SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

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TEST REPORT

Application No.:	GZEM1605002887HS
Applicant:	Dongguan Liank Industrial Co., Ltd.
Address of Applicant:	Room 1406, Tower K, Shibo Plaza, Dongcheng, Dongguan
Manufacturer:	Dongguan Liank Industrial Co., Ltd.
Address of Manufacturer:	Room 1406, Tower K, Shibo Plaza, Dongcheng, Dongguan
Product Description:	Heat Powered Stove Fan
Model No.:	SF-334, SF-112, SF-114, SF-222, SF-224, SF-234, SF-322, SF-353, SF-444, SF-512, SF-514, SF-522, SF-524, SF-612, SF-314, SF-622, SF-624 ¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards:	EN 55014-1:2006+A1:2009+A2:2011 EN 55014-2:2015
Date of Receipt:	2016-05-01
Date of Test:	2016-05-20
Date of Issue:	2016-05-27
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Kobe Jian
EMC Laboratory Manager

2 Test Summary

Item	Standard	Method	Class	Result
Radiated Disturbance(30MHz-1GHz)	EN 55014-1:2006+ A1:2009+A2:2011	CISPR 16-2-3	N/A	Pass
Immunity	EN 55014-2:2015	EN 55014-2:2015	Clause 4.1 of EN 55014-2	Pass

N/A: Not applicable

¤ Declaration of EUT Family Grouping:

Model No.: SF-334, SF-112, SF-114, SF-222, SF-224, SF-234, SF-322, SF-353, SF-444, SF-512, SF-514, SF-522, SF-524, SF-612, SF-314, SF-622, SF-624

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference is the Model No..

Therefore only one model **SF-334** was tested in this report.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply: DC 3V

Cable: N/A

4.2 Description of Support Units

The EUT has been tested with a cup of water at 100℃ temperature

4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under EN 55014-1:2006+A1:2009+A2:2011

Method	Item	Status
CISPR 16-2-1	Conducted Disturbance at Mains Terminals(150KHz-30MHz)	×
CISPR 16-2-1	Conducted Disturbance at Load Terminals and Additional Terminals	×
EN 55014-1:2006+A1:2009+A2:2011	Discontinuous Disturbance(150KHz-30MHz)	×
CISPR 16-2-2	Disturbance Power	×
CISPR 16-2-3	Radiated Disturbance(30MHz-1GHz)	√
CISPR 16-2-3	Radiated Disturbance (Magnetic field Induced Current)(9KHz-30MHz)	×

Table 2 : Tests Carried Out Under EN 55014-2:2015

Method	Item	Status
EN 61000-4-2:2009	Electrostatic Discharge	×
EN 61000-4-3:2006+A1:2008+A2:2010	Radiated Immunity(80MHz-1GHz)	×
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Power Port	×
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Signal Port	×
EN 61000-4-5:2014	Surge at Power Port	×
EN 61000-4-6:2014	Conducted Immunity at Power Port(150kHz-80MHz)	×
EN 61000-4-6:2014	Conducted Immunity at Signal Port(150kHz-80MHz)	×
EN 61000-4-11:2004	Voltage Dips and Interruptions	×
EN 61000-4-6:2014	Conducted Immunity at Power Port(150kHz-230MHz)	×
EN 61000-4-6:2014	Conducted Immunity at Signal Port(150kHz-230MHz)	×

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.4 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059
No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

  The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co. Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: N/A
Audio: N/A

5 Equipment List

Radiated Disturbance(30MHz-1GHz)					
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Due Date**
1	EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2017-01-31
2	EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2017-01-31
3	RI High frequency Cable	SGS	20 m	EMC0528	2018-04-18
4	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	EMC2025	2017-07-13
5	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-08-30
6	Bilog Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-03
7	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-08-31
8	1-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2017-1-24
9	Amplifier	HP	8447F	EMC2065	2016-07-17
10	PRE AMPLIFIER MH648A	ANRITSU CORP	MH648A	EMC2086	2016-12-18
11	Active Loop Antenna	EMCO	6502	EMC0523	2018-02-26
12	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	EMC2041	2017-05-25
13	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2017-01-24
14	2.4GHz filter	Micro-Tronics	BRM 50702	EMC2069	2017-01-24
15	10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-04-29

General used equipment					
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Due Date**
1	DMM	Fluke	73	EMC0006	2016-09-16
2	DMM	Fluke	73	EMC0007	2016-09-16

6 Emission Test Results

6.1 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	EN 55014-1:2006+A1:2009+A2:2011
Test Method:	CISPR 16-2-3
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz-230MHz	30 dB(μV/m) quasi-peak
230MHz-1GHz	37 dB(μV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

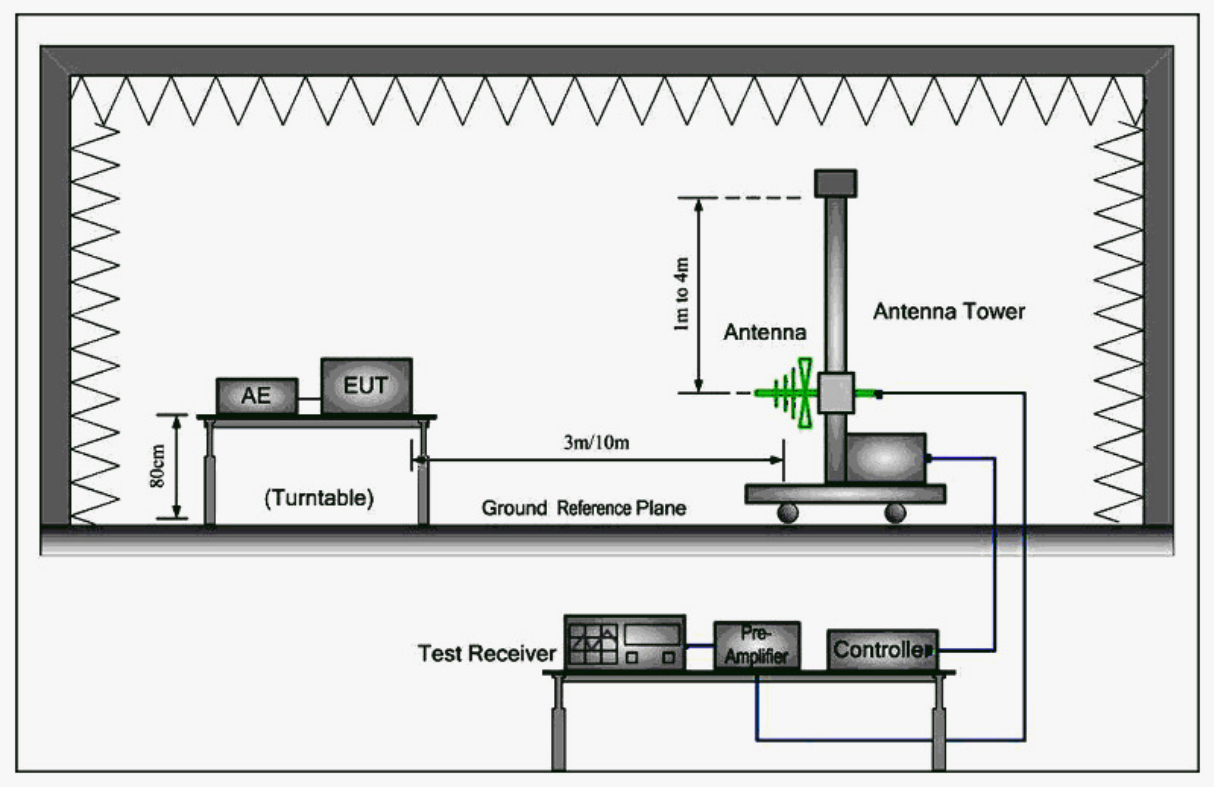
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 60 % RH Atmospheric Pressure: 1006 mbar

Test Mode: a: Test in motor running mode.

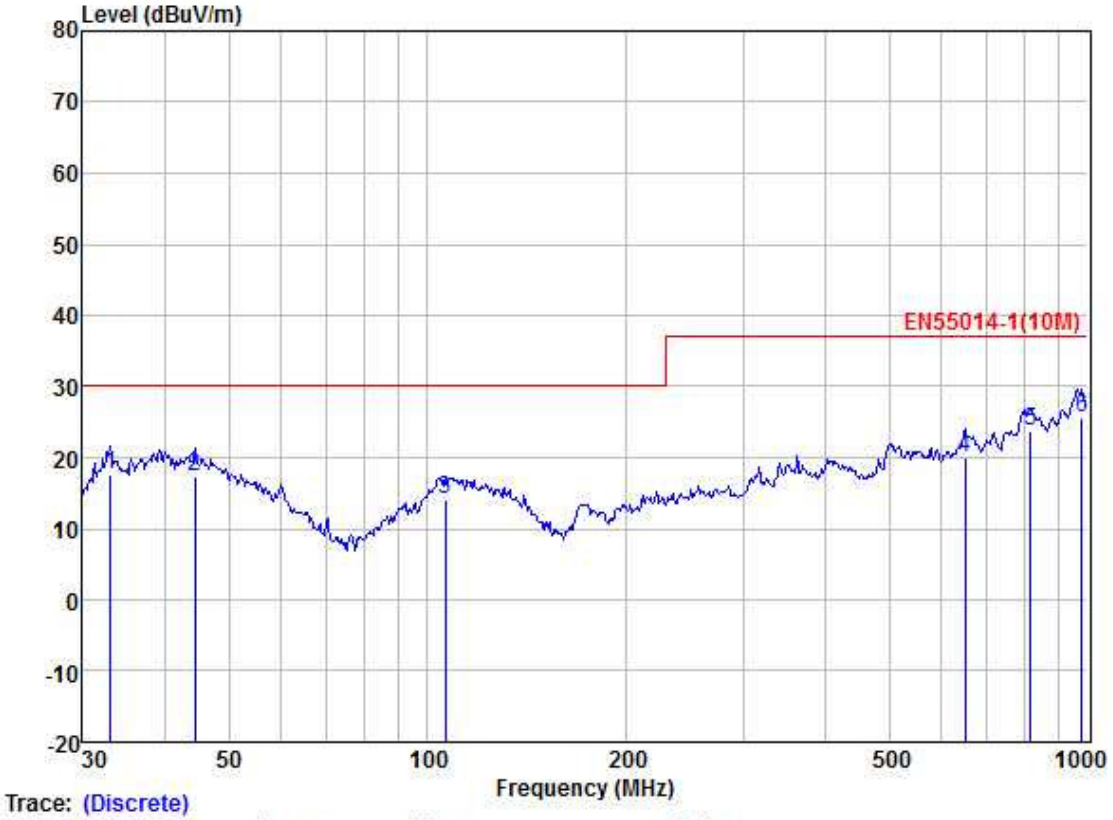
6.1.2 Test Setup



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

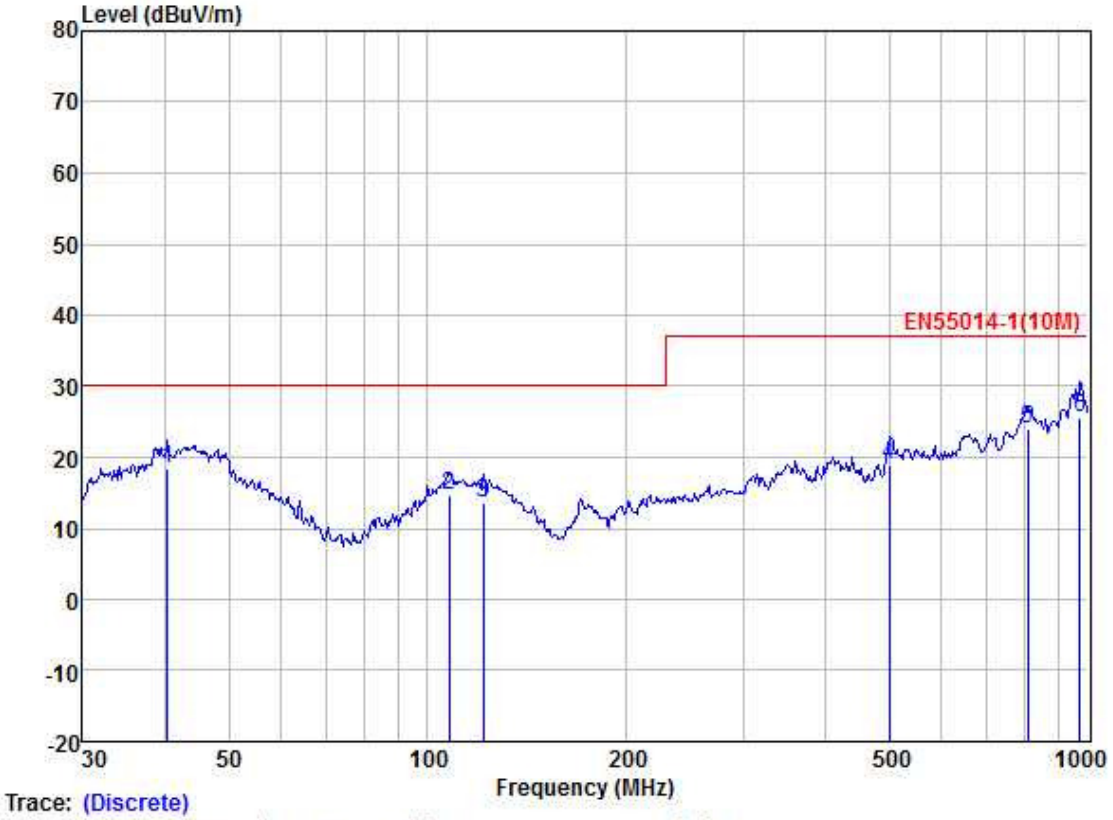
Mode:a;Polarization:Horizontal



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	33.095	25.33	18.29	1.10	27.10	17.62	30.00	-12.38	HORIZONTAL	QP
2	44.431	23.64	19.43	1.19	27.00	17.26	30.00	-12.74	HORIZONTAL	QP
3	106.385	23.35	15.90	1.88	26.90	14.23	30.00	-15.77	HORIZONTAL	QP
4	651.942	24.64	18.44	4.97	28.06	19.99	37.00	-17.01	HORIZONTAL	QP
5	818.834	25.09	20.90	5.67	27.90	23.76	37.00	-13.24	HORIZONTAL	QP
6	979.180	24.37	22.70	6.15	27.55	25.67	37.00	-11.33	HORIZONTAL	QP

Mode:a;Polarization:Vertical



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	40.276	24.94	19.22	1.11	27.00	18.27	30.00	-11.73	VERTICAL	QP
2	107.888	23.81	15.90	1.90	26.90	14.71	30.00	-15.29	VERTICAL	QP
3	121.549	23.47	14.87	2.11	26.90	13.55	30.00	-16.45	VERTICAL	QP
4	499.425	24.42	17.90	4.40	27.80	18.92	37.00	-18.08	VERTICAL	QP
5	810.265	25.43	20.80	5.63	27.90	23.96	37.00	-13.04	VERTICAL	QP
6	972.337	25.04	22.03	6.15	27.57	25.65	37.00	-11.35	VERTICAL	QP

7 Immunity Test Results

Test Requirement: EN 55014-2:2015

Test Method: N/A: See Remark Below

There is no need for immunity tests to be performed on this product in accordance with clause 7.2.1 of EN 55014-2 which states:

“Category I apparatus is deemed to fulfil the relevant immunity requirement without testing.”

For further details, please refer to clause 4.1 of EN 55014-2 which states:

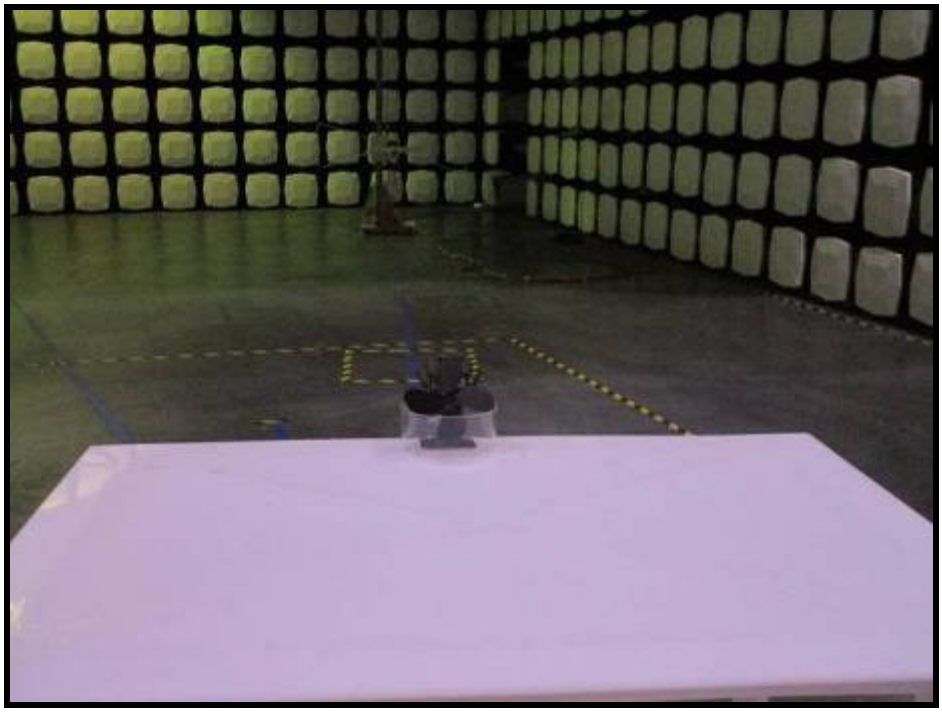
“Category I: apparatus containing no electronic control circuitry.

Example: motor operated appliances, lighting toys, track sets without electronic control units, tools, heating appliances UV and IR radiators and apparatus containing components such as electromechanical switches and thermostats.

Electric circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers and mains frequency rectifiers) are not considered to be electronic control circuitry.”

8 Photographs

8.1 Radiated Disturbance(30MHz-1GHz) Test Setup



8.2 EUT Constructional Details