutes, or the time to register 40 clicks. The clicks obtained was compared against the corresponding click limit L_q for the required 4 individual frequencies. The test was repeated in similar period as the initial measurement. The number of clicks during the second measurement should not exceed a quarter of that measured during the initial measurement.



2.2.5 Environmental Conditions

Ambient Temperature	15-25 °C
Relative Humidity	40-60 %
Atmospheric Pressure	1010-1040 mbar

2.2.6 Specification Limits

Frequency Range (MHz)	Click Limit Values (dBμV)	
	N < 0.2	0.2 ≤ N < 30
0.15	110dBμV	66dBμV + 20 log (30/N)
0.5	100dBμV	56dBμV + 20 log (30/N)
1.4	100dBμV	56dBμV + 20 log (30/N)
30	104dBμV	60dBμV + 20 log (30/N)
Note: N refers to click rate		

2.2.7 Test Results

Results for Configuration and Mode:

For models BGP3102-30, BGP3102-20: AC Powered Power on, mid temperature, max power;

For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid temperature, max power, timer on

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

Detailed results are shown below.

150k-30MHz Conducted Emission Test

EUT Information

EUT Name: Fan Heater
 Model: BGP3103-30R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, mid temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Sample No.: NIB-895670-1

Test Duration	2:00:00	LISN Phase: N	Attenuation [dB]	35
Overload:	No			
Frequency	150 kHz	500 kHz	1.4 MHz	30 MHz
Clicks (≤10 ms)	24	23	0	0
Clicks (>10 ms ≤ 20 ms)	0	0	0	0
Clicks (> 20 ms ≤ 200 ms)	0	0	0	0
Click Rate [1/min]	0.20	0.19	0.19	0.19
Continuous Disturbances	0	0	0	0
L [dBuV]	66	56	56	60
Lq [dBuV]	110	100	100	104
Clicks > Lq	0	0	0	0
Clicks > Lq [%]	0	0	0	0
Max. Allowed Nr. of Clicks > Lq	-	-	-	-
Fridge Rules	0	0	0	0
600 ms Rule used	NO	NO	NO	NO
Overall Correction	0	0	0	0
Margin for PK Detector	0	0	0	0
Result	PASSED	PASSED	PASSED	PASSED

150k-30MHz Conducted Emission Test

EUT Information

EUT Name: Fan Heater
 Model: BGP3103-20R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, mid temperature, max power, timer on, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Sample No.: NIB-895670-2

Test Duration	2:00:00	LISN Phase	N	Attenuation [dB]	35
Overload:	No				
Frequency	150 kHz	500 kHz	1.4 MHz	30 MHz	
Clicks (≤10 ms)	8	8	0	0	
Clicks (>10 ms ≤ 20 ms)	0	0	0	0	
Clicks (> 20 ms ≤ 200 ms)	0	0	0	0	
Click Rate [1/min]	0.07	0.07	0.07	0.07	
Continuous Disturbances	0	0	0	0	
L [dBuV]	66	56	56	60	
Lq [dBuV]	110	100	100	104	
Clicks > Lq	0	0	0	0	
Clicks > Lq [%]	0	0	0	0	
Max. Allowed Nr. of Clicks > Lq	-	-	-	-	
Fridge Rules	0	0	0	0	
600 ms Rule used	NO	NO	NO	NO	
Overall Correction	0	0	0	0	
Margin for PK Detector	0	0	0	0	
Result	PASSED	PASSED	PASSED	PASSED	

150k-30MHz Conducted Emission Test

EUT Information

EUT Name: Fan Heater
 Model: BGP3102-30
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, mid temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Sample No.: NIB-895670-3

Test Duration:	2:00:00	LISN Phase L1		Attenuation [dB]: 35
Overload:	No			
Frequency	150 kHz	500 kHz	1.4 MHz	30 MHz
Clicks (≤10 ms)	10	14	0	0
Clicks (>10 ms ≤ 20 ms)	0	0	0	0
Clicks (> 20 ms ≤ 200 ms)	0	0	0	0
Click Rate [1/min]	0.08	0.12	0.12	0.12
Continuous Disturbances	0	0	0	0
L [dBuV]	66	56	56	60
Lq [dBuV]	110	100	100	104
Clicks > Lq	0	0	0	0
Clicks > Lq [%]	0	0	0	0
Max. Allowed Nr. of Clicks > Lq	-	-	-	-
Fridge Rules	0	0	0	0
600 ms Rule used	NO	NO	NO	NO
Overall Correction	0	0	0	0
Margin for PK Detector	0	0	0	0
Result	PASSED	PASSED	PASSED	PASSED

150k-30MHz Conducted Emission Test

EUT Information

EUT Name: Fan Heater
 Model: BGP3102-20
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, mid temperature, max power, AC 230V/50Hz, T22.4, H45.1%, P102.0kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Sample No.: NIB-895670-4

Test Duration:	2:00:00	LISN Phase	N	Attenuation [dB]:	35
Overload:	No				
Frequency	150 kHz	500 kHz	1.4 MHz	30 MHz	
Clicks (≤10 ms)	12	15	0	0	
Clicks (>10 ms ≤ 20 ms)	0	0	0	0	
Clicks (> 20 ms ≤ 200 ms)	0	0	0	0	
Click Rate [1/min]	0.10	0.13	0.13	0.13	
Continuous Disturbances	0	0	0	0	
L [dBuV]	66	56	56	60	
Lq [dBuV]	110	100	100	104	
Clicks > Lq	0	0	0	0	
Clicks > Lq [%]	0	0	0	0	
Max. Allowed Nr. of Clicks > Lq	-	-	-	-	
Fridge Rules	0	0	0	0	
600 ms Rule used	NO	NO	NO	NO	
Overall Correction	0	0	0	0	
Margin for PK Detector	0	0	0	0	
Result	PASSED	PASSED	PASSED	PASSED	



Test Setup

2.2.8 Test Location

This test was carried out in shielded room 120.

2.3 Disturbance power

2.3.1 Specification Reference

EN IEC 55014-1:2021, Clause 4.3.4.4

2.3.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.3.3 Date of Test

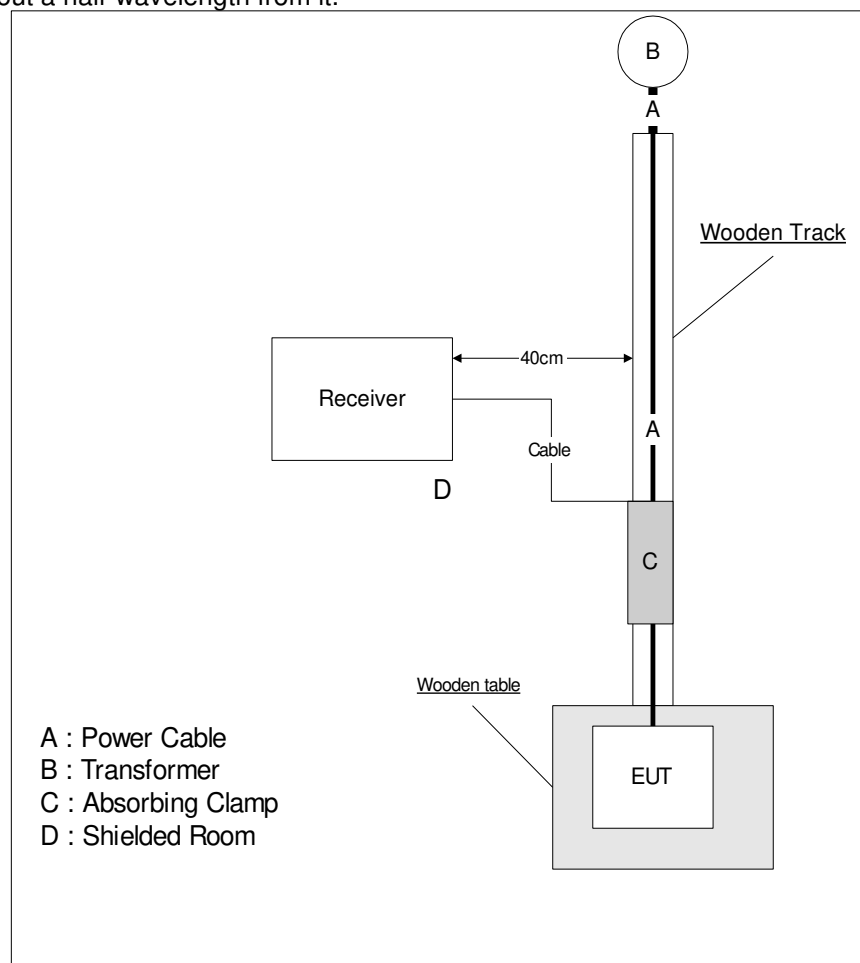
04/24/2025

2.3.4 Test Method

The distance between the clamp test set-up (the EUT, the mains lead and the absorbing clamp) and any other conductive objects (including persons, walls and ceiling, but excluding the floor) shall be at least 0,8 m. The EUT shall be placed on a non-metallic support parallel to the floor.

The height of the support (e.g. pallet) shall be $(0,12 \pm 0,04)$ m for floor standing EUT and $(0,8 \pm 0,05)$ m for table-top EUT.

The absorbing clamp shall be clamped around the lead under test and, at each test frequency, moved along the lead in order to find the position that gives the maximum indication. The maximum value is found between a position adjacent to the EUT and a distance of about a half-wavelength from it.



2.3.5 Environmental Conditions

Ambient Temperature	15-25 °C
Relative Humidity	40-60 %
Atmospheric Pressure	1010-1040 mbar

2.3.6 Specification Limits

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

2.3.7 Test Results

Results for Configuration and Mode:

For models BGP3102-30, BGP3102-20: AC Powered Power on, max temperature, max power;
For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid & max temperature, mid & max power, timer on

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

Detailed results are shown below

Line Under Test: Power line

30M-300MHz Disturbance Power Test

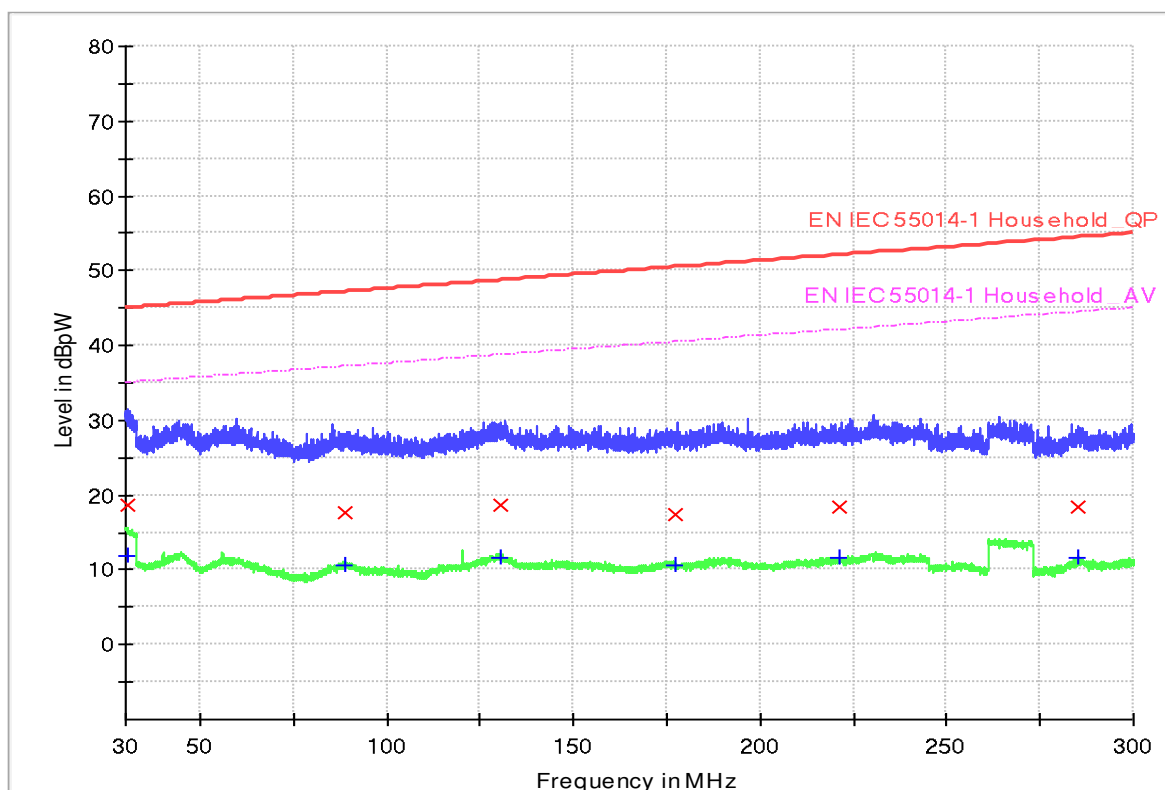
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-30R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T21.6, H44.3%, P102.2kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: AC line
 Sample No.: NIB-895670-1

Scan Setup: MDS21_30MHz-300MHz_Preview [EMI conducted]

Hardware Setup: MDS21
 Receiver: [ESR 3]
 Level Unit: dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.01 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)
30.600000	18.8	11.9	1000.0	120.000	6.0	26.2	45.0	23.1	35.0
88.560000	17.6	10.7	1000.0	120.000	5.1	29.5	47.2	26.4	37.2
130.640000	18.6	11.7	1000.0	120.000	5.8	30.1	48.7	27.1	38.7
177.200000	17.5	10.7	1000.0	120.000	4.4	32.9	50.5	29.7	40.5
221.200000	18.5	11.5	1000.0	120.000	4.9	33.6	52.1	30.6	42.1
285.160000	18.4	11.5	1000.0	120.000	5.9	36.0	54.5	32.9	44.5

30M-300MHz Disturbance Power Test

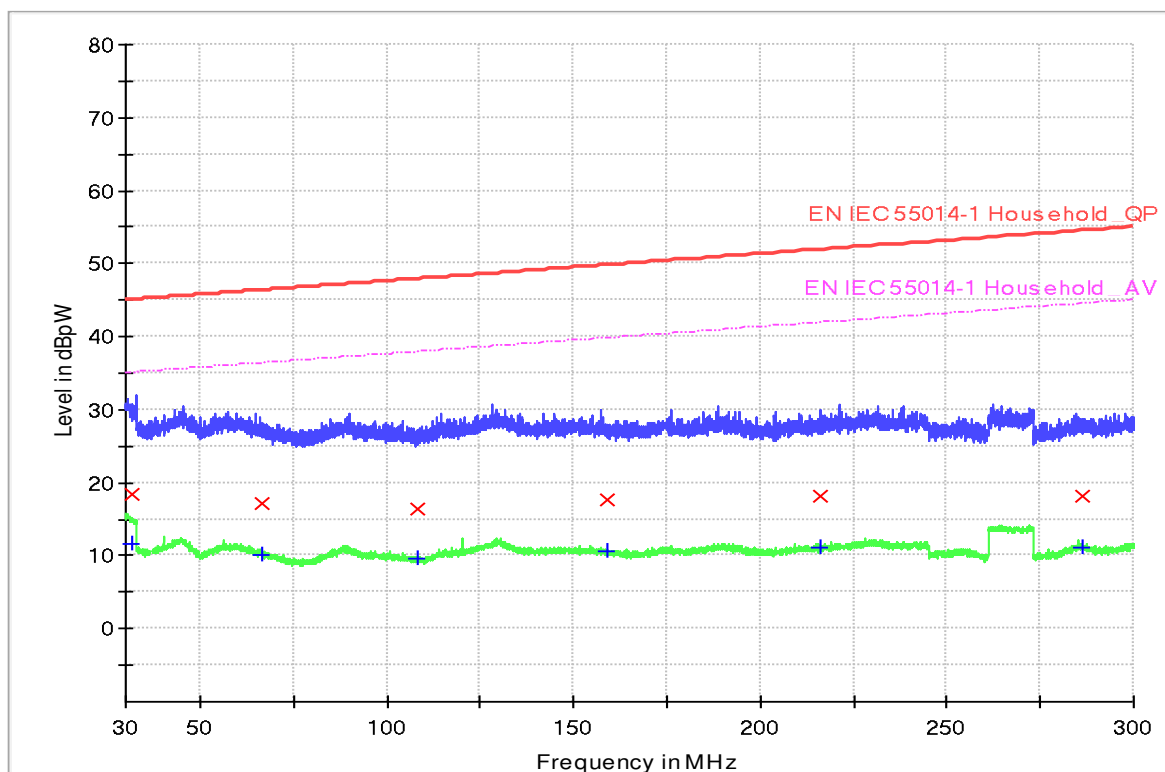
EUT Information

EUT Name: Fan Heater
 Model: BGP3103-20R
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, timer on, AC 230V/50Hz, T21.6, H44.3%, P102.2kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: AC line
 Sample No.: NIB-895670-2

Scan Setup: MDS21_30MHz-300MHz_Preview [EMI conducted]

Hardware Setup: MDS21
 Receiver: [ESR 3]
 Level Unit: dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.01 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)
31.640000	18.4	11.6	1000.0	120.000	5.7	26.6	45.1	23.5	35.1
66.800000	17.2	10.2	1000.0	120.000	5.1	29.2	46.4	26.2	36.4
108.160000	16.5	9.5	1000.0	120.000	3.8	31.4	47.9	28.4	37.9
158.760000	17.6	10.6	1000.0	120.000	4.5	32.2	49.8	29.2	39.8
216.160000	18.1	11.2	1000.0	120.000	4.6	33.8	51.9	30.7	41.9
286.280000	18.1	11.2	1000.0	120.000	5.7	36.4	54.5	33.3	44.5

30M-300MHz Disturbance Power Test

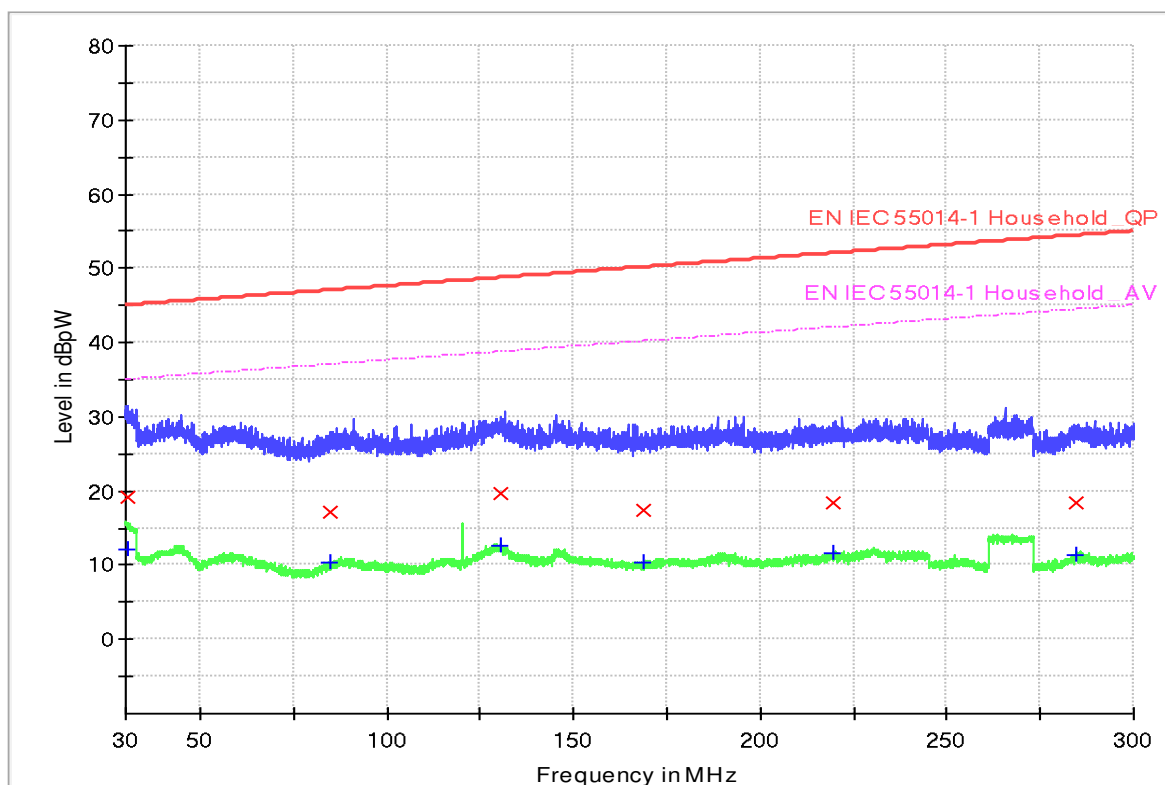
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-30
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T21.6, H44.3%, P102.2kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: AC line
 Sample No.: NIB-895670-3

Scan Setup: MDS21_30MHz-300MHz_Preview [EMI conducted]

Hardware Setup: MDS21
 Receiver: [ESR 3]
 Level Unit: dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamplifier
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.01 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)
30.600000	19.2	12.2	1000.0	120.000	6.0	25.9	45.0	22.8	35.0
84.680000	17.3	10.4	1000.0	120.000	4.9	29.8	47.0	26.7	37.0
130.440000	19.6	12.5	1000.0	120.000	5.9	29.1	48.7	26.2	38.7
168.680000	17.4	10.4	1000.0	120.000	4.2	32.8	50.1	29.8	40.1
219.720000	18.5	11.5	1000.0	120.000	4.9	33.5	52.0	30.5	42.0
284.760000	18.4	11.5	1000.0	120.000	5.9	36.1	54.4	33.0	44.4

30M-300MHz Disturbance Power Test

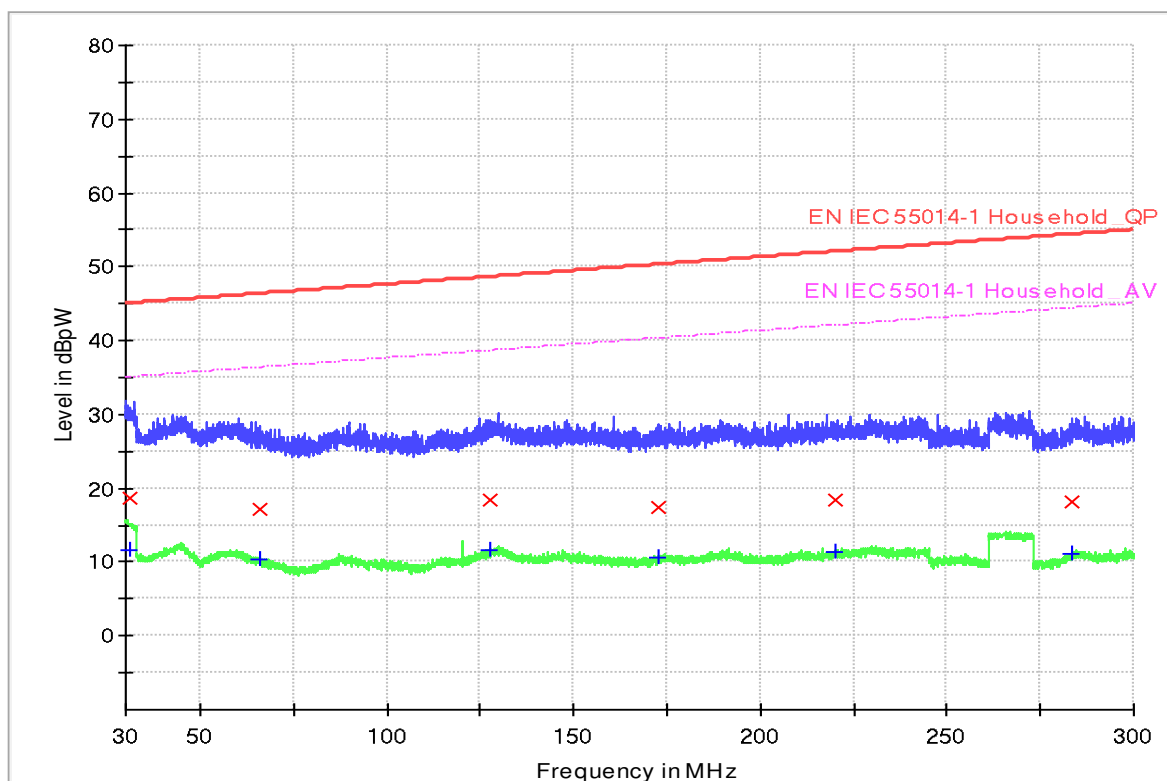
EUT Information

EUT Name: Fan Heater
 Model: BGP3102-20
 Client: Ningbo Baogong Electrical Appliance Co.,Ltd
 Op Cond: Power on, max temperature, max power, AC 230V/50Hz, T21.6, H44.3%, P102.2kPa
 Operator: Yi YANG
 Standard: EN IEC 55014-1
 Comment: AC line
 Sample No.: NIB-895670-4

Scan Setup: MDS21_30MHz-300MHz_Preview [EMI conducted]

Hardware Setup: MDS21
 Receiver: [ESR 3]
 Level Unit: dBpW

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 300 MHz	40 kHz	PK+ ; AVG	120 kHz	0.01 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)
31.400000	18.5	11.6	1000.0	120.000	5.8	26.5	45.1	23.4	35.1
65.960000	17.2	10.3	1000.0	120.000	5.2	29.1	46.3	26.0	36.3
127.760000	18.4	11.5	1000.0	120.000	5.7	30.2	48.6	27.1	38.6
172.480000	17.5	10.6	1000.0	120.000	4.4	32.8	50.3	29.7	40.3
220.120000	18.4	11.3	1000.0	120.000	4.9	33.7	52.0	30.7	42.0
283.680000	18.2	11.2	1000.0	120.000	5.6	36.2	54.4	33.2	44.4



Test Setup

2.3.8 Test Location

This test was carried out in shielded room 119.

2.4 Harmonic current emission

2.4.1 Specification Reference

EN IEC 61000-3-2:2019/A2:2024, Clause 7

2.4.2 Equipment Under Test

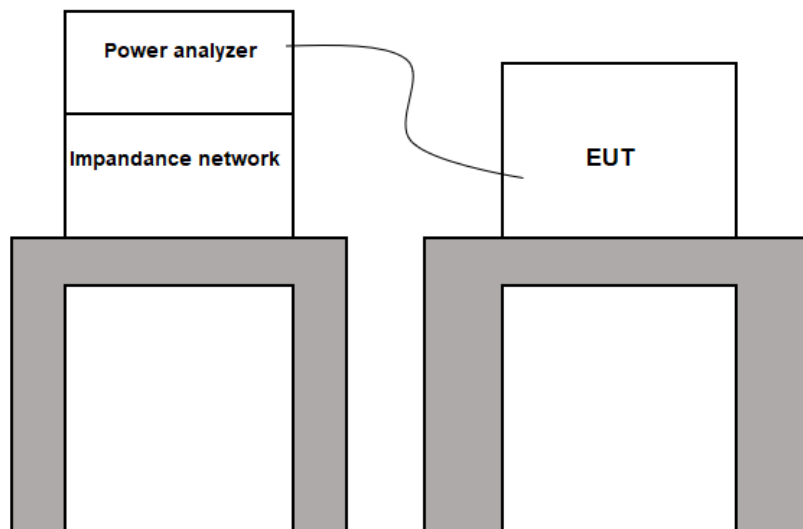
BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.4.3 Date of Test

03/12/2025

2.4.4 Test Method

Harmonic components shall be measured in accordance with the requirements given in Annex A of EN IEC 61000-3-2 for the test circuit and the supply source.



2.4.5 Environmental Conditions

Ambient Temperature	20-25 °C
Relative Humidity	40-60 %
Atmospheric Pressure	1010-1040 mbar

2.4.6 Specification Limits

Limits for class A Equipment	
Harmonic order h	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
$15 \leq h \leq 39$	$0.15(15/h)$
Even harmonics	
2	1.08
4	0.43
6	0.30
$8 \leq h \leq 40$	$0.23(8/h)$

2.4.7 Test Results

Results for Configuration and Mode:

For models BGP3102-30, BGP3102-20: AC Powered Power on, max temperature, max power;
For models BGP3103-30R, BGP3103-20R: AC Powered Power on, mid & max temperature,
mid & max power, timer on

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

Detailed results are shown below.

Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3103-30R Power on, max temperature, max power, timer on

Test Standard : IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Tester : Yi YANG

Test Date : 3/12/2025 11:20:06 AM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 57 %

Standard Group: Industry

Standard Name: IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Device Under Test: **PASS**

Power Source: **PASS**

Connection Type: L - N

Classification: Class A

Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)

Check Harmonics 2..40

First detected harmonic order > 150 %

Line 1: **None**

Harmonics orders > 150 %

Line 1: **None**

Harmonics orders with average > 100 %

Line 1: **None**

Measured values

Fundamental Current

Line 1: 12.683 A

Active input Power

Line 1: 2925.624 W *

Circuit power factor

Line 1: 0.99 *

* Absolute value.

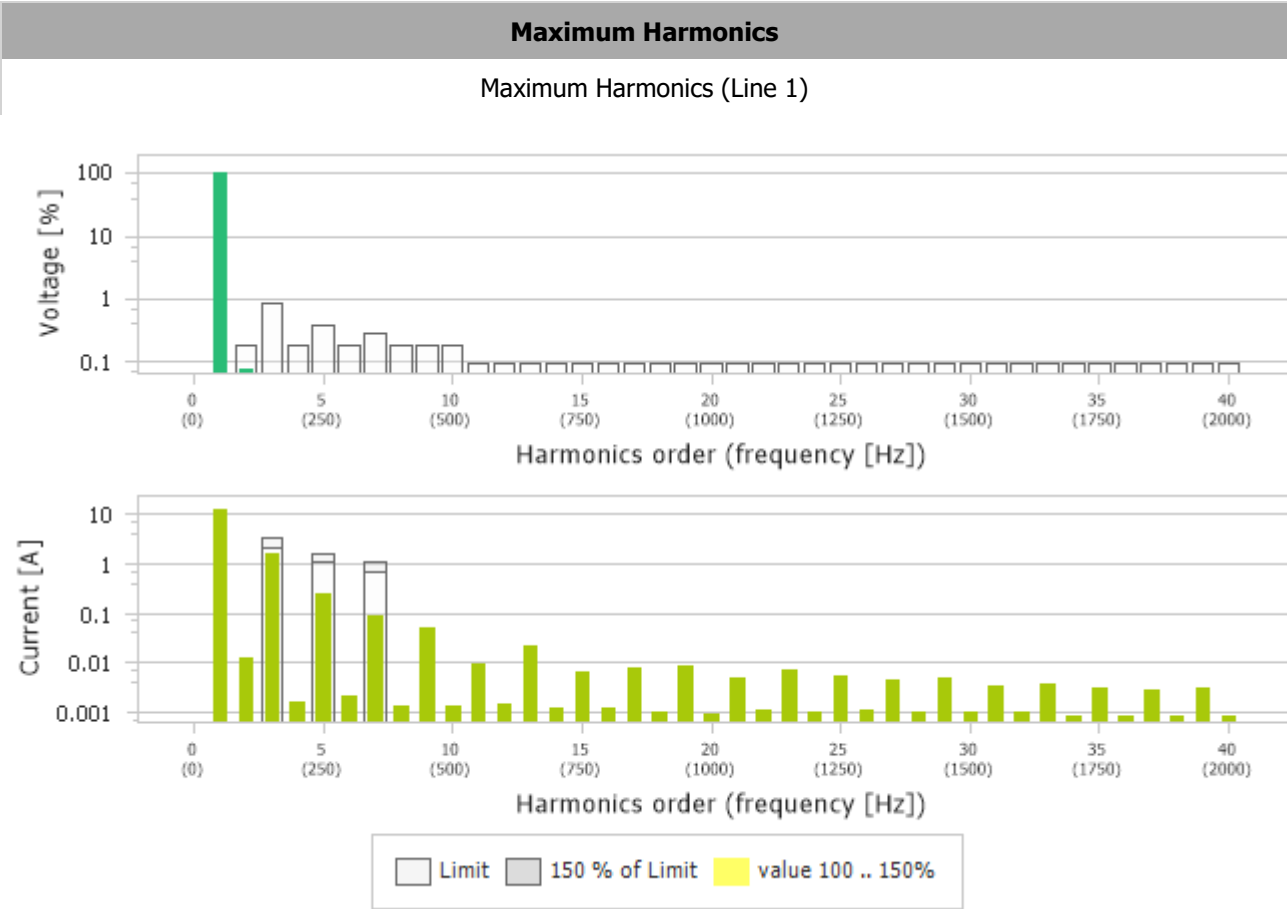
Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	12.569				12.684				
2	0.013	1.168	1.080	n/a	0.013	0.810	1.620	n/a	PASS
3	1.718	74.679	2.300	PASS	1.724	49.962	3.450	PASS	PASS
4	0.002	0.350	0.430	n/a	0.002	0.268	0.645	n/a	PASS
5	0.275	24.109	1.140	PASS	0.277	16.217	1.710	PASS	PASS
6	0.002	0.674	0.300	n/a	0.002	0.544	0.450	n/a	PASS
7	0.097	12.583	0.770	PASS	0.098	8.476	1.155	PASS	PASS
8	0.001	0.556	0.230	n/a	0.001	0.434	0.345	n/a	PASS
9	0.053	13.313	0.400	n/a	0.054	8.995	0.600	n/a	PASS
10	0.001	0.716	0.184	n/a	0.002	0.546	0.276	n/a	PASS
11	0.010	3.124	0.330	n/a	0.011	2.161	0.495	n/a	PASS
12	0.001	0.901	0.153	n/a	0.002	0.716	0.230	n/a	PASS
13	0.024	11.346	0.210	n/a	0.024	7.663	0.315	n/a	PASS
14	0.001	0.862	0.131	n/a	0.001	0.686	0.197	n/a	PASS
15	0.007	4.563	0.150	n/a	0.007	3.187	0.225	n/a	PASS
16	0.001	0.978	0.115	n/a	0.001	0.757	0.173	n/a	PASS
17	0.009	6.517	0.132	n/a	0.009	4.502	0.199	n/a	PASS
18	0.001	0.970	0.102	n/a	0.001	0.748	0.153	n/a	PASS
19	0.009	7.453	0.118	n/a	0.009	5.103	0.178	n/a	PASS
20	0.001	1.019	0.092	n/a	0.001	0.760	0.138	n/a	PASS
21	0.005	4.781	0.107	n/a	0.005	3.292	0.161	n/a	PASS
22	0.001	1.328	0.084	n/a	0.001	0.981	0.125	n/a	PASS
23	0.008	7.692	0.098	n/a	0.008	5.270	0.147	n/a	PASS
24	0.001	1.188	0.077	n/a	0.001	0.926	0.115	n/a	PASS
25	0.006	6.555	0.090	n/a	0.006	4.521	0.135	n/a	PASS
26	0.001	1.454	0.071	n/a	0.001	1.119	0.106	n/a	PASS
27	0.005	5.694	0.083	n/a	0.005	4.006	0.125	n/a	PASS
28	0.001	1.372	0.066	n/a	0.001	1.109	0.099	n/a	PASS
29	0.005	6.909	0.078	n/a	0.006	4.823	0.116	n/a	PASS
30	0.001	1.650	0.061	n/a	0.001	1.252	0.092	n/a	PASS
31	0.003	4.640	0.073	n/a	0.004	3.304	0.109	n/a	PASS
32	0.001	1.646	0.058	n/a	0.001	1.248	0.086	n/a	PASS
33	0.004	5.599	0.068	n/a	0.004	3.912	0.102	n/a	PASS
34	0.001	1.478	0.054	n/a	0.001	1.144	0.081	n/a	PASS
35	0.003	5.128	0.064	n/a	0.003	3.623	0.096	n/a	PASS
36	0.001	1.534	0.051	n/a	0.001	1.161	0.077	n/a	PASS
37	0.003	4.822	0.061	n/a	0.003	3.440	0.091	n/a	PASS
38	0.001	1.625	0.048	n/a	0.001	1.258	0.073	n/a	PASS
39	0.003	5.623	0.058	n/a	0.003	3.976	0.087	n/a	PASS
40	0.001	1.666	0.046	n/a	0.001	1.281	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.754	100.328		
2	0.186	0.081	0.200	PASS
3	0.165	0.072	0.900	PASS
4	0.071	0.031	0.200	PASS
5	0.043	0.019	0.400	PASS
6	0.053	0.023	0.200	PASS
7	0.040	0.018	0.300	PASS
8	0.036	0.015	0.200	PASS
9	0.042	0.018	0.200	PASS
10	0.031	0.014	0.200	PASS
11	0.032	0.014	0.100	PASS
12	0.029	0.013	0.100	PASS
13	0.028	0.012	0.100	PASS
14	0.023	0.010	0.100	PASS
15	0.024	0.011	0.100	PASS
16	0.020	0.009	0.100	PASS
17	0.021	0.009	0.100	PASS
18	0.018	0.008	0.100	PASS
19	0.013	0.006	0.100	PASS
20	0.018	0.008	0.100	PASS
21	0.020	0.009	0.100	PASS
22	0.018	0.008	0.100	PASS
23	0.015	0.006	0.100	PASS
24	0.015	0.006	0.100	PASS
25	0.011	0.005	0.100	PASS
26	0.015	0.007	0.100	PASS
27	0.029	0.012	0.100	PASS
28	0.014	0.006	0.100	PASS
29	0.020	0.009	0.100	PASS
30	0.017	0.008	0.100	PASS
31	0.014	0.006	0.100	PASS
32	0.016	0.007	0.100	PASS
33	0.018	0.008	0.100	PASS
34	0.012	0.005	0.100	PASS
35	0.011	0.005	0.100	PASS
36	0.008	0.003	0.100	PASS
37	0.014	0.006	0.100	PASS
38	0.012	0.005	0.100	PASS
39	0.015	0.007	0.100	PASS
40	0.014	0.006	0.100	PASS



Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3103-20R Power on,max temperature,max power,timer on

Test Standard : IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Tester : Yi YANG

Test Date : 3/12/2025 2:04:32 PM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 56 %

Standard Group: Industry

Standard Name: IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Device Under Test: **PASS**

Power Source: **PASS**

Connection Type: L - N

Classification: Class A

Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)

Check Harmonics 2..40

First detected harmonic order > 150 %

Line 1: **None**

Harmonics orders > 150 %

Line 1: **None**

Harmonics orders with average > 100 %

Line 1: **None**

Measured values

Fundamental Current

Line 1: 8.621 A

Active input Power

Line 1: 1990.182 W *

Circuit power factor

Line 1: 0.991 *

* Absolute value.

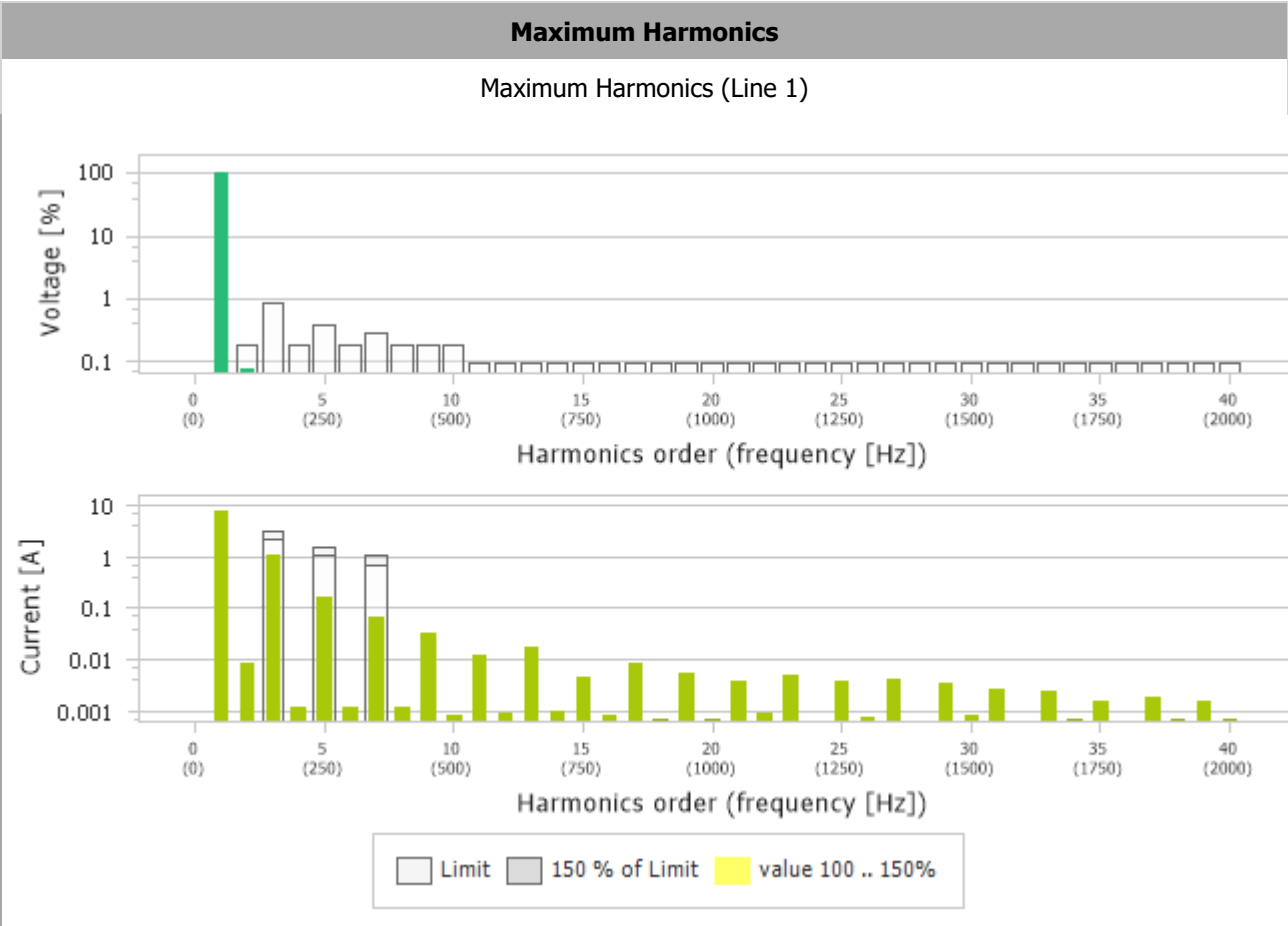
Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	8.403				8.499				
2	0.009	0.808	1.080	n/a	0.009	0.575	1.620	n/a	PASS
3	1.126	48.942	2.300	PASS	1.129	32.738	3.450	PASS	PASS
4	0.001	0.258	0.430	n/a	0.001	0.200	0.645	n/a	PASS
5	0.180	15.797	1.140	PASS	0.181	10.612	1.710	PASS	PASS
6	0.001	0.391	0.300	n/a	0.001	0.289	0.450	n/a	PASS
7	0.073	9.449	0.770	PASS	0.073	6.354	1.155	PASS	PASS
8	0.001	0.471	0.230	n/a	0.001	0.379	0.345	n/a	PASS
9	0.036	9.119	0.400	n/a	0.037	6.211	0.600	n/a	PASS
10	0.001	0.430	0.184	n/a	0.001	0.343	0.276	n/a	PASS
11	0.013	4.048	0.330	n/a	0.014	2.790	0.495	n/a	PASS
12	0.001	0.587	0.153	n/a	0.001	0.447	0.230	n/a	PASS
13	0.019	9.160	0.210	n/a	0.020	6.266	0.315	n/a	PASS
14	0.001	0.749	0.131	n/a	0.001	0.540	0.197	n/a	PASS
15	0.004	2.760	0.150	n/a	0.005	2.177	0.225	n/a	PASS
16	0.001	0.727	0.115	n/a	0.001	0.540	0.173	n/a	PASS
17	0.009	6.488	0.132	n/a	0.009	4.705	0.199	n/a	PASS
18	0.001	0.670	0.102	n/a	0.001	0.489	0.153	n/a	PASS
19	0.006	4.654	0.118	n/a	0.006	3.346	0.178	n/a	PASS
20	0.001	0.741	0.092	n/a	0.001	0.561	0.138	n/a	PASS
21	0.004	3.616	0.107	n/a	0.004	2.703	0.161	n/a	PASS
22	0.001	0.999	0.084	n/a	0.001	0.764	0.125	n/a	PASS
23	0.005	5.464	0.098	n/a	0.006	3.869	0.147	n/a	PASS
24	0.001	0.836	0.077	n/a	0.001	0.620	0.115	n/a	PASS
25	0.004	4.159	0.090	n/a	0.004	3.037	0.135	n/a	PASS
26	0.001	1.090	0.071	n/a	0.001	0.805	0.106	n/a	PASS
27	0.004	4.988	0.083	n/a	0.005	3.732	0.125	n/a	PASS
28	0.001	0.968	0.066	n/a	0.001	0.741	0.099	n/a	PASS
29	0.003	4.347	0.078	n/a	0.004	3.212	0.116	n/a	PASS
30	0.001	1.247	0.061	n/a	0.001	0.986	0.092	n/a	PASS
31	0.002	3.354	0.073	n/a	0.003	2.723	0.109	n/a	PASS
32	0.001	1.101	0.058	n/a	0.001	0.844	0.086	n/a	PASS
33	0.002	3.407	0.068	n/a	0.003	2.668	0.102	n/a	PASS
34	0.001	1.218	0.054	n/a	0.001	0.912	0.081	n/a	PASS
35	0.002	2.373	0.064	n/a	0.002	1.764	0.096	n/a	PASS
36	0.001	1.217	0.051	n/a	0.001	0.906	0.077	n/a	PASS
37	0.002	2.910	0.061	n/a	0.002	2.198	0.091	n/a	PASS
38	0.001	1.312	0.048	n/a	0.001	1.064	0.073	n/a	PASS
39	0.002	2.634	0.058	n/a	0.002	2.047	0.087	n/a	PASS
40	0.001	1.399	0.046	n/a	0.001	1.063	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.955	100.415		
2	0.191	0.083	0.200	PASS
3	0.116	0.050	0.900	PASS
4	0.071	0.031	0.200	PASS
5	0.037	0.016	0.400	PASS
6	0.050	0.022	0.200	PASS
7	0.043	0.019	0.300	PASS
8	0.041	0.018	0.200	PASS
9	0.038	0.016	0.200	PASS
10	0.030	0.013	0.200	PASS
11	0.033	0.014	0.100	PASS
12	0.027	0.012	0.100	PASS
13	0.030	0.013	0.100	PASS
14	0.023	0.010	0.100	PASS
15	0.032	0.014	0.100	PASS
16	0.021	0.009	0.100	PASS
17	0.022	0.010	0.100	PASS
18	0.016	0.007	0.100	PASS
19	0.016	0.007	0.100	PASS
20	0.018	0.008	0.100	PASS
21	0.018	0.008	0.100	PASS
22	0.019	0.008	0.100	PASS
23	0.014	0.006	0.100	PASS
24	0.015	0.006	0.100	PASS
25	0.015	0.007	0.100	PASS
26	0.013	0.006	0.100	PASS
27	0.026	0.011	0.100	PASS
28	0.015	0.006	0.100	PASS
29	0.019	0.008	0.100	PASS
30	0.018	0.008	0.100	PASS
31	0.014	0.006	0.100	PASS
32	0.014	0.006	0.100	PASS
33	0.017	0.007	0.100	PASS
34	0.010	0.004	0.100	PASS
35	0.015	0.006	0.100	PASS
36	0.010	0.005	0.100	PASS
37	0.013	0.006	0.100	PASS
38	0.013	0.006	0.100	PASS
39	0.014	0.006	0.100	PASS
40	0.013	0.006	0.100	PASS



Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3102-30 Power on,max temperature,max power,timer on

Test Standard : IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Tester : Yi YANG

Test Date : 3/12/2025 2:18:51 PM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 56 %

Standard Group: Industry

Standard Name: IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Device Under Test: **PASS**

Power Source: **PASS**

Connection Type: L - N

Classification: Class A

Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)

Check Harmonics 2..40

First detected harmonic order > 150 %

Line 1: **None**

Harmonics orders > 150 %

Line 1: **None**

Harmonics orders with average > 100 %

Line 1: **None**

Measured values

Fundamental Current

Line 1: 14.744 A

Active input Power

Line 1: 3399.277 W *

Circuit power factor

Line 1: 0.996 *

* Absolute value.

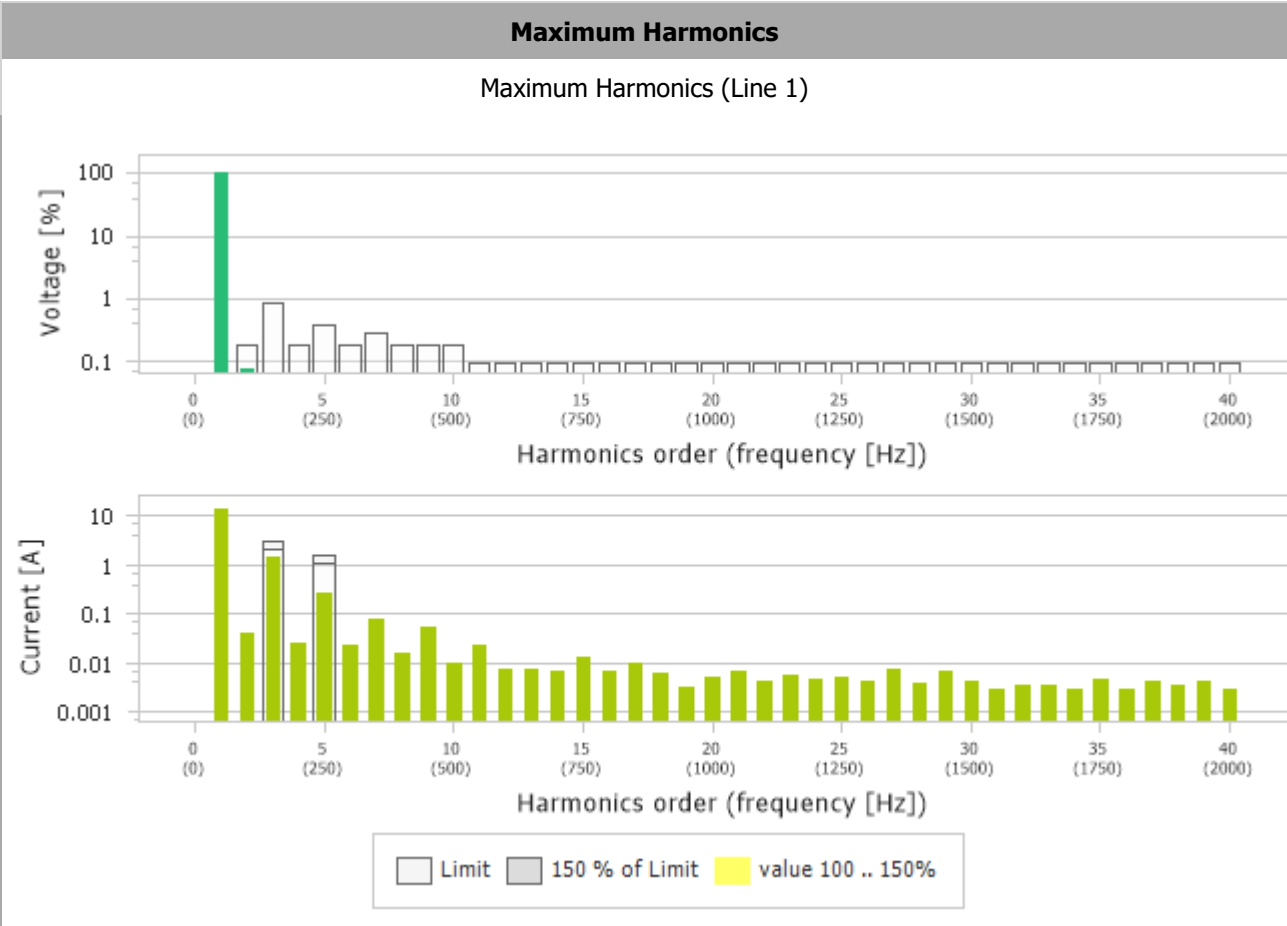
Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	13.158				14.583				
2	0.042	3.889	1.080	n/a	0.044	2.694	1.620	n/a	PASS
3	1.513	65.802	2.300	PASS	1.524	44.169	3.450	PASS	PASS
4	0.027	6.246	0.430	n/a	0.028	4.317	0.645	n/a	PASS
5	0.285	24.957	1.140	PASS	0.287	16.790	1.710	PASS	PASS
6	0.024	7.834	0.300	n/a	0.025	5.616	0.450	n/a	PASS
7	0.080	10.444	0.770	n/a	0.081	7.051	1.155	n/a	PASS
8	0.016	7.116	0.230	n/a	0.017	4.799	0.345	n/a	PASS
9	0.057	14.141	0.400	n/a	0.057	9.527	0.600	n/a	PASS
10	0.011	5.750	0.184	n/a	0.011	3.920	0.276	n/a	PASS
11	0.024	7.260	0.330	n/a	0.026	5.302	0.495	n/a	PASS
12	0.008	5.300	0.153	n/a	0.008	3.632	0.230	n/a	PASS
13	0.007	3.478	0.210	n/a	0.008	2.528	0.315	n/a	PASS
14	0.007	5.275	0.131	n/a	0.008	3.838	0.197	n/a	PASS
15	0.014	9.244	0.150	n/a	0.015	6.474	0.225	n/a	PASS
16	0.007	5.720	0.115	n/a	0.007	4.107	0.173	n/a	PASS
17	0.010	7.294	0.132	n/a	0.010	5.175	0.199	n/a	PASS
18	0.007	6.412	0.102	n/a	0.007	4.392	0.153	n/a	PASS
19	0.003	2.337	0.118	n/a	0.003	1.866	0.178	n/a	PASS
20	0.005	5.766	0.092	n/a	0.005	3.968	0.138	n/a	PASS
21	0.007	6.250	0.107	n/a	0.008	4.766	0.161	n/a	PASS
22	0.004	5.146	0.084	n/a	0.005	3.731	0.125	n/a	PASS
23	0.005	5.158	0.098	n/a	0.006	3.973	0.147	n/a	PASS
24	0.005	5.970	0.077	n/a	0.005	4.261	0.115	n/a	PASS
25	0.003	3.590	0.090	n/a	0.006	4.240	0.135	n/a	PASS
26	0.004	6.076	0.071	n/a	0.005	4.376	0.106	n/a	PASS
27	0.005	5.680	0.083	n/a	0.008	6.619	0.125	n/a	PASS
28	0.004	5.743	0.066	n/a	0.004	4.222	0.099	n/a	PASS
29	0.005	6.309	0.078	n/a	0.007	6.259	0.116	n/a	PASS
30	0.004	6.705	0.061	n/a	0.004	4.839	0.092	n/a	PASS
31	0.003	4.125	0.073	n/a	0.003	2.933	0.109	n/a	PASS
32	0.003	6.027	0.058	n/a	0.004	4.611	0.086	n/a	PASS
33	0.004	5.358	0.068	n/a	0.004	3.797	0.102	n/a	PASS
34	0.003	5.446	0.054	n/a	0.003	3.894	0.081	n/a	PASS
35	0.004	5.617	0.064	n/a	0.005	5.436	0.096	n/a	PASS
36	0.003	6.107	0.051	n/a	0.003	4.304	0.077	n/a	PASS
37	0.003	4.591	0.061	n/a	0.004	4.837	0.091	n/a	PASS
38	0.003	6.244	0.048	n/a	0.004	5.377	0.073	n/a	PASS
39	0.003	5.645	0.058	n/a	0.004	5.161	0.087	n/a	PASS
40	0.003	5.536	0.046	n/a	0.003	4.488	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.714	100.311		
2	0.184	0.080	0.200	PASS
3	0.149	0.065	0.900	PASS
4	0.073	0.032	0.200	PASS
5	0.040	0.017	0.400	PASS
6	0.059	0.025	0.200	PASS
7	0.055	0.024	0.300	PASS
8	0.034	0.015	0.200	PASS
9	0.046	0.020	0.200	PASS
10	0.034	0.015	0.200	PASS
11	0.046	0.020	0.100	PASS
12	0.028	0.012	0.100	PASS
13	0.030	0.013	0.100	PASS
14	0.030	0.013	0.100	PASS
15	0.040	0.017	0.100	PASS
16	0.023	0.010	0.100	PASS
17	0.031	0.014	0.100	PASS
18	0.030	0.013	0.100	PASS
19	0.030	0.013	0.100	PASS
20	0.020	0.009	0.100	PASS
21	0.032	0.014	0.100	PASS
22	0.027	0.012	0.100	PASS
23	0.044	0.019	0.100	PASS
24	0.026	0.011	0.100	PASS
25	0.040	0.018	0.100	PASS
26	0.025	0.011	0.100	PASS
27	0.051	0.022	0.100	PASS
28	0.026	0.011	0.100	PASS
29	0.046	0.020	0.100	PASS
30	0.022	0.010	0.100	PASS
31	0.047	0.021	0.100	PASS
32	0.028	0.012	0.100	PASS
33	0.025	0.011	0.100	PASS
34	0.022	0.010	0.100	PASS
35	0.039	0.017	0.100	PASS
36	0.026	0.011	0.100	PASS
37	0.030	0.013	0.100	PASS
38	0.027	0.012	0.100	PASS
39	0.040	0.017	0.100	PASS
40	0.024	0.010	0.100	PASS



Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3102-20 Power on,max temperature,max power,timer on

Test Standard : IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Tester : Yi YANG

Test Date : 3/12/2025 1:43:53 PM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 57 %

Standard Group: Industry

Standard Name: IEC 61000-3-2 (Edition 5.1)
Limits for harmonic current emissions (equipment input current < 16 A per phase)

Device Under Test: **PASS**

Power Source: **PASS**

Connection Type: L - N

Classification: Class A

Appli. of Limits: less than or equal to 150 % (Without POHC Enhancement)

Check Harmonics 2..40

First detected harmonic order > 150 %

Line 1: **None**

Harmonics orders > 150 %

Line 1: **None**

Harmonics orders with average > 100 %

Line 1: **None**

Measured values

Fundamental Current

Line 1: 8.769 A

Active input Power

Line 1: 2024.037 W *

Circuit power factor

Line 1: 0.989 *

* Absolute value.

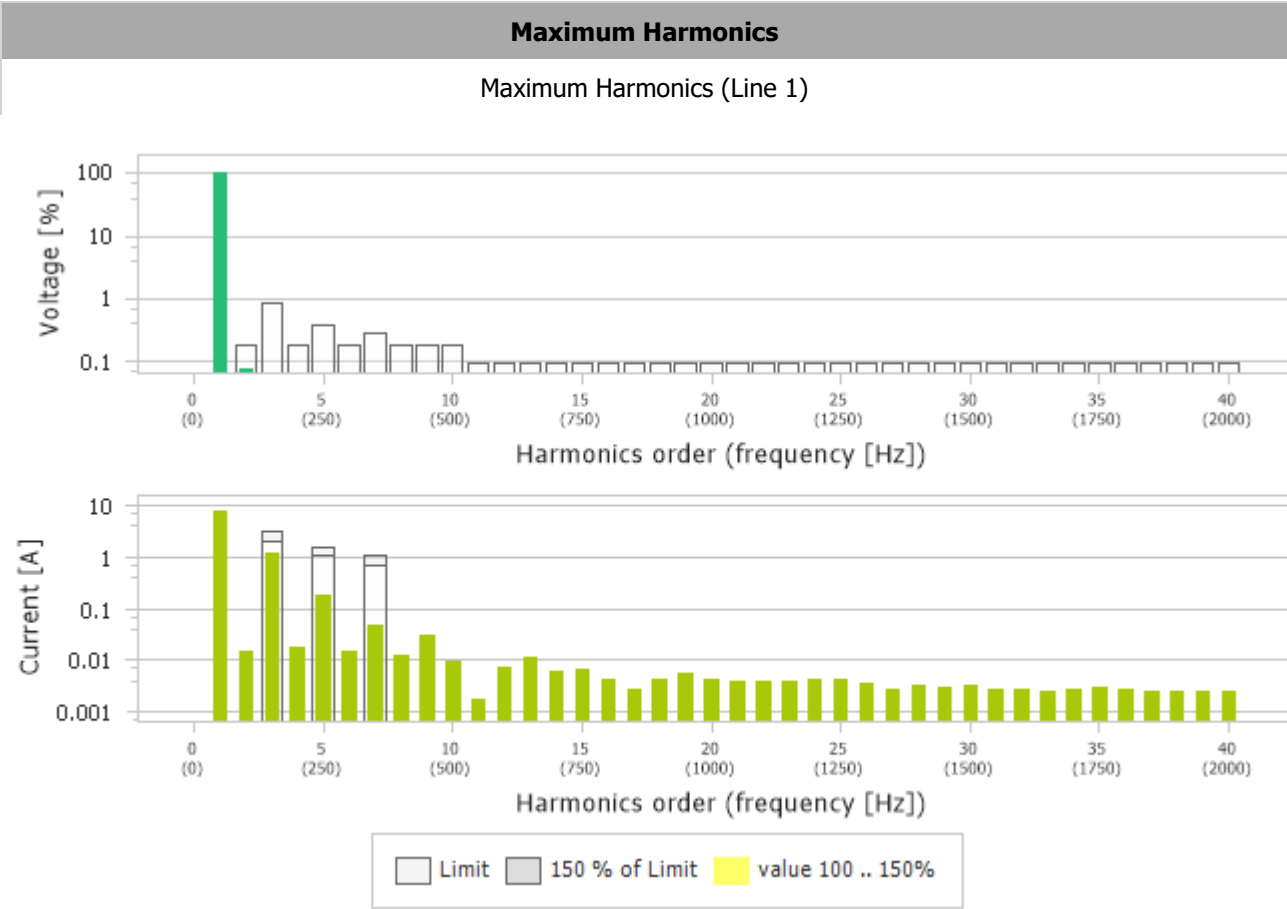
Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [A]	of Limit [%]	Limit [A]	Result	I _{eff} [A]	of Limit [%]	Limit [A]	Result	
1	8.755				8.769				
2	0.016	1.481	1.080	n/a	0.016	0.999	1.620	n/a	PASS
3	1.296	56.332	2.300	PASS	1.297	37.590	3.450	PASS	PASS
4	0.018	4.271	0.430	n/a	0.018	2.867	0.645	n/a	PASS
5	0.198	17.397	1.140	PASS	0.199	11.621	1.710	PASS	PASS
6	0.016	5.251	0.300	n/a	0.016	3.535	0.450	n/a	PASS
7	0.054	6.981	0.770	PASS	0.054	4.679	1.155	PASS	PASS
8	0.014	5.913	0.230	n/a	0.014	3.980	0.345	n/a	PASS
9	0.033	8.332	0.400	n/a	0.034	5.593	0.600	n/a	PASS
10	0.011	5.769	0.184	n/a	0.011	3.904	0.276	n/a	PASS
11	0.002	0.548	0.330	n/a	0.002	0.388	0.495	n/a	PASS
12	0.008	5.237	0.153	n/a	0.008	3.559	0.230	n/a	PASS
13	0.012	5.638	0.210	n/a	0.012	3.851	0.315	n/a	PASS
14	0.006	4.751	0.131	n/a	0.006	3.242	0.197	n/a	PASS
15	0.007	4.633	0.150	n/a	0.007	3.154	0.225	n/a	PASS
16	0.005	4.042	0.115	n/a	0.005	2.748	0.173	n/a	PASS
17	0.003	2.137	0.132	n/a	0.003	1.501	0.199	n/a	PASS
18	0.005	4.478	0.102	n/a	0.005	3.050	0.153	n/a	PASS
19	0.006	4.977	0.118	n/a	0.006	3.381	0.178	n/a	PASS
20	0.004	4.880	0.092	n/a	0.005	3.397	0.138	n/a	PASS
21	0.004	3.794	0.107	n/a	0.004	2.655	0.161	n/a	PASS
22	0.004	4.844	0.084	n/a	0.004	3.307	0.125	n/a	PASS
23	0.004	4.317	0.098	n/a	0.004	2.992	0.147	n/a	PASS
24	0.004	5.610	0.077	n/a	0.004	3.827	0.115	n/a	PASS
25	0.005	5.029	0.090	n/a	0.005	3.427	0.135	n/a	PASS
26	0.004	5.221	0.071	n/a	0.004	3.646	0.106	n/a	PASS
27	0.003	3.507	0.083	n/a	0.003	2.430	0.125	n/a	PASS
28	0.003	4.900	0.066	n/a	0.003	3.428	0.099	n/a	PASS
29	0.003	4.145	0.078	n/a	0.003	2.851	0.116	n/a	PASS
30	0.003	5.333	0.061	n/a	0.003	3.754	0.092	n/a	PASS
31	0.003	4.041	0.073	n/a	0.003	2.798	0.109	n/a	PASS
32	0.003	4.933	0.058	n/a	0.003	3.439	0.086	n/a	PASS
33	0.003	3.743	0.068	n/a	0.003	2.648	0.102	n/a	PASS
34	0.003	5.298	0.054	n/a	0.003	3.686	0.081	n/a	PASS
35	0.003	4.651	0.064	n/a	0.003	3.211	0.096	n/a	PASS
36	0.003	5.362	0.051	n/a	0.003	3.726	0.077	n/a	PASS
37	0.003	4.118	0.061	n/a	0.003	2.862	0.091	n/a	PASS
38	0.003	5.206	0.048	n/a	0.003	3.602	0.073	n/a	PASS
39	0.003	4.420	0.058	n/a	0.003	3.135	0.087	n/a	PASS
40	0.002	5.375	0.046	n/a	0.003	3.732	0.069	n/a	PASS

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Voltage Source Verification

Harmonic voltage results				
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.912	100.397		
2	0.188	0.082	0.200	PASS
3	0.129	0.056	0.900	PASS
4	0.069	0.030	0.200	PASS
5	0.038	0.017	0.400	PASS
6	0.048	0.021	0.200	PASS
7	0.042	0.018	0.300	PASS
8	0.036	0.016	0.200	PASS
9	0.042	0.018	0.200	PASS
10	0.028	0.012	0.200	PASS
11	0.030	0.013	0.100	PASS
12	0.029	0.013	0.100	PASS
13	0.031	0.013	0.100	PASS
14	0.022	0.010	0.100	PASS
15	0.027	0.012	0.100	PASS
16	0.021	0.009	0.100	PASS
17	0.022	0.010	0.100	PASS
18	0.018	0.008	0.100	PASS
19	0.017	0.008	0.100	PASS
20	0.016	0.007	0.100	PASS
21	0.018	0.008	0.100	PASS
22	0.019	0.008	0.100	PASS
23	0.017	0.007	0.100	PASS
24	0.014	0.006	0.100	PASS
25	0.014	0.006	0.100	PASS
26	0.012	0.005	0.100	PASS
27	0.026	0.011	0.100	PASS
28	0.018	0.008	0.100	PASS
29	0.021	0.009	0.100	PASS
30	0.017	0.007	0.100	PASS
31	0.011	0.005	0.100	PASS
32	0.013	0.005	0.100	PASS
33	0.019	0.008	0.100	PASS
34	0.012	0.005	0.100	PASS
35	0.016	0.007	0.100	PASS
36	0.009	0.004	0.100	PASS
37	0.012	0.005	0.100	PASS
38	0.015	0.006	0.100	PASS
39	0.016	0.007	0.100	PASS
40	0.014	0.006	0.100	PASS



Test setup

2.4.8 Test Location

This test was carried out in Harmonic & Flicker test room 118.

2.5 Flicker

2.5.1 Specification Reference

EN 61000-3-3:2013/A2:2021, Clause 5

2.5.2 Equipment Under Test

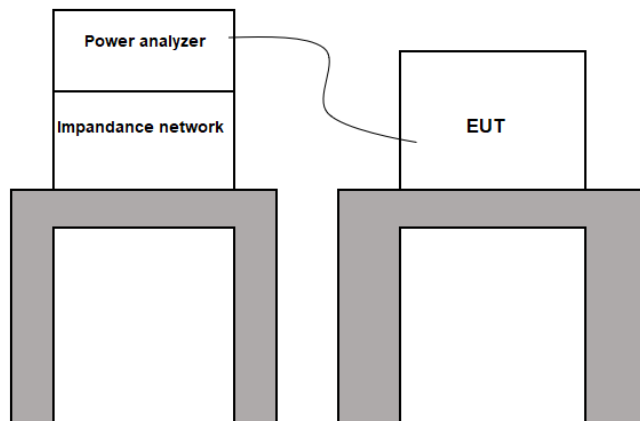
BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.5.3 Date of Test

04/24/2025

2.5.4 Test Method

For equipment not mentioned in annex A of EN 61000-3-3, controls or automatic programs should be set to produce the most unfavourable 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



2.5.5 Environmental Conditions

Ambient Temperature	20-25 °C
Relative Humidity	40-60 %
Atmospheric Pressure	1010-1040 mbar

2.5.6 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

- 4% without additional conditions
- 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
- 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



2.5.7 Test Results

Results for Configuration and Mode: AC Powered, switch on/off.

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

Detailed results are shown below.

Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3103-30R Power on,max temperature,max power,timer on

Test Standard : IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Tester : Yi YANG

Test Date : 3/12/2025 1:35:26 PM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 58 %

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Test Condition: Portable fan heaters

Analysis Status: **PASS**

Flicker Measurements Settings

Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	12 × 10 min
Measurements:	12

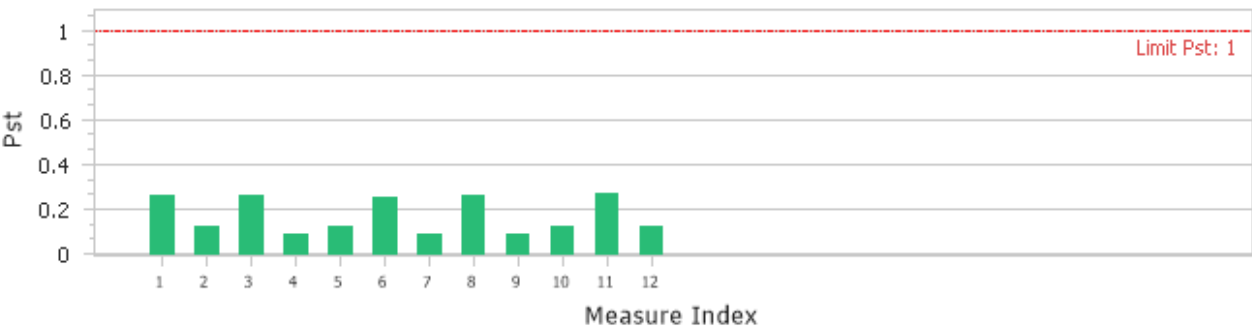
Flicker Measurements

	P_{It}	Max P_{st}	Max d_c	Max d_{max}	Max T_{max}
Line 1:	0.209	0.276	1.838	1.942	0
Limits:	0.65	1	3.3	6	0.5
Results:	PASS	PASS	PASS	PASS	PASS

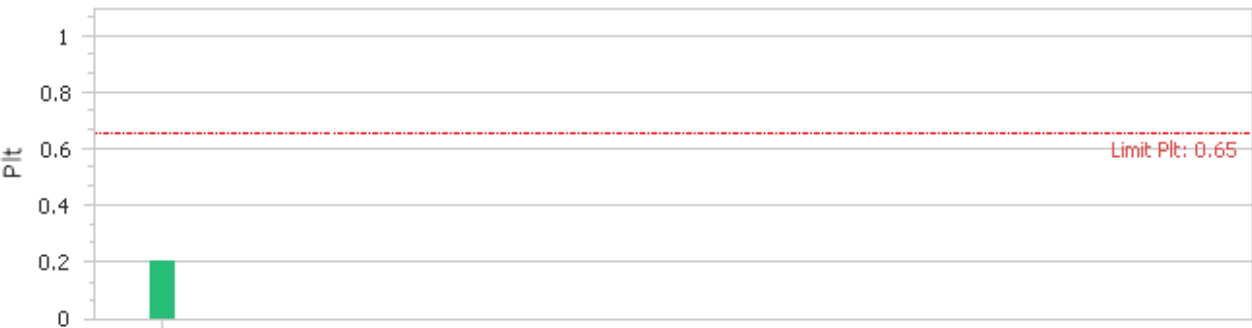
Test setup



Short-term Flicker Severity (Pst) (Line 1)



Long-term Flicker Severity (Plt) (Line 1)



Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3103-20R Power on,max temperature,max power,timer on

Test Standard : IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Tester : Yi YANG

Test Date : 3/13/2025 5:48:58 PM

Climatic Conditions

Temperature : 24 °C Pressure : 102 kPa Humidity : 56 %

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Test Condition: Portable fan heaters

Analysis Status: **PASS**

Flicker Measurements Settings

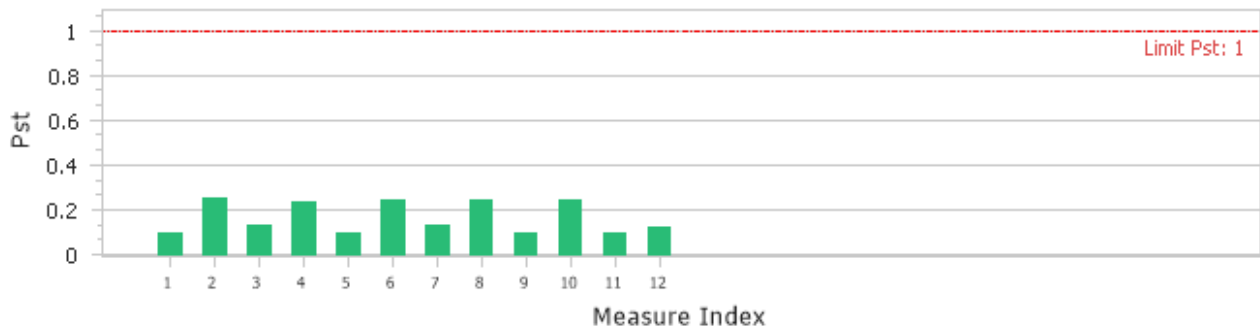
Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	12 × 10 min
Measurements:	12

Flicker Measurements

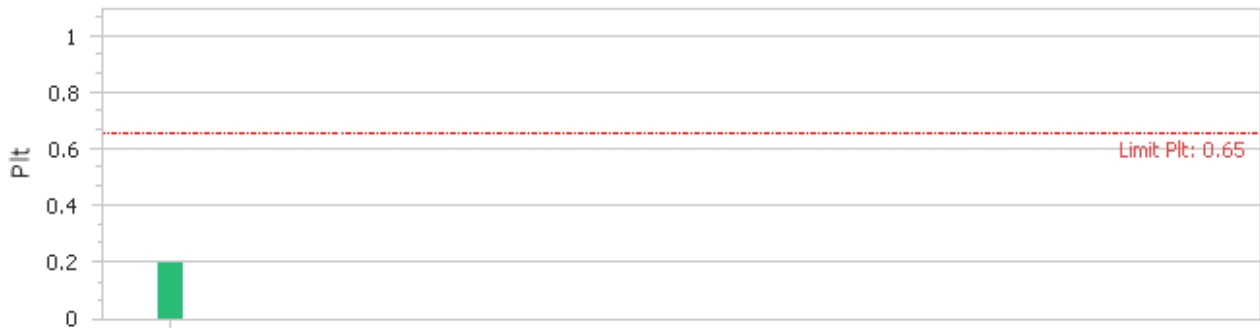
	P_{It}	Max P_{st}	Max d_c	Max d_{max}	Max T_{max}
Line 1:	0.196	0.256	1.724	1.829	0
Limits:	0.65	1	3.3	7	0.5
Results:	PASS	PASS	PASS	PASS	PASS



Short-term Flicker Severity (Pst) (Line 1)



Long-term Flicker Severity (Plt) (Line 1)



Test Report

Report Number : IEC 61000-3-3 (Ed3-2) - General Test conditions (230V - 50Hz)

Test Object : Fan Heater BGP3102-30 Power on,max temperature,max power,timer on
IEC 61000-3-3 (Edition 3.2)

Test Standard : Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Tester : Yi YANG

Test Date : 3/12/2025 4:55:12 PM

Climatic Conditions

Temperature : 23 °C Pressure : 102 kPa Humidity : 56 %

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Test Condition: Portable fan heaters

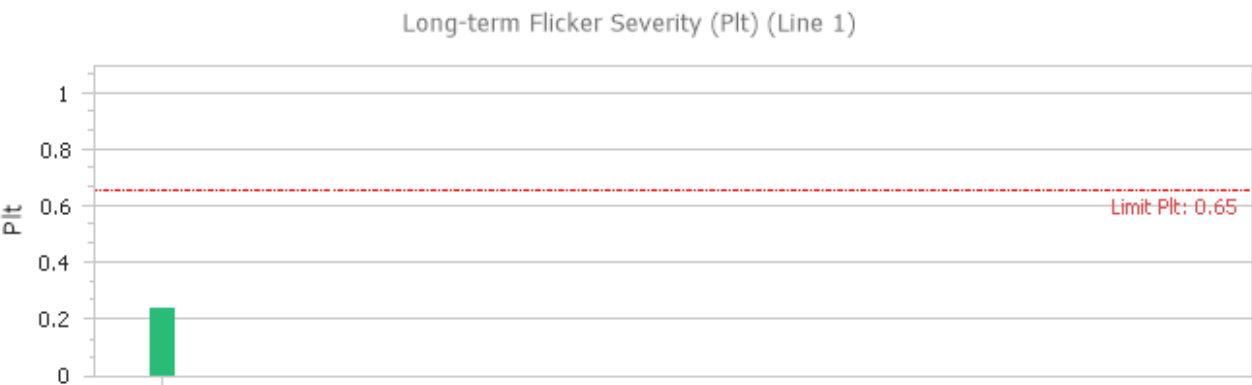
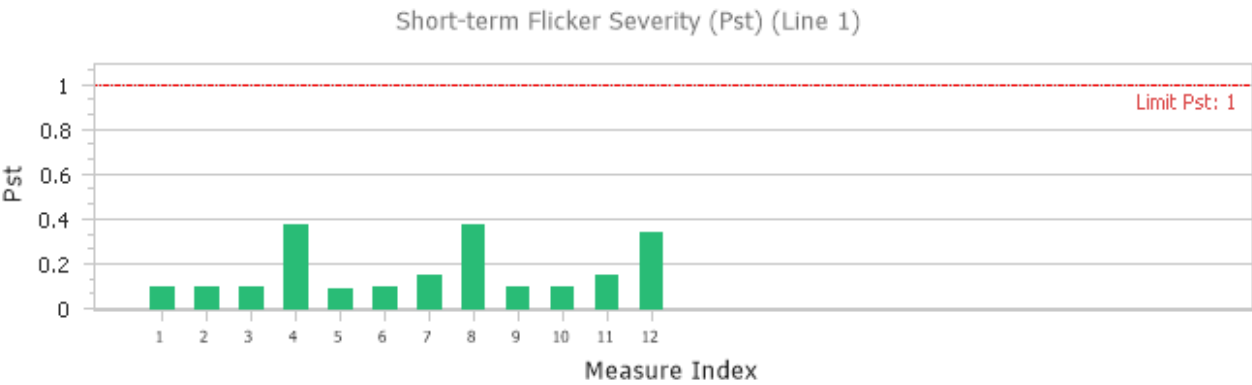
Analysis Status: **PASS**

Flicker Measurements Settings

Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	12 × 10 min
Measurements:	12

Flicker Measurements

	P_{It}	Max P_{st}	Max d_c	Max d_{max}	Max T_{max}
Line 1:	0.24	0.382	2.64	2.76	0
Limits:	0.65	1	3.3	7	0.5
Results:	PASS	PASS	PASS	PASS	PASS



Test Report

Report Number : 878882213004-04

Test Object : Fan Heater BGP3102-20 Power on,max temperature,max power,timer on
IEC 61000-3-3 (Edition 3.2)

Test Standard : Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Tester : Yi YANG

Test Date : 3/12/2025 1:16:10 PM

Climatic Conditions

Temperature : 24 °C Pressure : 103 kPa Humidity : 56 %

Standard Group: Industry

Standard Name: IEC 61000-3-3 (Edition 3.2)
Limitation of voltage changes, voltage fluctuations and flicker
in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase
and not subject to conditional connection

Test Condition: Portable fan heaters

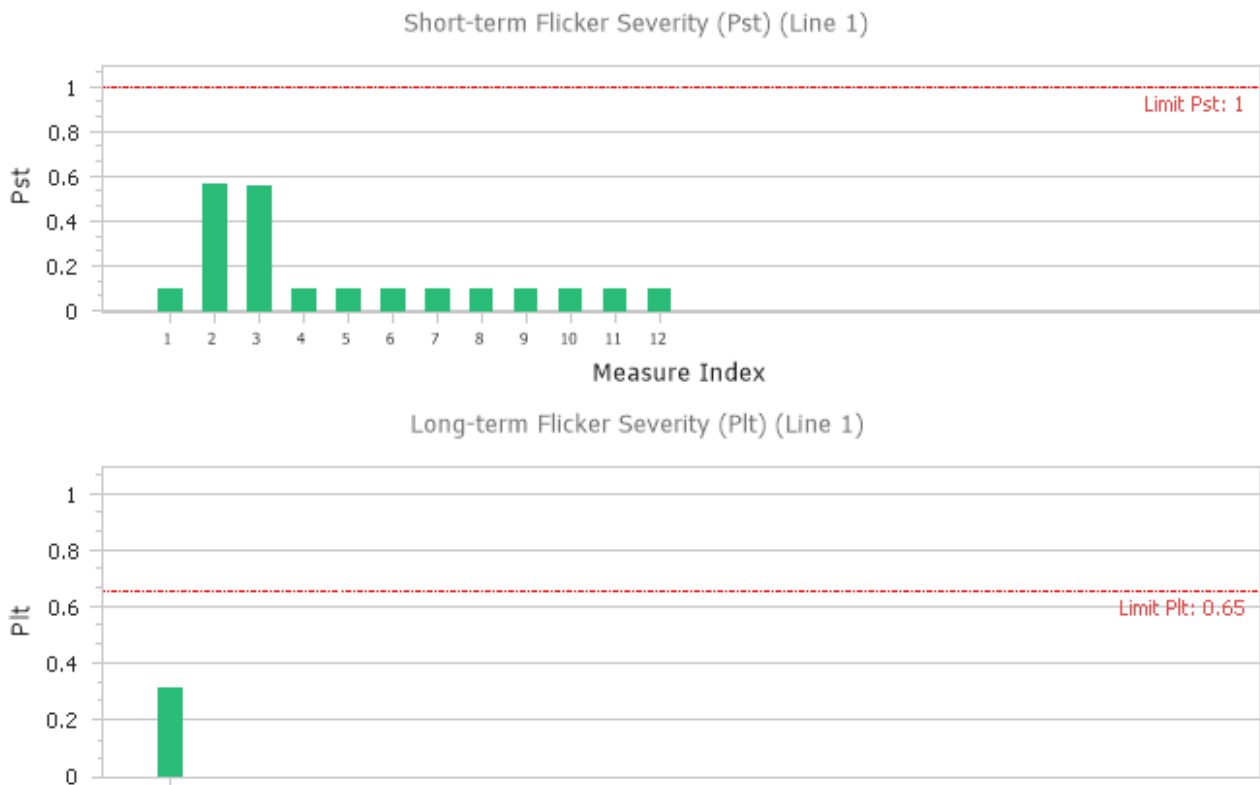
Analysis Status: **PASS**

Flicker Measurements Settings

Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	12 × 10 min
Measurements:	12

Flicker Measurements

	P_{It}	Max P_{St}	Max d_c	Max d_{max}	Max T_{max}
Line 1:	0.316	0.574	1.927	4.115	0
Limits:	0.65	1	3.3	7	0.5
Results:	PASS	PASS	PASS	PASS	PASS



2.5.8 Test Location

This test was carried out in Harmonic & Flicker test room 118.

2.6 Electrostatic discharge immunity test

2.6.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.1

2.6.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.6.3 Date of Test

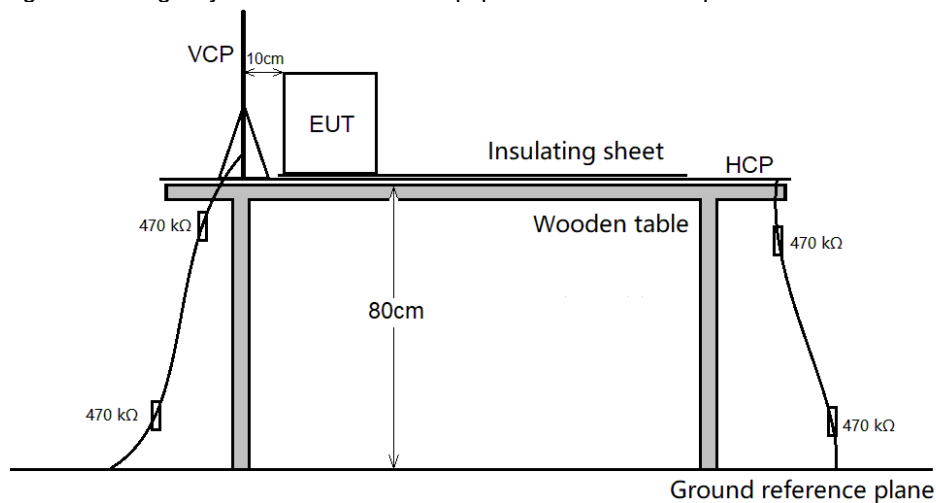
04/24/2025

2.6.4 Test Method

The equipment under test including associated cabling was configured on but insulated 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.



2.6.5 Environmental Conditions

Ambient Temperature 23.1 °C
Relative Humidity 47.6 %
Atmospheric Pressure 1027.0 mbar

2.6.6 Specification Limits

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

2.6.7 Test Results

Results for Configuration and Mode: AC Powered/Power on, mid output power, mid temperature.

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	
			+	-	+	-	+	-	+	-	+	-
A	Vertical coupling plane	Contact			✓	✓						
B	Horizontal coupling plane	Contact			✓	✓						
C	Screw	Contact			✓	✓						
D	Metal enclosure	Contact			✓	✓						
E	Screen	Air							✓	✓		
F	Gap	Air							✓	✓		
G	Plastic enclosure	Air							✓	✓		

Note:

✓	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	Observation number A, B, ...etc.



Test Setup

2.6.8 Test Location

This test was carried out in ESD room 117.

2.7 Electrical fast transient /burst immunity test

2.7.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.2

2.7.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.7.3 Date of Test

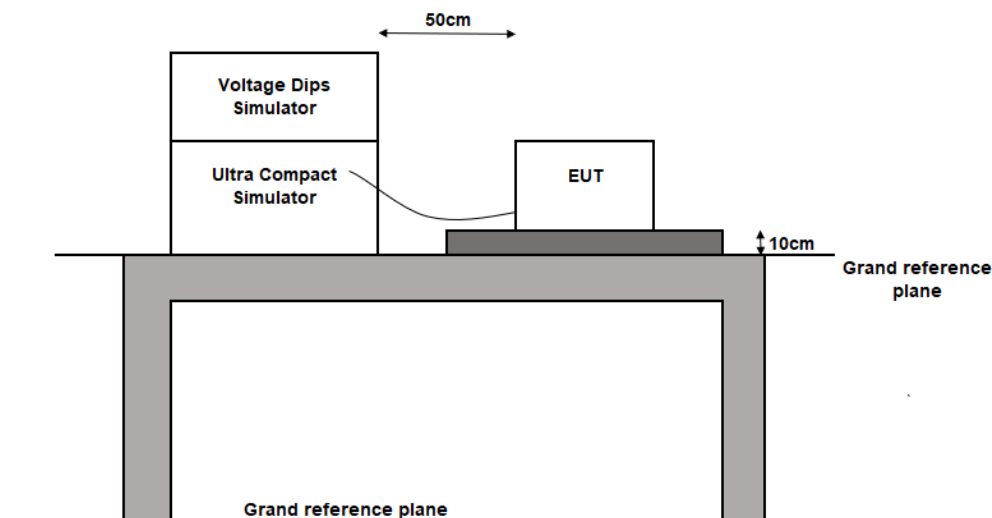
04/24/2025

2.7.4 Test Method

The equipment under test including associated cabling was configured on but insulated 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.



2.7.5 Environmental Conditions

Ambient Temperature 20-25 °C
Relative Humidity 40-60 %
Atmospheric Pressure 1010-1040 mbar

2.7.6 Specification Limits

Required Test Levels Input and output a.c. power ports					Performance Criteria
Line Under Test	Level (kV)	Repetition Rate (kHz)	Test Duration	Coupling Method	
AC power port	± 1	5 kHz	2 min per polarity	CDN	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.					

2.7.7 Test Results

Results for Configuration and Mode: AC Powered/Power on, mid output power, mid temperature.

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

Detailed results are shown below.

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



Test Setup

2.7.8 Test Location

This test was carried out in shielded room 121.

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

2.8.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.3

2.8.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.8.3 Date of Test

04/24/2025

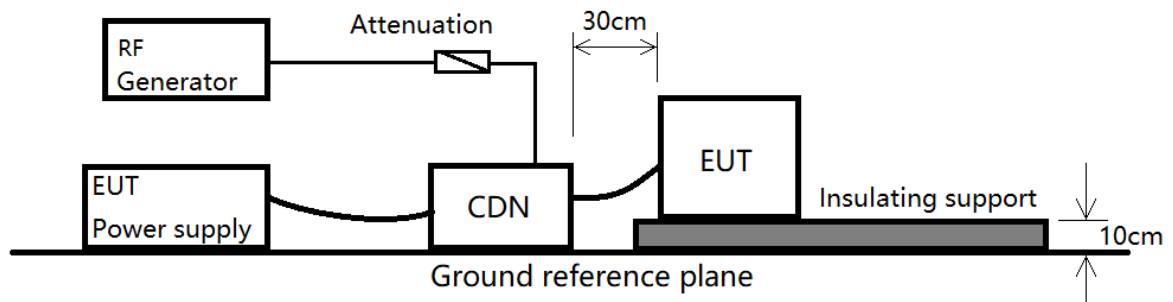
2.8.4 Test Method

The equipment under test was placed on an insulating support 0,1 m above the reference ground plane.

All associated cabling was configured, on but insulated 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 20-25 °C
Relative Humidity 40-60 %
Atmospheric Pressure 1010-1040 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.						

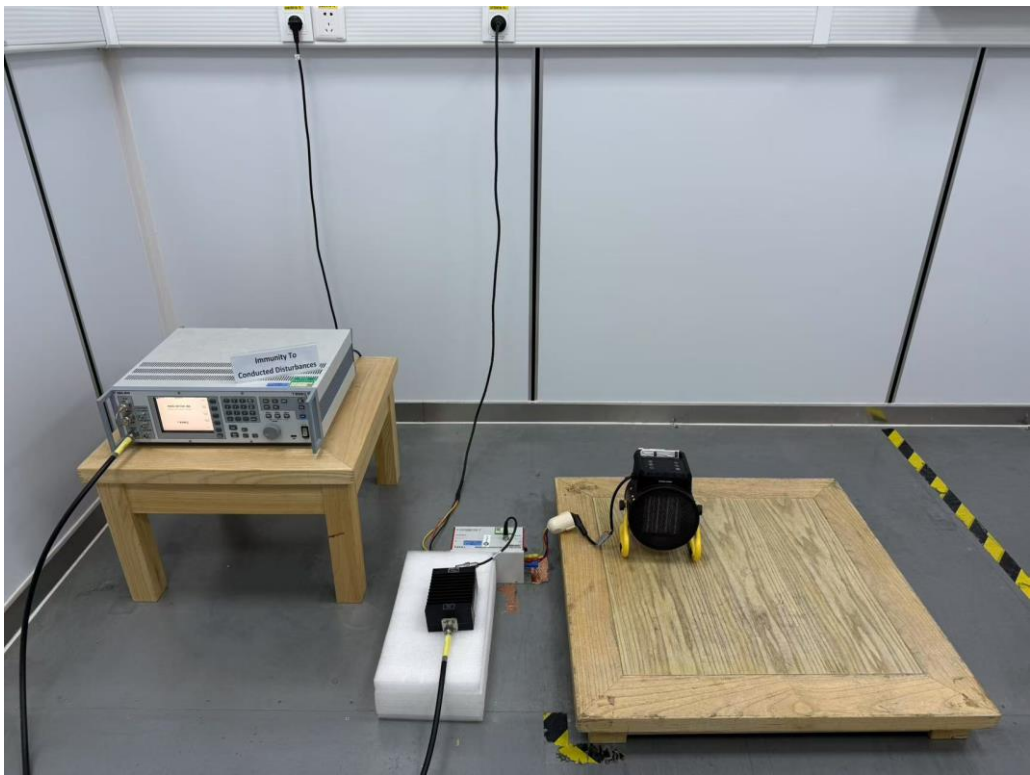
2.8.7 Test Results

Results for Configuration and Mode: AC Powered/Power on, mid output power, mid temperature.

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

Detailed results are shown below.

Test 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 in in shielded room 121.

2.9 Surge immunity test

2.9.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.6

2.9.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

2.9.3 Date of Test

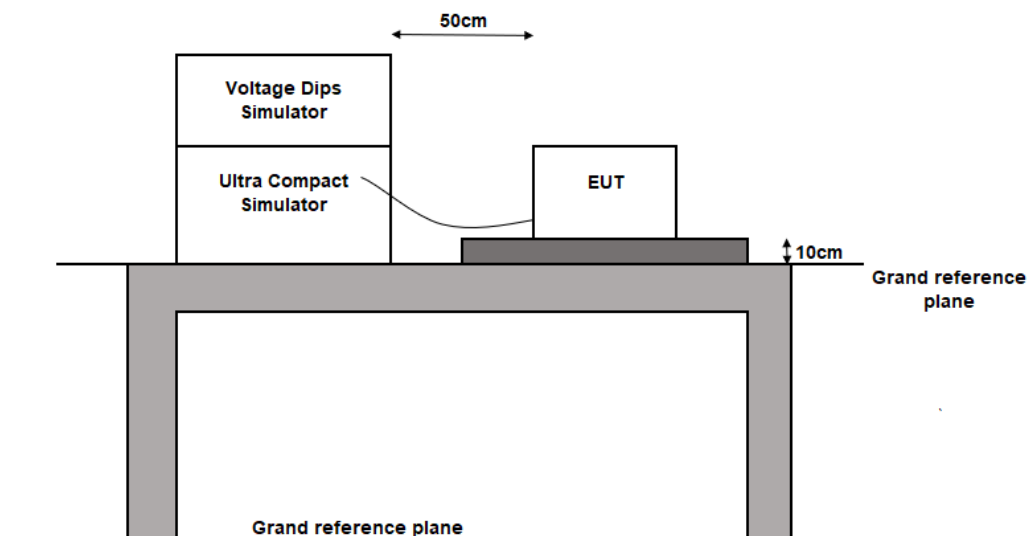
04/24/2025

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 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.



2.9.5 Environmental Conditions

Ambient Temperature	20-25 °C
Relative Humidity	40-60 %
Atmospheric Pressure	1010-1040 mbar

2.9.6 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.		

2.9.7 Test Results

Results for Configuration and Mode: AC Powered/Power on, mid output power, mid temperature.

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	5	60 sec	Pass PC A
Power line	Live to Neutral	+1.0kV	POSITIVE	90	5	60 sec	Pass PC A
Power line	Live to Earth	-2.0kV	NEGATIVE	270	5	60 sec	Pass PC A
Power line	Live to Earth	+2.0kV	POSITIVE	90	5	60 sec	Pass PC A
Power line	Neutral to Earth	-2.0kV	NEGATIVE	270	5	60 sec	Pass PC A
Power line	Neutral to Earth	+2.0kV	POSITIVE	90	5	60 sec	Pass PC A



Test Setup

2.9.8 Test Location

This test was carried out in in shielded room 121.

2.10 Voltage dips, short interruptions and voltage variations immunity tests

2.10.1 Specification Reference

EN IEC 55014-2:2021, Clause 5.7

2.10.2 Equipment Under Test

BGP3103-30R, BGP3103-20R, BGP3102-30, BGP3102-20

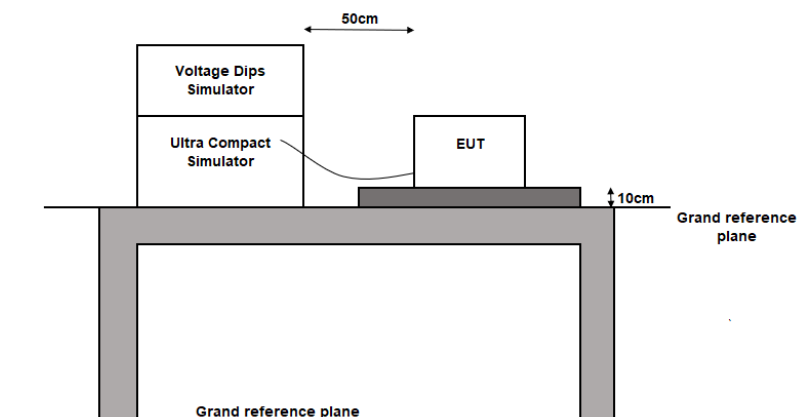
2.10.3 Date of Test

04/24/2025

2.10.4 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.



2.10.5 Environmental Conditions

Ambient Temperature 20-25 °C
Relative Humidity 40-60 %
Atmospheric Pressure 1010-1040 mbar

2.10.6 Specification Limits

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

2.10.7 Test Results

Results for Configuration and Mode: AC Powered/Power on, mid output power, mid temperature.

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

Detailed results are shown below.

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



Test Setup

2.10.8 Test Location

This test was carried out in shielded room 121.

3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Date	Calibration Due
Conducted Emission and Discontinuous Disturbance					
EMI test receiver	R & S	ESR3	NIB1910011-YQ-EMC	2025.04.13	2026.04.12
2-Line V-network	R & S	ENV216	NIB1910012-YQ-EMC	2025.04.13	2026.04.12
Disturbance Power					
EMI test receiver	R & S	ESR3	NIB1910015-YQ-EMC	2025.04.13	2026.04.12
Absorbing clamp	R & S	MDS-21	NIB1910017-YQ-EMC	2025.04.20	2026.04.19
Decoupling Clamp	TESEQ	KEMA801B	NIB1911005-YQ-EMC	2025.04.13	2026.04.12
Harmonic current emission and Flicker					
Harmonic-flicker test system	EM test	DPA 500N	NIB1911001-YQ-EMC	2025.04.13	2026.04.12
AC/DC power source	EM test	NetWave 7-400	NIB1911002-YQ-EMC	2025.04.13	2026.04.12
Electrostatic discharge immunity test					
ESD Simulator	HAEFELY	ONYX 16	NIB1911018-YQ-EMC	2024.11.01	2025.10.31
Temperature and Humidity Data Logger	Testo	175H1	NIB2005022-YQ-EMC	2025.04.18	2026.04.17
Barometer	VAREN	132B	NIB2005029-YQ-EMC	2025.04.21	2026.04.20
Horizontal Coupling Plane	TÜV Product Service	---	---	---	---
Vertical Coupling Plane	TÜV Product Service	---	---	---	---
Electrical fast transient/burst immunity test					
Ultra compact simulator	HAEFELY	AXOS8	NIB1911019-YQ-EMC	2025.1.15	2026.1.14
Immunity to conducted disturbances, induced by radio-frequency field					
Signal generator	TESEQ	NSG4070C-80	NIB1911003-YQ-EMC	2025.1.15	2026.1.14
6dB attenuator	TESEQ	ATN 6060	NIB1911007-SB-EMC	---	---
Coupling Decoupling Network	TESEQ	CDN M016	NIB1911006-YQ-EMC	2025.1.15	2026.1.14
Surge immunity test					
Ultra compact simulator	HAEFELY	AXOS8	NIB1911019-YQ-EMC	2025.1.15	2026.1.14
Voltage dips, short interruptions and voltage variations immunity test					
Ultra compact simulator	HAEFELY	AXOS8	NIB1911019-YQ-EMC	2025.1.15	2026.1.14
Voltage Dips Simulator	HAEFELY	DIP116	NIB1911020-YQ-EMC	2025.1.15	2026.1.14

3.2 EMC Testing Software

Software	Version	Testing Items
EMC 32	V10.60.20	CE, IP
Click Rate Analyzer	V2.5.1	Click
NET.CONTROL	V3.0.3	Harmonic and Flicker

4 Measurement Uncertainty

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

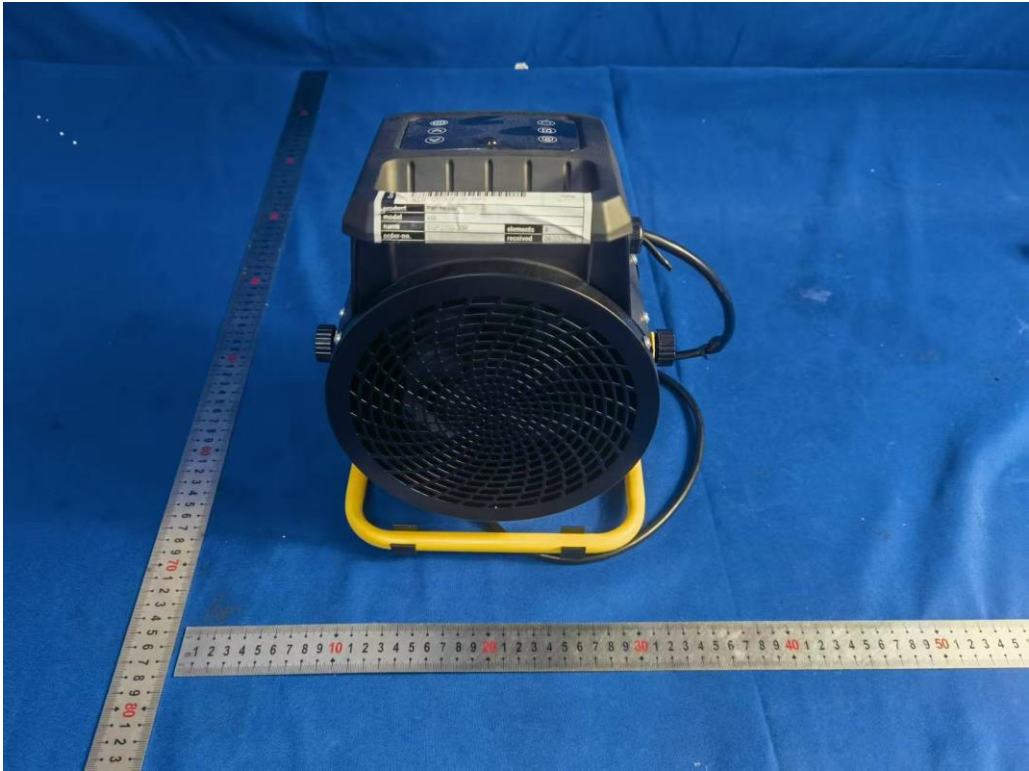
Test Name	Measurement Uncertainty
Conducted Disturbance	150kHz to 30 MHz, 2.64dB (AMN)
Disturbance power	30MHz to 300MHz, 4.09dB

Measurement Uncertainty Decision Rule

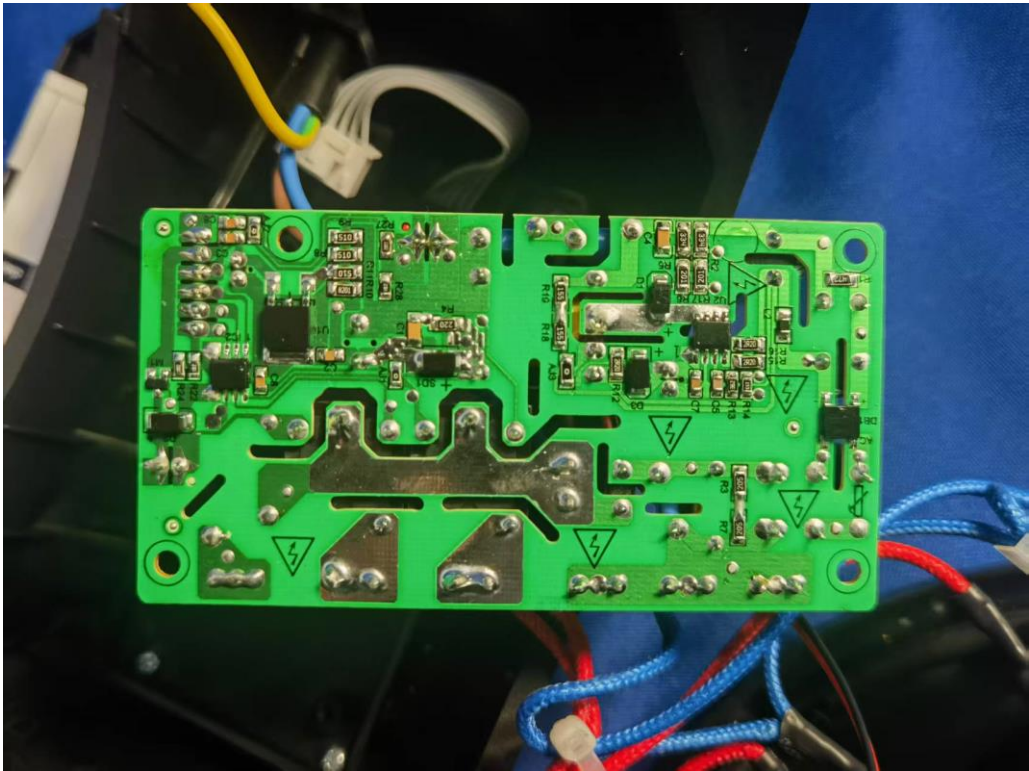
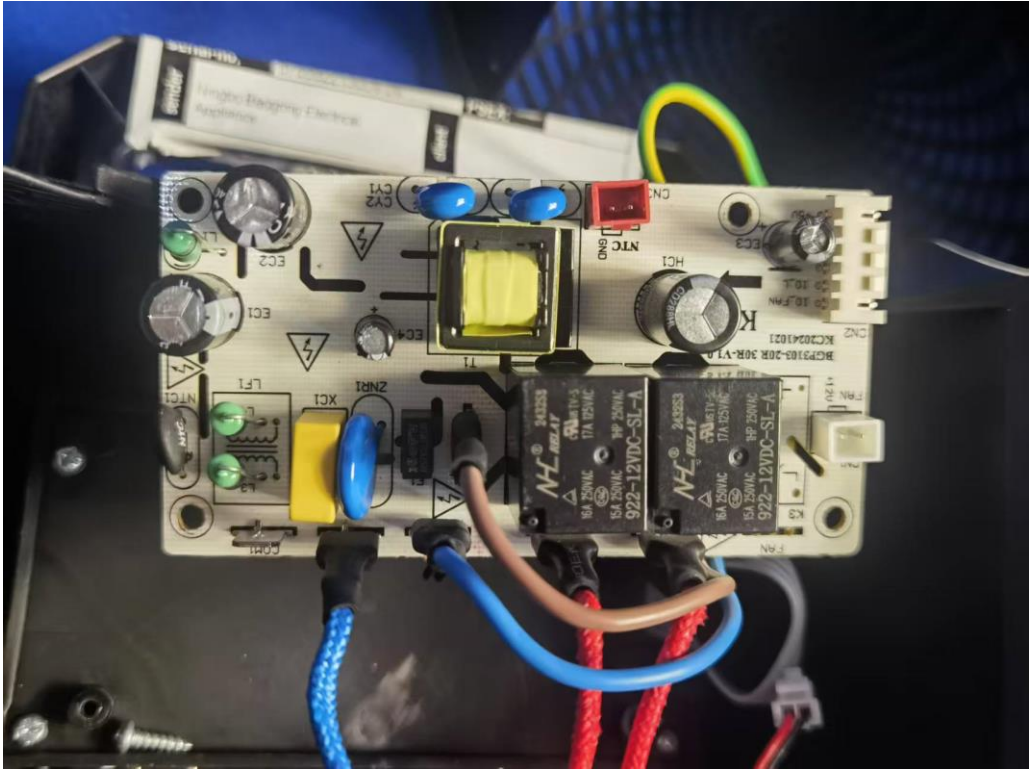
Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3.

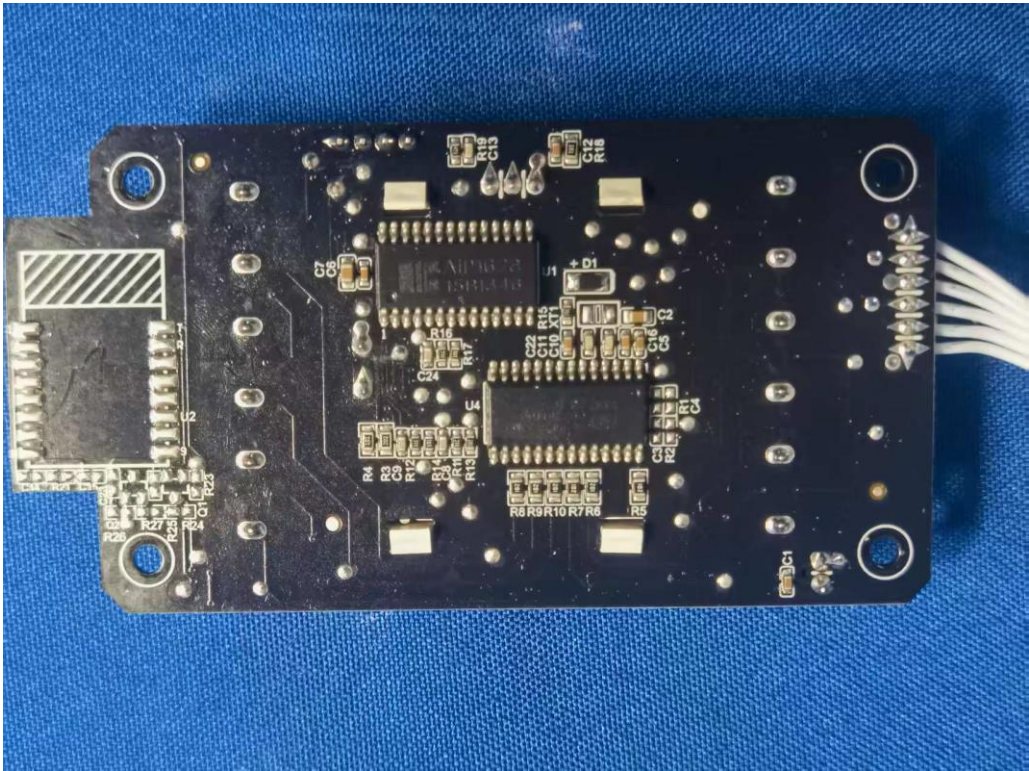
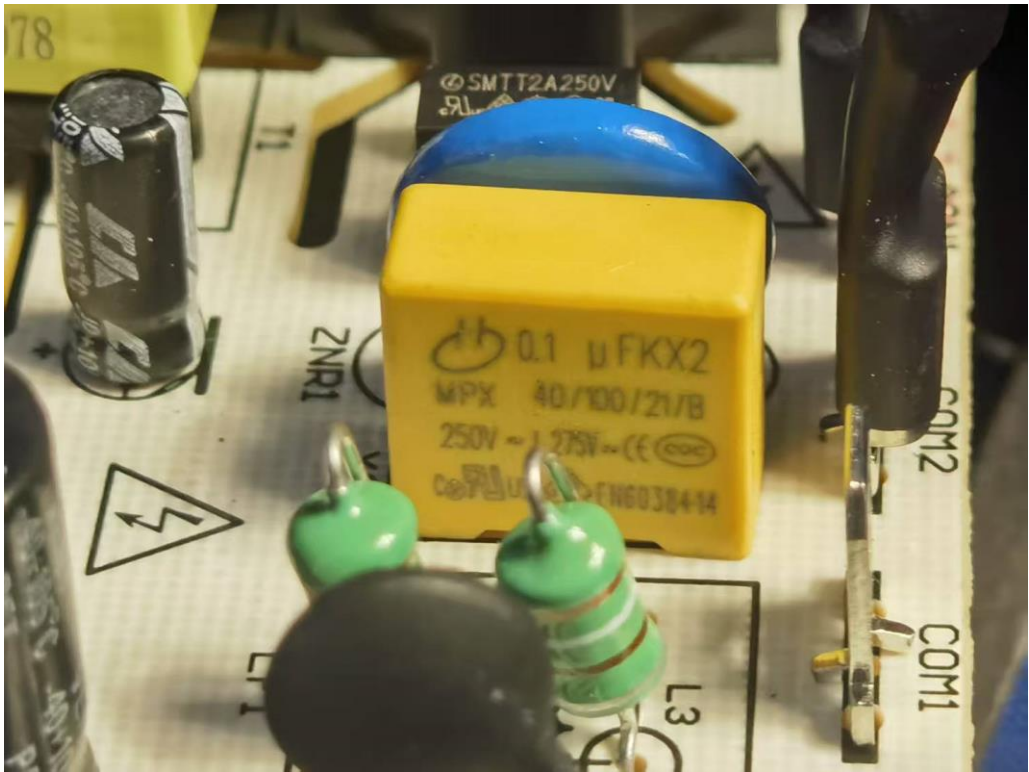
5 Photographs

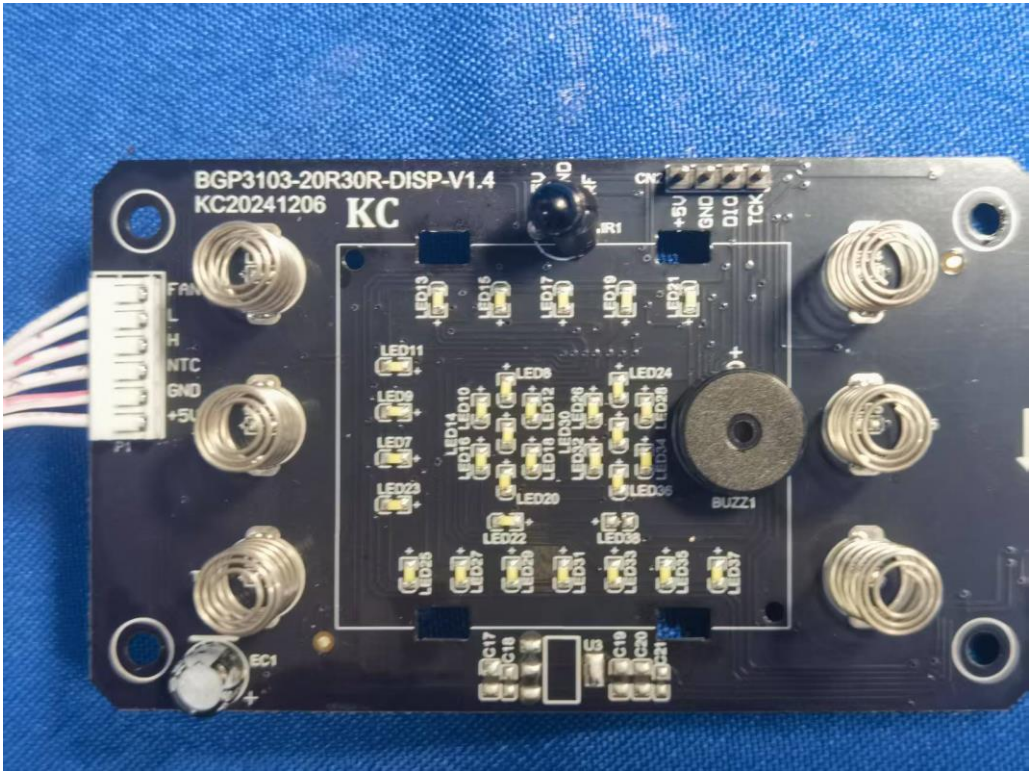
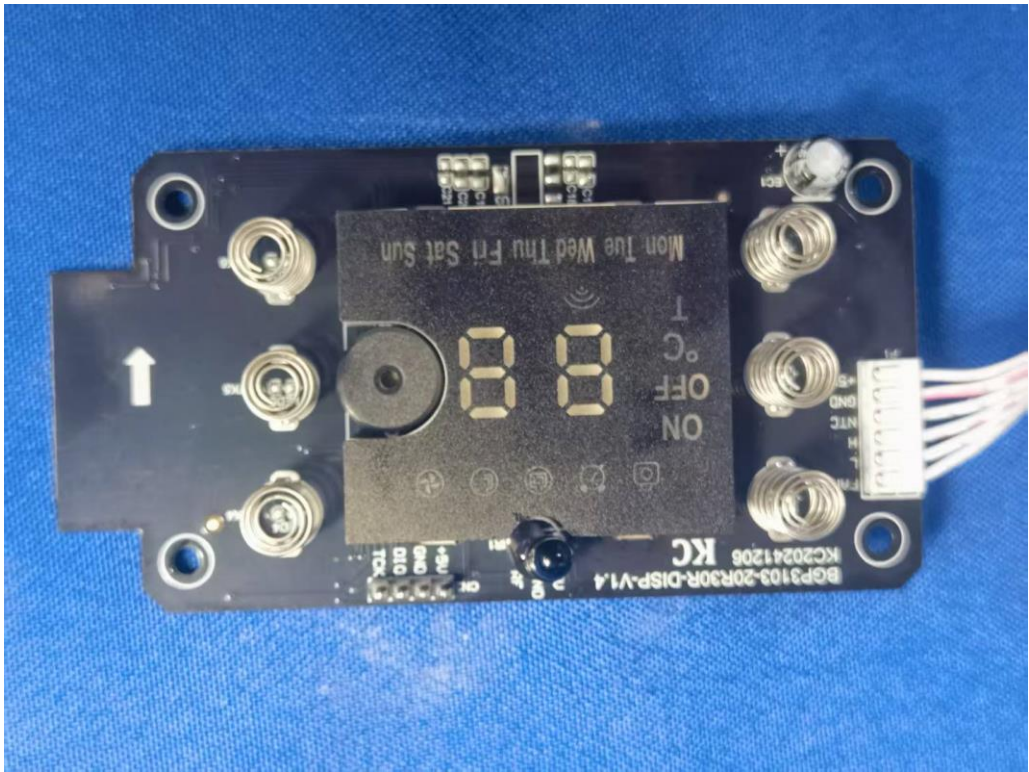
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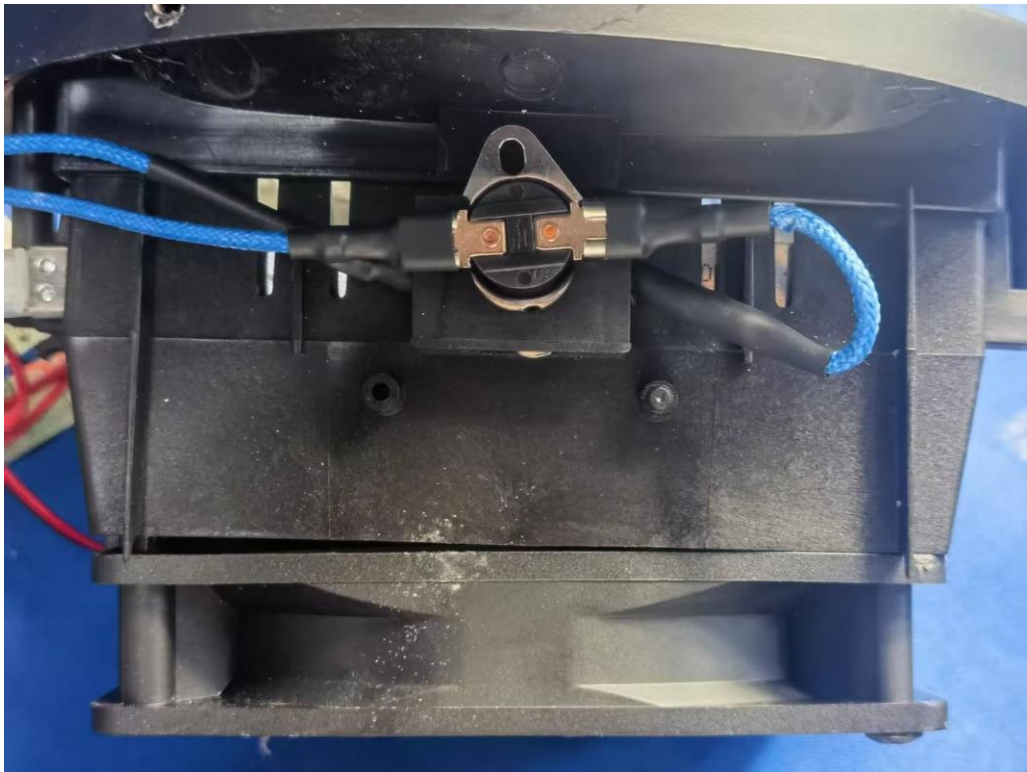






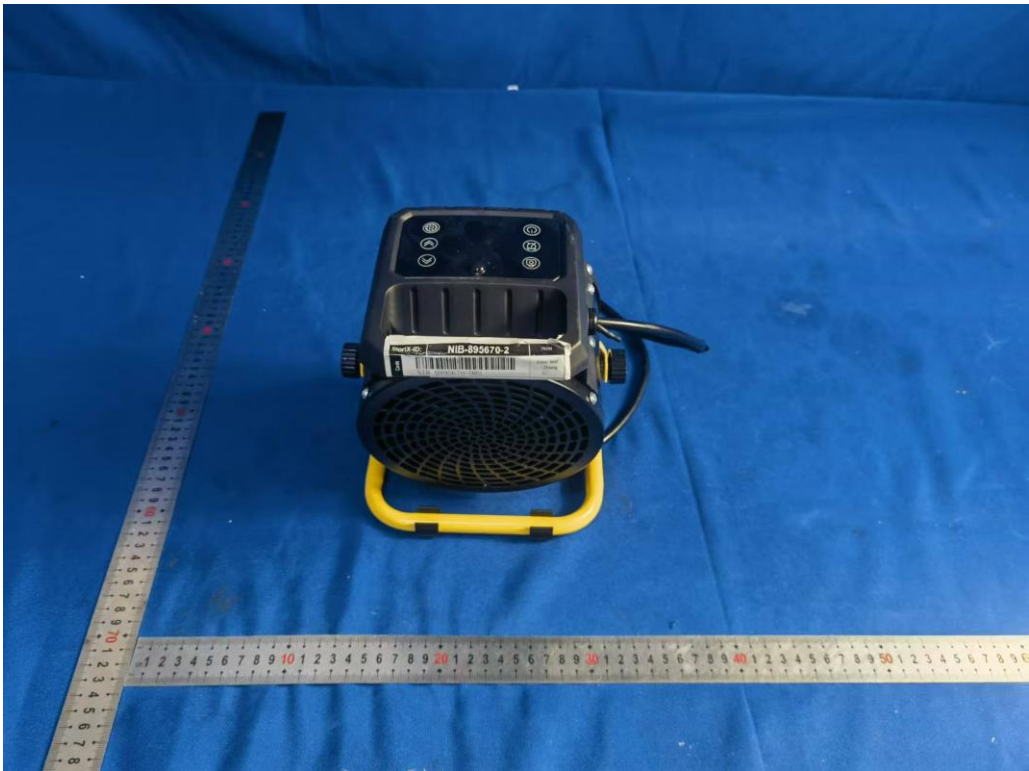


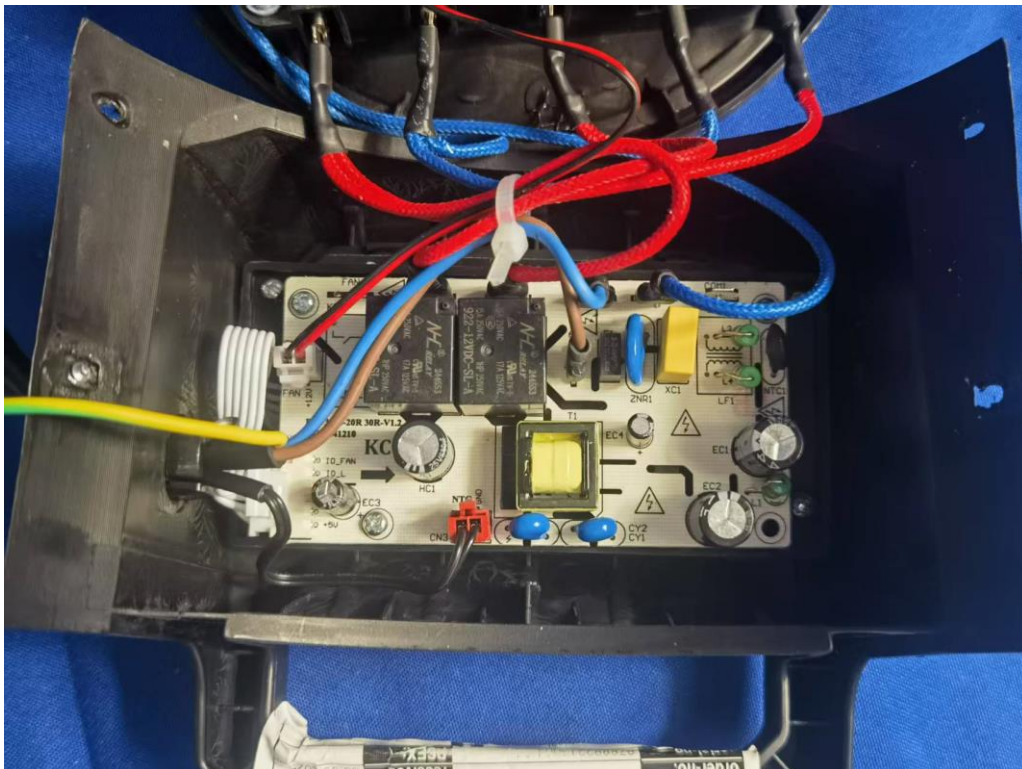


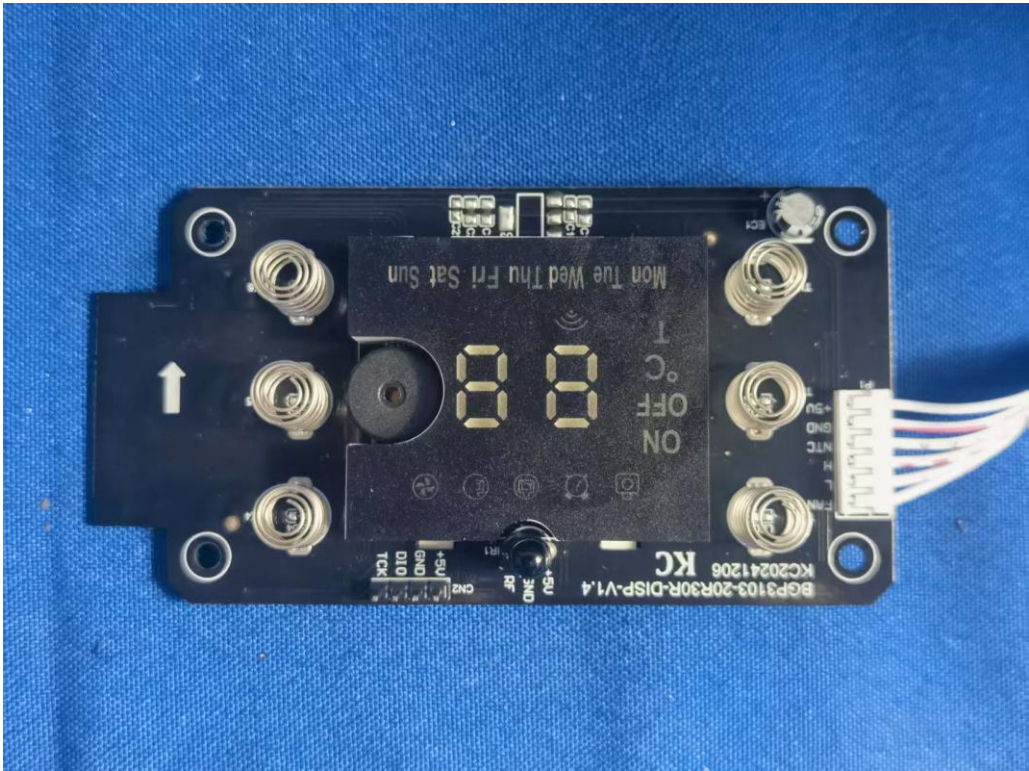
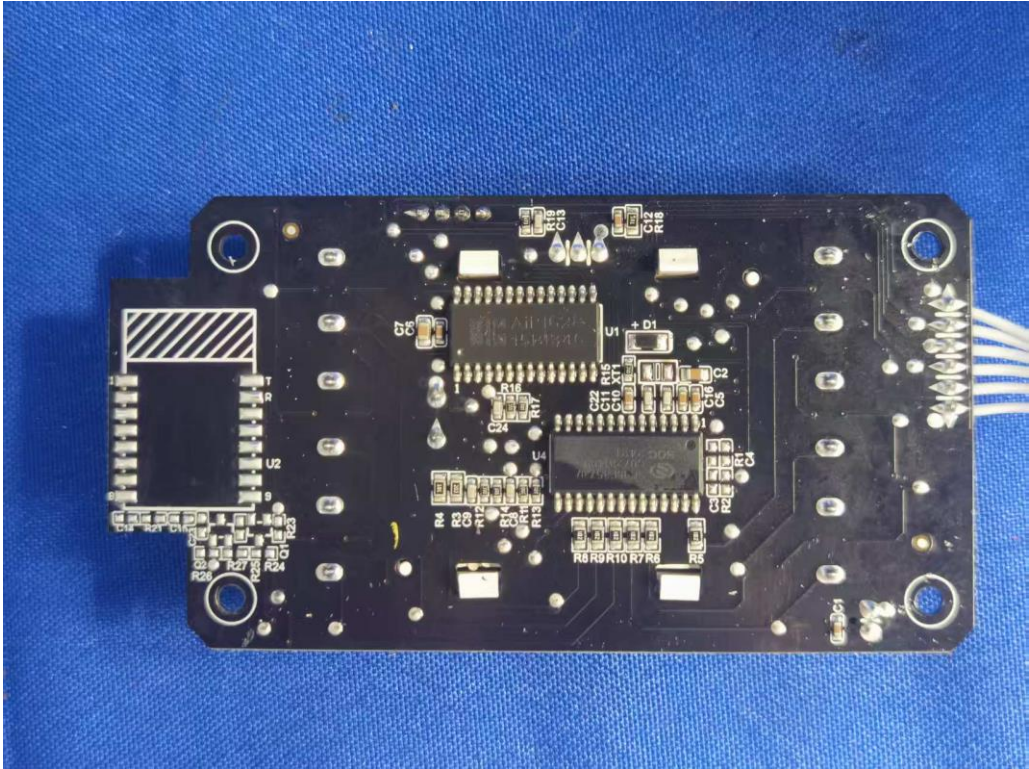


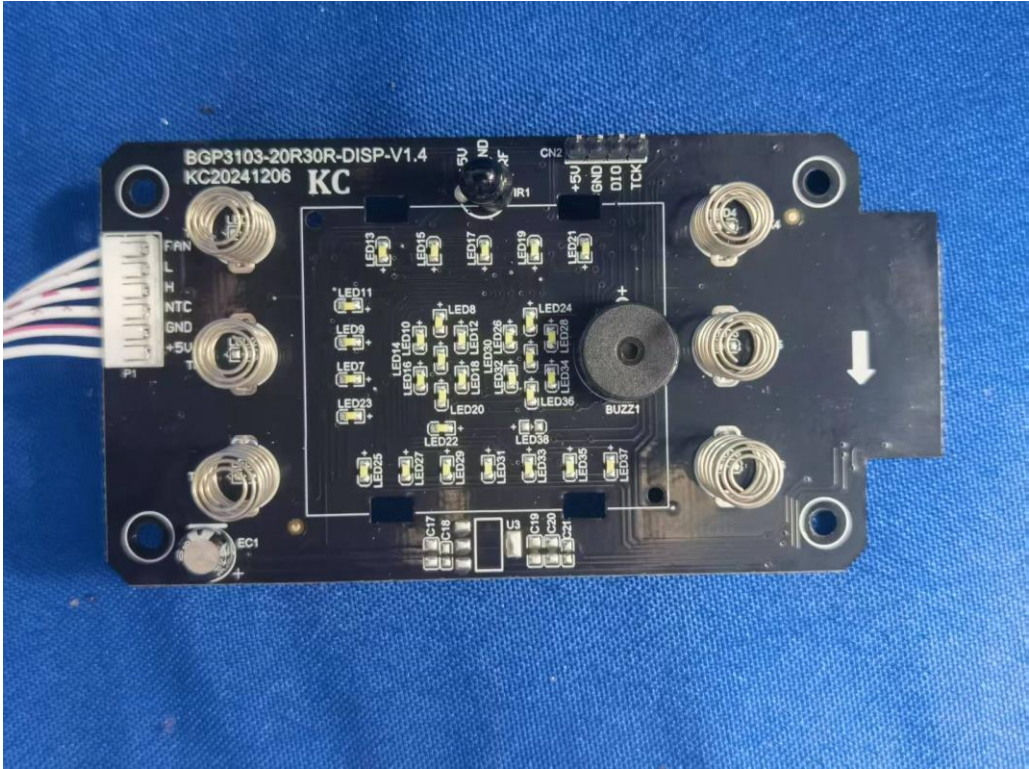


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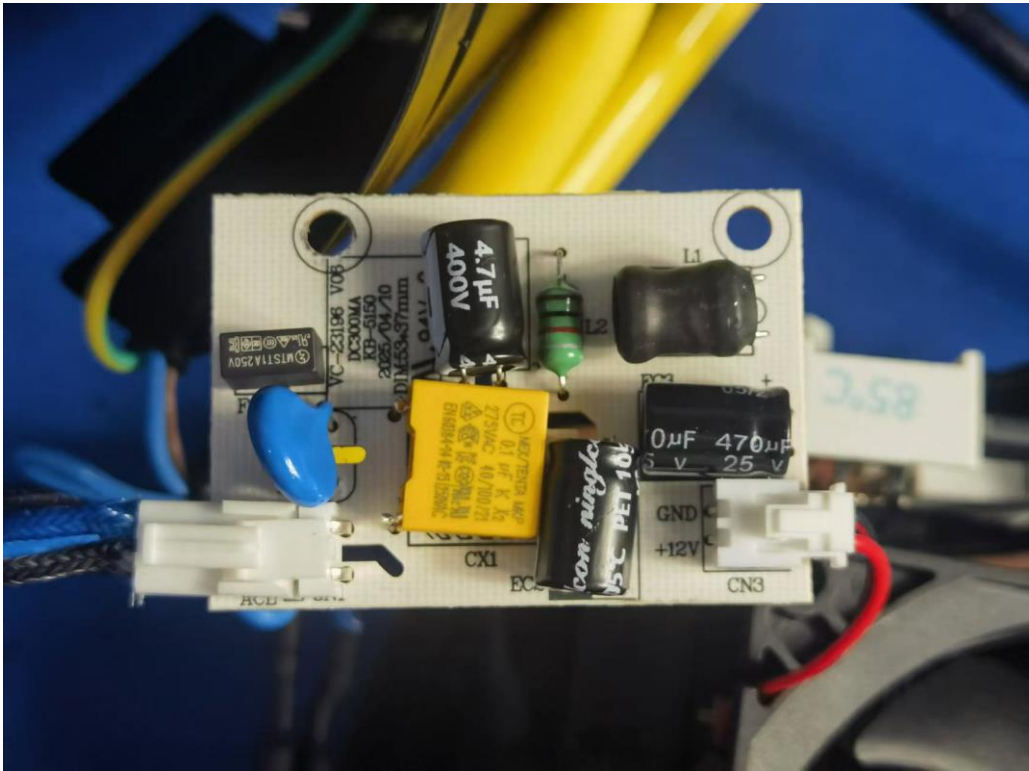
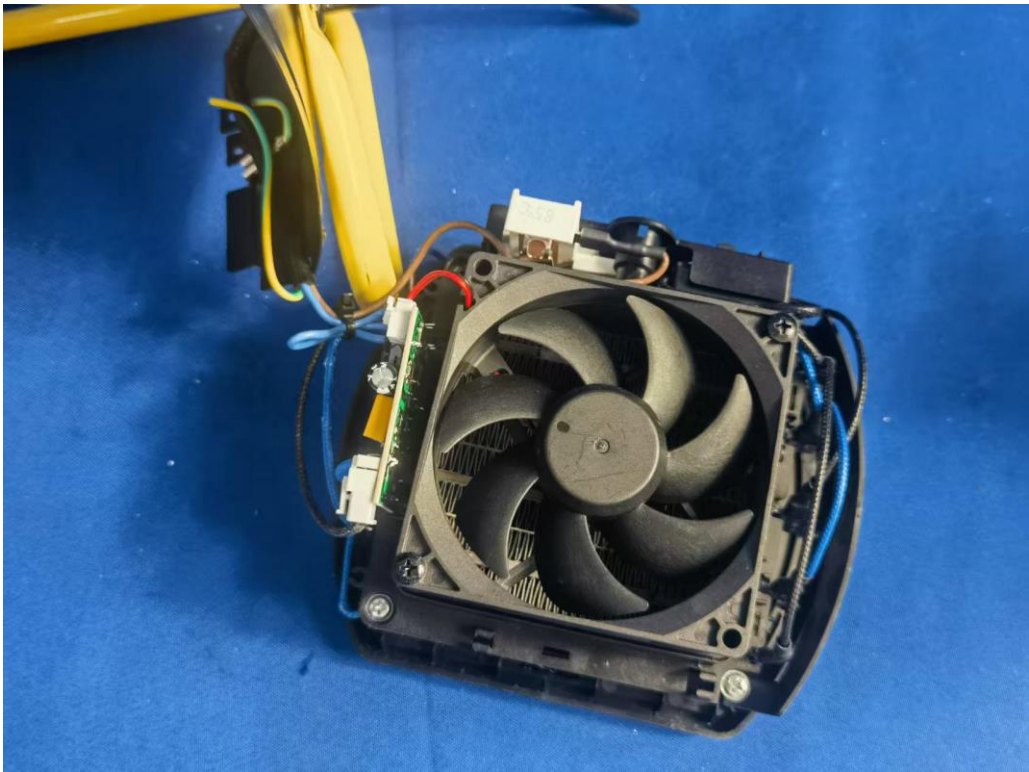


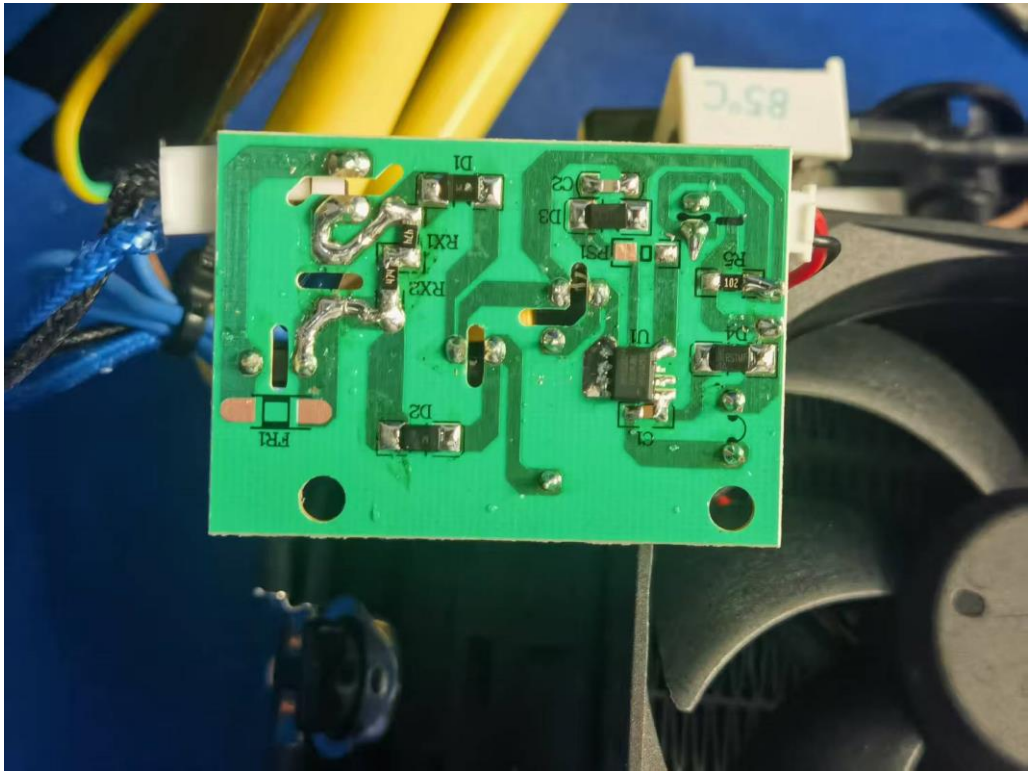
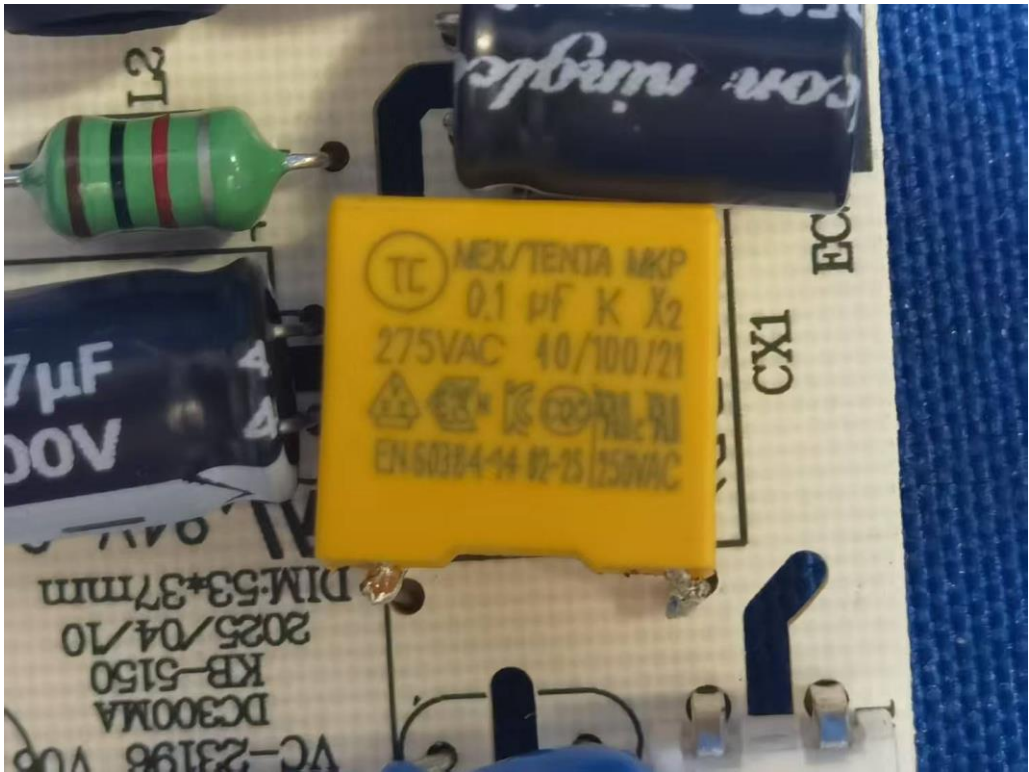


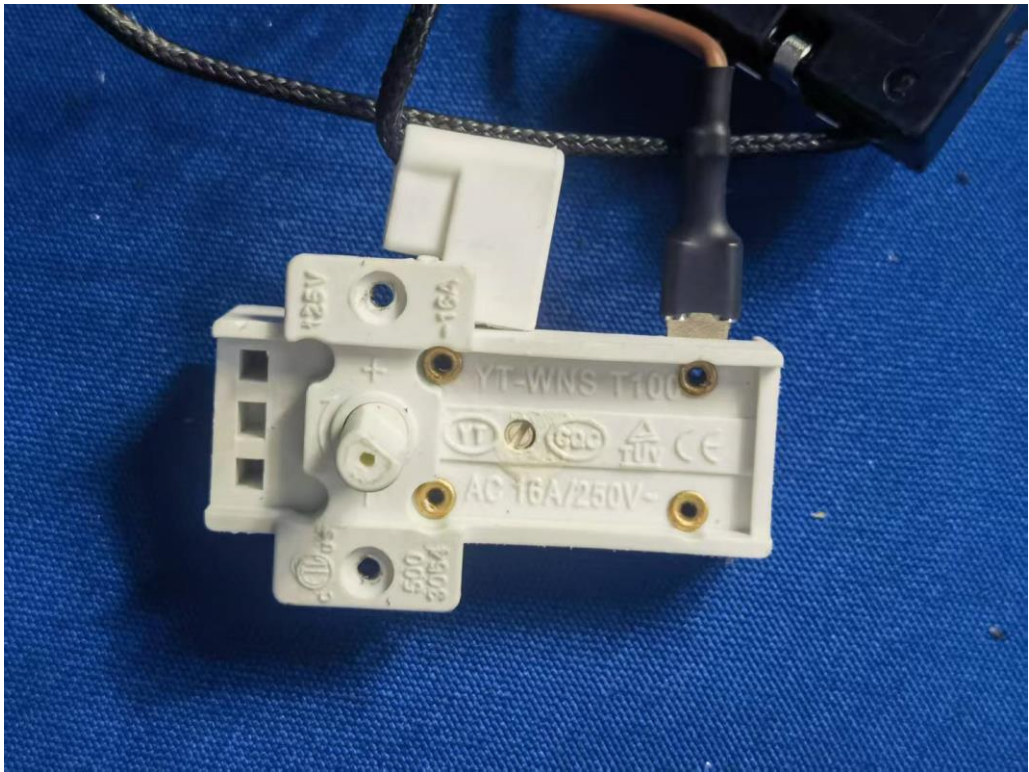


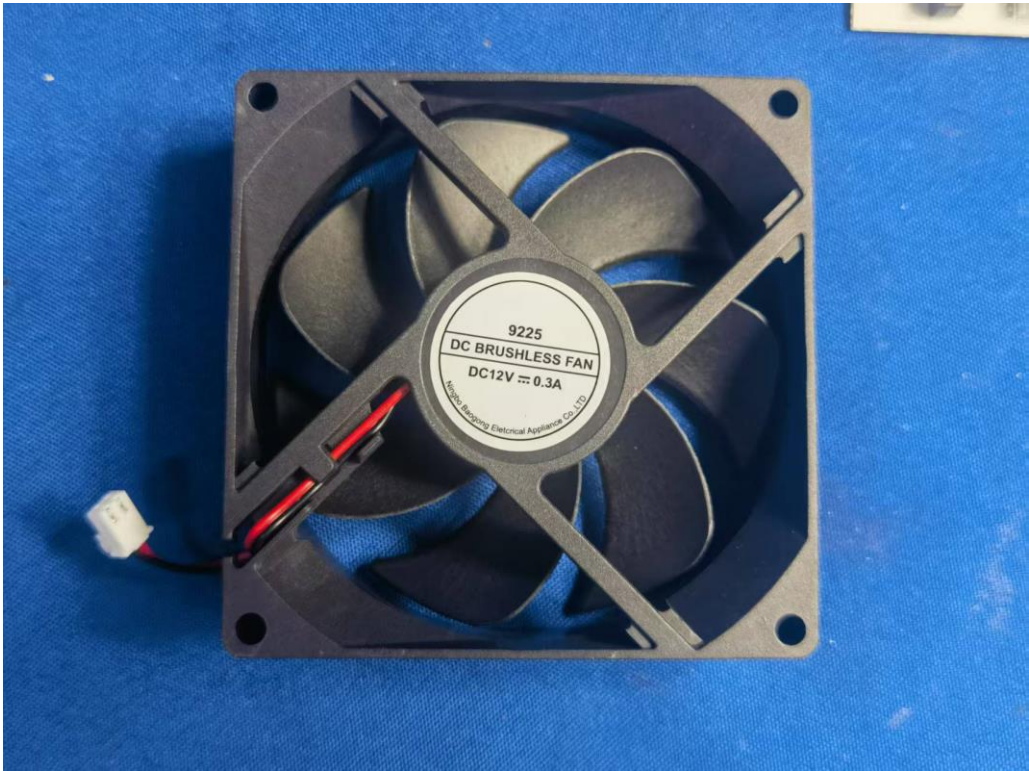
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