

TEST REPORT

Application No.: SHEM2005004044AT
Applicant: Shanghai Superhouse Building Material Co., Ltd
Address of Applicant: Level 5, Unit 10, No.8666 Hunan Highway Rd,PuDong New Area, Shanghai, China
Manufacturer: Ningbo Toncom Municipal Facility Technology Co., Ltd
Address of Manufacturer: No. 102, Yang Meiling Road, Meilin street, Ninghai, Ningbo, Zhejiang, China
Factory: Ningbo Toncom Municipal Facility Technology Co., Ltd
Address of Factory: No. 102, Yang Meiling Road, Meilin street, Ninghai, Ningbo, Zhejiang, China
Equipment Under Test (EUT):
EUT Name: Thermometry and Disinfection Machine
Model No.: TZH-21, TZH-22
 □ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2020-05-22
Date of Test: 2020-05-22 to 2020-05-23
Date of Issue: 2020-05-28

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlan Zhan

Parlan Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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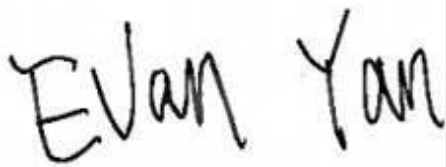
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Revision Record			
Version	Description	Date	Remark
00	Original	2020-05-28	/

Authorized for issue by:			
			
		<hr/>	
		Evan Yan /Project Engineer	
			
		<hr/>	
		Bruce Tang /Reviewer	

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4	Class B	Pass

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Note1: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model TZH-22 was tested since their differences are model number and appearance.



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4 General Information

4.1 Details of E.U.T.

Power supply: 100-240V~, 50/60Hz, 400W

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	±2.6dB (9kHz to 150kHz)
		±2.3dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	±1.9 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	±4.1 dB (150kHz to 30MHz)
4	Radiated Power	±3.0dB
5	Radiated emission	±4.4dB (30MHz-1GHz)
		±4.8dB (1GHz-6GHz)
		±5.2dB (6GHz-18GHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

Tests were sub-contracted.

Shanghai Kintest Technology Co., Ltd
302, Building 3, No.1288 Zhongchun Rd, Shanghai, China

4.5 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

- **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

RE

Test Equipment	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMI Test Receiver	R & S	ESR 26	CJSB2019010	2020.7.11
Antenna (below 1GHz)	Schwarzbeck	VULB 9168	CJSB2019011	2020.7.14
Antenna (above 1GHz)	Schwarzbeck	BBHA 9120D	CJSB2019012	2020.7.14
Pre-Amplifier (below 1GHz)	Com-Power	PAM-103	CJSB2019013	2020.7.11
Pre-Amplifier (above 1GHz)	Com-Power	PAM-118A	CJSB2019014	2020.7.11

CE

Test Equipment	Manufacturer	Model No.	Serial No.	Next Cal. Date
EMI Test Receiver	PMM	PMM 9010	CJSB2019027	2020.7.11
LISN	Schwarzbeck	NSLK 8127	CJSB2019028	2020.7.11
ISN	Teseq	ISN T8	CJSB2019029	2020.7.11

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

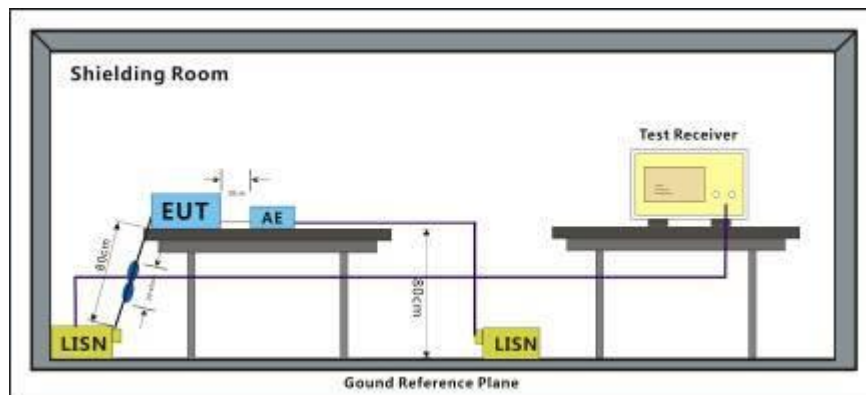
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 26 °C Humidity: 58 % RH Atmospheric Pressure: 1022.2 mbar

Test mode: a: normal working

6.1.2 Test Setup Diagram

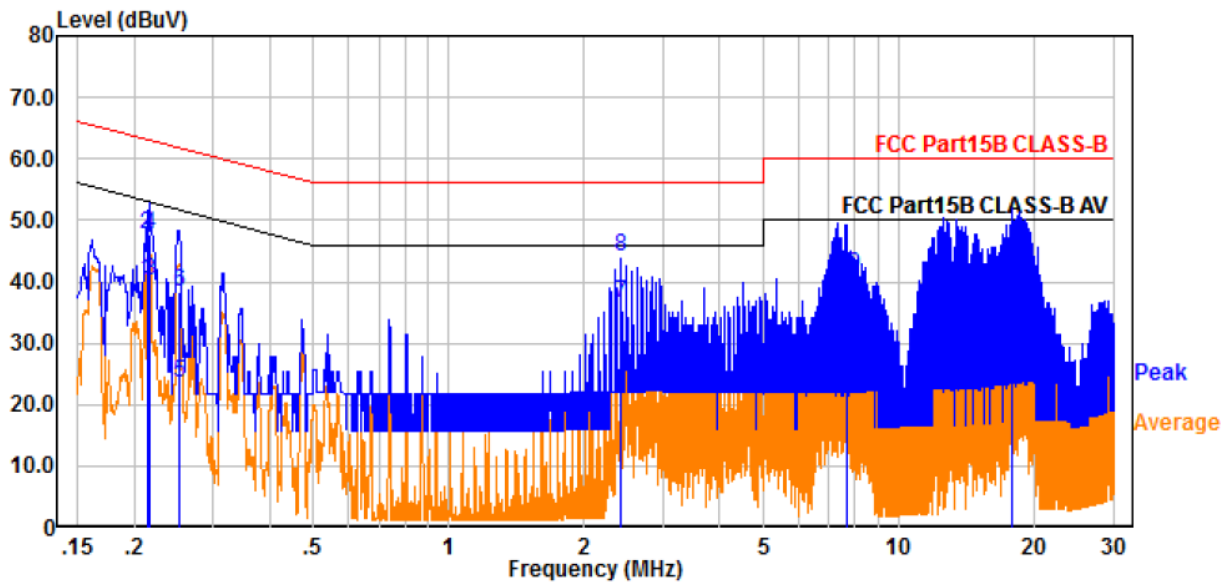


6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Notes : Emission Level=Read Level + LISN Factor + Cable Loss

Mode:a; Line:Live Line

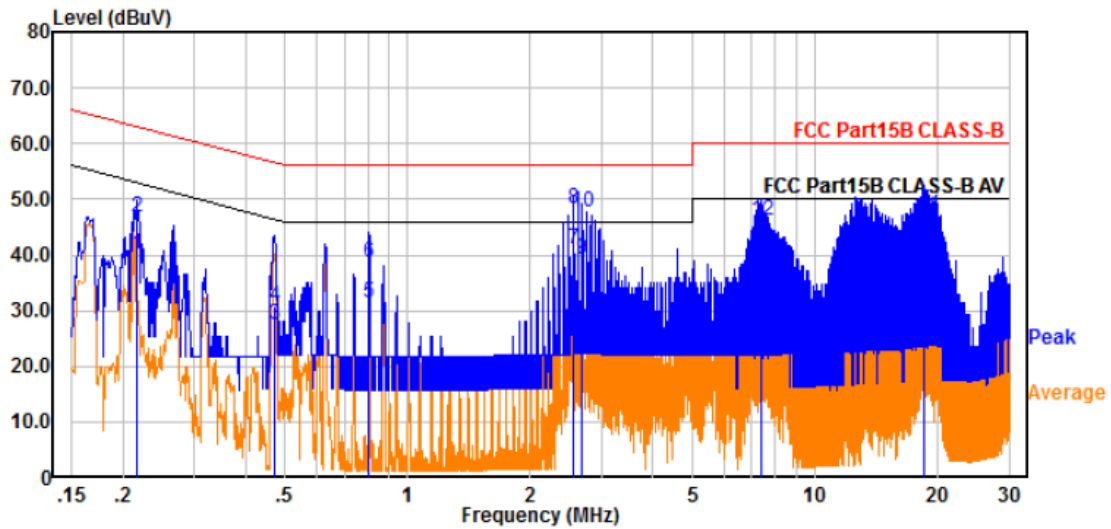


Trace: 1

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin	Phase
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV	
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB	
0.21	37.50	29.88	10.31	47.81	40.19	63.06	53.06	15.25	12.87	Line
0.22	37.27	29.78	10.31	47.58	40.09	62.94	52.94	15.36	12.85	Line
0.25	27.88	13.27	10.31	38.19	23.58	61.70	51.70	23.51	28.12	Line
2.42	33.64	26.11	10.39	44.03	36.50	56.00	46.00	11.97	9.50	Line
7.66	30.37	16.30	10.59	40.96	26.89	60.00	50.00	19.04	23.11	Line
17.91	24.58	12.19	10.77	35.35	22.96	60.00	50.00	24.65	27.04	Line

- Remarks:
1. C.F (Correction Factor) = Insertion loss + Cable loss
 2. Result Value = RD Value + C.F Value
 3. Margin = Limit - Result

Mode:a; Line:Neutral Line



Trace: 1

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin	Phase
MHz	QP	AV		QP	AV	QP	AV	QP	AV	
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB	
0.22	36.35	29.69	10.38	46.73	40.07	62.90	52.90	16.17	12.83	Neutral
0.47	20.32	17.14	10.38	30.70	27.52	56.50	46.50	25.80	18.98	Neutral
0.81	28.34	20.95	10.40	38.74	31.35	56.00	46.00	17.26	14.65	Neutral
2.55	37.92	30.74	10.47	48.39	41.21	56.00	46.00	7.61	4.79	Neutral
2.68	37.26	28.88	10.47	47.73	39.35	56.00	46.00	8.27	6.65	Neutral
7.39	35.58	23.15	10.59	46.17	33.74	60.00	50.00	13.83	16.26	Neutral
18.47	36.04	26.65	10.80	46.84	37.45	60.00	50.00	13.16	12.55	Neutral

Remarks: 1. C.F (Correction Factor) = Insertion loss + Cable loss
 2. Result Value = RD Value + C.F Value
 3. Margin = Limit - Result

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4

Frequency Range: 30MHz to 1GHz

Limit:

30MHz -88MHz 40.0(dBμV/m) quasi-peak

88MHz-216MHz 43.5(dBμV/m) quasi-peak

216MHz-960MHz 46.0(dBμV/m) quasi-peak

960MHz-1000MHz 54.0(dBμV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

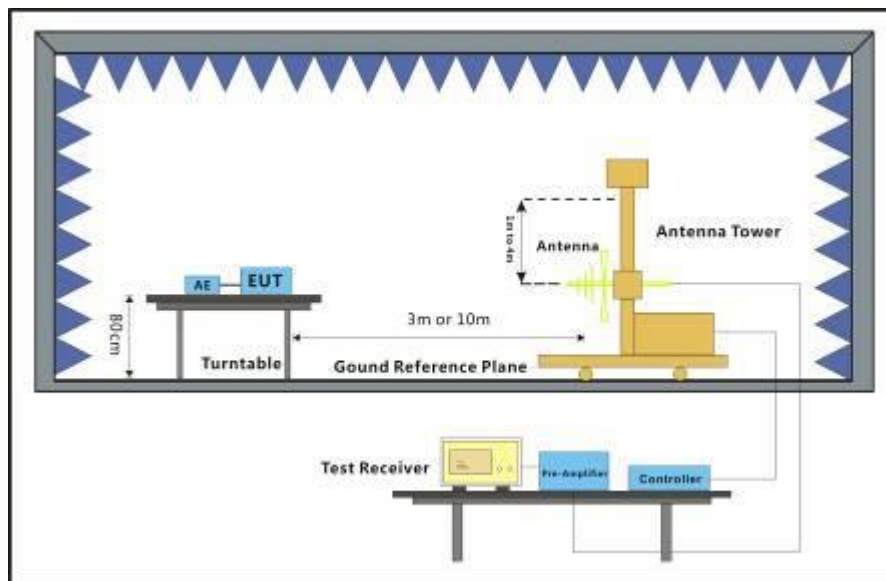
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 57 % RH Atmospheric Pressure: 1022 mbar

Test mode: a: normal working

6.2.2 Test Setup Diagram

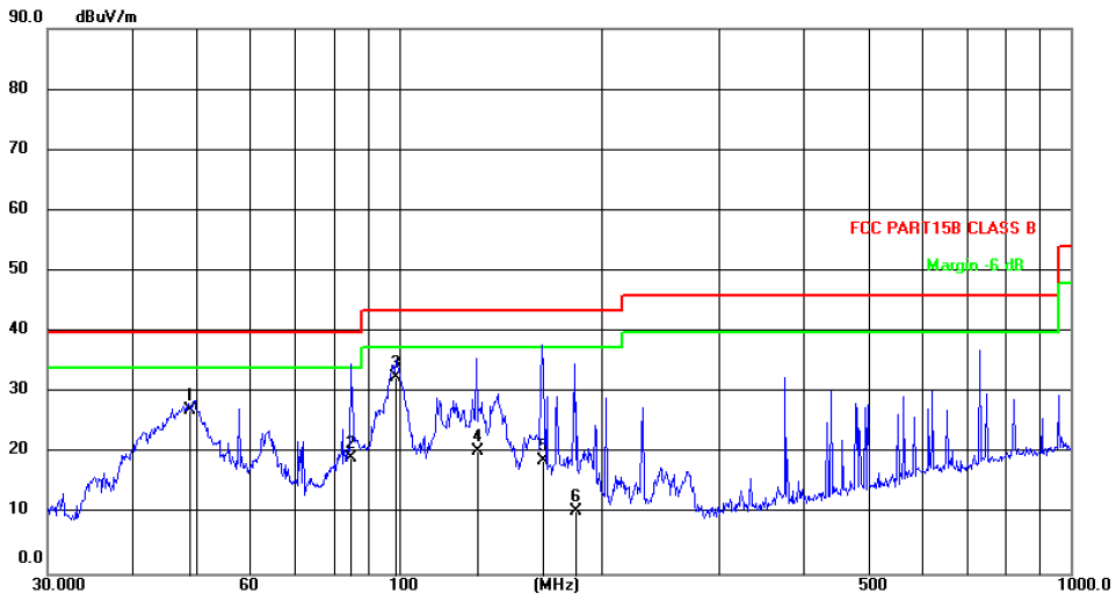


6.2.3 Measurement Data

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.

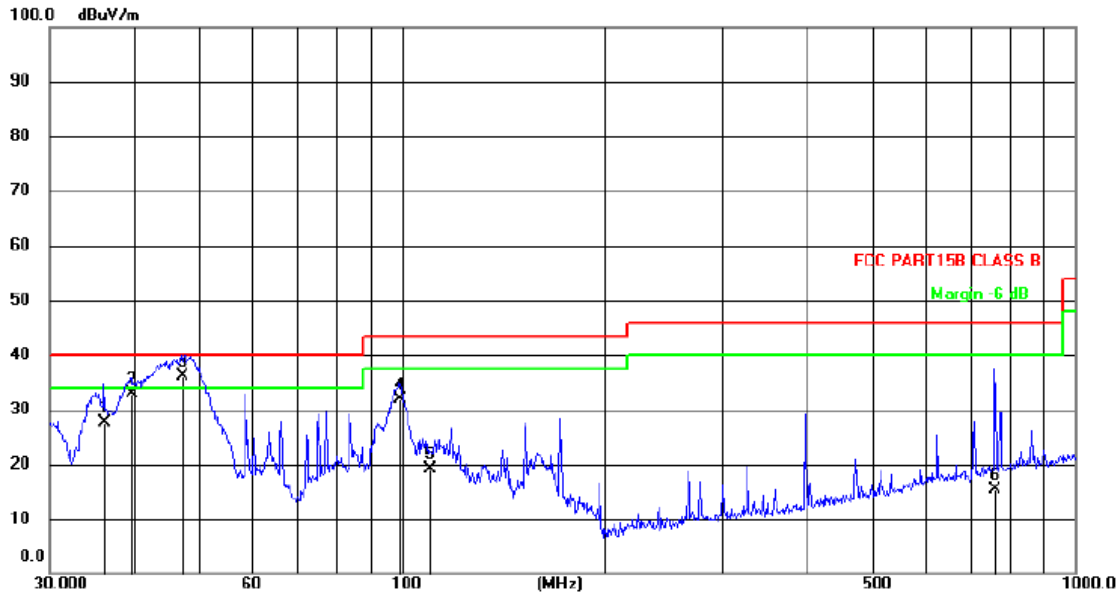
Notes : Emission Level=Read Level + Antenna Factor + Cable Loss – Preamp Factor

Mode:a; Polarization:Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		48.6735	47.37	-20.24	27.13	40.00	-12.87	QP 200	0	
2		84.9697	43.16	-23.82	19.34	40.00	-20.66	QP 200	351	
3	*	99.0754	55.13	-22.70	32.43	43.50	-11.07	QP 200	178	
4		130.7911	40.59	-20.12	20.47	43.50	-23.03	QP 200	192	
5		163.2390	37.41	-18.72	18.69	43.50	-24.81	QP 100	77	
6		182.7514	32.09	-21.72	10.37	43.50	-33.13	QP 200	358	

Mode a;Polarization:Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		36.2286	47.50	-19.94	27.56	40.00	-12.44	QP 100	1	
2		39.6174	52.57	-19.59	32.98	40.00	-7.02	QP 100	192	
3	*	47.2095	56.16	-20.13	36.03	40.00	-3.97	QP 100	199	
4		99.3538	54.61	-22.67	31.94	43.50	-11.56	QP 200	107	
5		109.9624	41.15	-21.99	19.16	43.50	-24.34	QP 200	103	
6		760.1703	23.14	-7.83	15.31	46.00	-30.69	QP 100	199	

7 Photographs

7.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup



7.2 Radiated Emissions (30MHz-1GHz) Test Setup



7.3 EUT Constructional Details (EUT Photos)





--End of the Report--