

FCC PART 18 TEST REPORT

For

Fruto Industrial International Ltd.

Unit 1921, 19/F, China Shine Plaza, No. 3-15 Lin H Tian He, Guangzhou, China

FCC ID: ZBNC18-A06

Report Type: Original Report	Product Type: Induction cooktop
Report Number: RSZ170524551-00	
Report Date: 2017-06-31	
Oscar Ye 	
Reviewed By: Engineer	
Prepared By: Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn	

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
MEASUREMENT UNCERTAINTY:.....	3
TEST FACILITY	4
OPERATING CONDITION/TEST CONFIGURATION.....	5
JUSTIFICATION	5
EUT EXERCISE SOFTWARE	5
SPECIAL ACCESSORIES.....	5
EQUIPMENT MODIFICATIONS	5
SUPPORT EQUIPMENT LIST AND DETAILS	5
EXTERNAL CABLE LIST AND DETAILS	5
BLOCK DIAGRAM OF TEST SETUP	6
TEST EQUIPMENT LIST	7
SUMMARY OF TEST RESULT	8
FCC §18.307 - AC LINE CONDUCTED EMISSIONS.....	9
APPLICABLE STANDARD	9
EUT SETUP.....	9
EMI TEST RECEIVER SETUP.....	9
TEST PROCEDURE	10
TEST RESULTS SUMMARY	10
TEST DATA	10
FCC §18.305 – FIELD STRENGTH.....	13
APPLICABLE STANDARD	13
EUT SETUP.....	13
EMI TEST RECEIVER SETUP AND SPECTRUM ANALYZER SETUP.....	13
TEST PROCEDURE	14
CORRECTED AMPLITUDE & MARGIN CALCULATION	14
TEST RESULTS SUMMARY	14
TEST DATA AND PLOTS.....	14

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Fruto Industrial International Ltd.*'s product, model number: *C18-A06 (FCC ID: ZBNC18-A06)* or the "EUT" in this report is a *Induction cooktop*, which was measured approximately: 32.0 cm (L) * 29 cm (W) * 7.4 cm (H), the rated with input voltage: AC 120V/60Hz. The operating frequency is 28 kHz.

**All measurement and test data in this report was gathered from production sample serial number: 1705007 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-05-24.*

Objective

This report is prepared on behalf of *Fruto Industrial International Ltd.* in accordance with Part 2-Subpart J, and Part 18-Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine compliance with FCC Part 18 limits.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurements were performed at Bay Area Compliance Laboratory Corporation. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty:

Item		Uncertainty
AC Power Lines Conducted Emissions		±3.26 dB
RF Output Power with Power meter		±0.5dB
Radiated emission	30MHz~1GHz	±5.91dB
	Above 1G	±4.92dB
Occupied Bandwidth		±0.5kHz
Temperature		±1.0℃

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

OPERATING CONDITION/TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory was used.

Equipment Modifications

No modifications were made to the EUT tested.

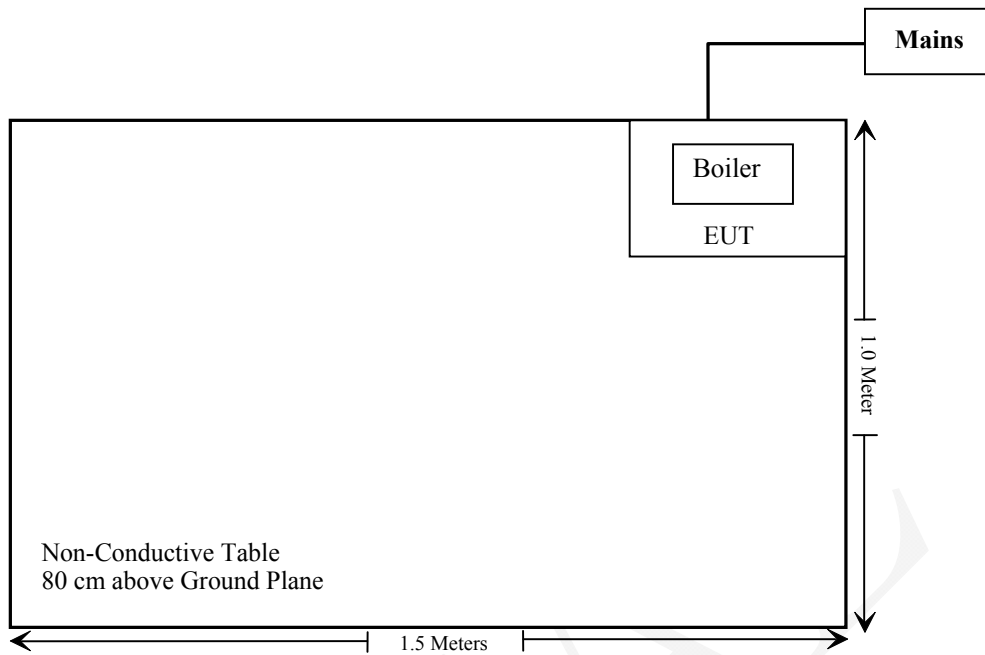
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
OUKE	Boiler	N/A	N/A

External Cable List and Details

Cable Description	Length (m)	From/Port	To
Un-shielding Un-detachable AC Cable	1.0	EUT	LISN

Block Diagram of Test Setup



TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
CONDUCTED EMISSIONS					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2016-11-25	2017-11-25
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2016-10-10	2017-10-10
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2016-06-19	2017-06-18
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2016-09-08	2017-09-08
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	NCR	NCR
RADIATED EMISSIONS					
Sonoma Instrunent	Amplifier	330	171377	2016-12-12	2017-12-12
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
R&S	Auto test Software	EMC32	V 09.10.0	NCR	NCR
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-12
ETS-LINDGREN	PASSIVE LOOP	6512	108100	2016-01-09	2019-01-08

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

SUMMARY OF TEST RESULT

FCC Rules	Description of Test	Results
§18.307	AC Line Conducted Emissions	Compliance
§18.305	Field Strength	Compliance

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC PART 18,

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(L_m)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(L_m)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

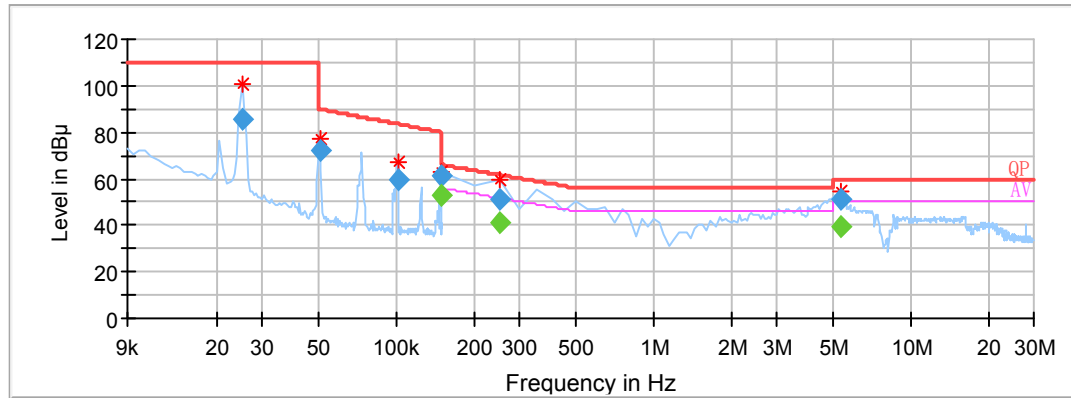
Temperature:	23.4 °C
Relative Humidity:	46 %
ATM Pressure:	101.0 kPa

The testing was performed by Layne Li on 2017-06-06.

Test Mode: Boil Water

AC 120V/60 Hz, Line:

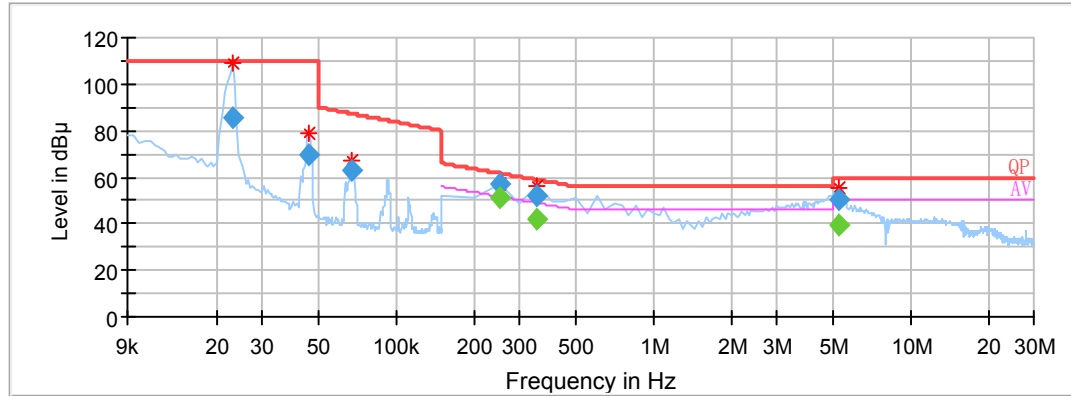
Full Spectrum



Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.025000	85.82	---	0.200	L1	10.3	24.18	110.00	Compliance
0.050500	72.00	---	0.200	L1	10.3	17.91	89.91	Compliance
0.101000	59.87	---	0.200	L1	10.1	23.73	83.60	Compliance
0.150000	---	52.63	9.000	L1	10.1	3.37	56.00	Compliance
0.150000	61.45	---	9.000	L1	10.1	4.55	66.00	Compliance
0.250000	---	41.28	9.000	L1	10.0	10.48	51.76	Compliance
0.250000	50.82	---	9.000	L1	10.0	10.94	61.76	Compliance
5.300000	---	39.61	9.000	L1	9.9	10.39	50.00	Compliance
5.300000	50.96	---	9.000	L1	9.9	9.04	60.00	Compliance

AC 120V/ 60 Hz, Neutral:

Full Spectrum



Frequency (MHz)	QuasiPeak (dBμV)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.023000	85.87	---	0.200	N	10.4	24.13	110.00	Compliance
0.045500	69.30	---	0.200	N	10.3	40.70	110.00	Compliance
0.066500	63.30	---	0.200	N	10.3	24.10	87.40	Compliance
0.250000	---	51.28	9.000	N	10.1	0.48	51.76	Compliance
0.250000	57.18	---	9.000	N	10.1	4.58	61.76	Compliance
0.350000	---	41.57	9.000	N	10.1	7.39	48.96	Compliance
0.350000	52.04	---	9.000	N	10.1	6.92	58.96	Compliance
5.250000	---	39.84	9.000	N	9.9	10.16	50.00	Compliance
5.250000	50.30	---	9.000	N	9.9	9.70	60.00	Compliance

Note:

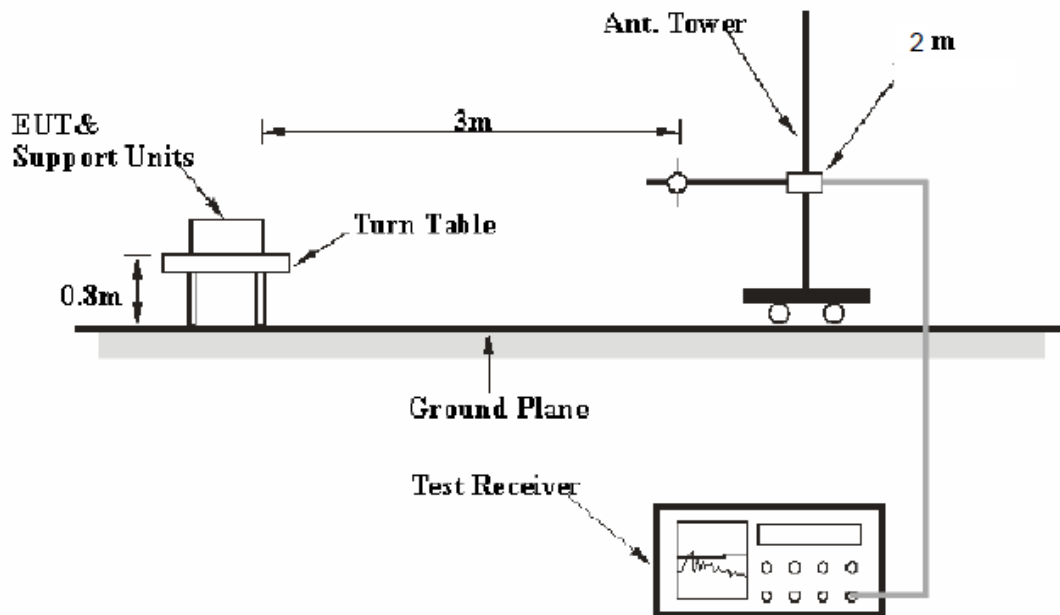
- 1) Corrected Amplitude = Reading + Correction Factor
- 2) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter
- 3) Margin = Limit – Corrected Amplitude

FCC §18.305 – FIELD STRENGTH

Applicable Standard

FCC §18.305(b)

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the FCC MP - 5.

The EUT was connected to 120 VAC/60 Hz power source.

EMI Test Receiver Setup and Spectrum Analyzer Setup

The system was investigated from 28kHz to 1000 MHz.

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
28 kHz – 150 kHz	200 Hz	1 kHz	200 Hz	QP
150 kHz – 30 MHz	9 kHz	30 kHz	9 kHz	QP
30MHz – 1000 MHz	100 kHz	300 kHz	120kHz	QP

Test Procedure

During the conducted emission test, the EUT was connected to the AC floor outlet.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak detection mode.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 18,

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data and Plots

Environmental Conditions

Temperature:	23.4 °C
Relative Humidity:	46 %
ATM Pressure:	101.0 kPa

The testing was performed by Layne Li on 2017-06-06.

Test Mode: Boil Water

28kHz-30 MHz:

Frequency (MHz)	Corrected Amplitude (dBμV/m)	Detector (PK/QP)	Antenna height (cm)	Turntable position (degree)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
26.82	33.27	QP	200.0	331	30.9	103.52	70.25
27.01	36.72	QP	200.0	172	30.9	103.52	66.80
27.55	31.20	QP	200.0	103	30.9	103.52	72.32
28.03	29.87	QP	200.0	161	31.2	103.52	73.65
28.36	28.61	QP	200.0	81	31.2	103.52	74.91
29.51	30.55	QP	200.0	28	31.2	103.52	72.97

Note: 1) Within measurement uncertainty.

2) The radiation limits (3m distance) = $20 \cdot \log 1500 + 40 \cdot \log (30/3) = 103.52$ (dBμV/m)

30 MHz – 1000 MHz:

Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (deg)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)	Remark
53.856875	24.96	107.0	V	307.0	-16.54	83.52	58.56	QP
89.216000	34.34	101.0	V	250.0	-16.87	83.52	49.18	QP
98.092000	36.03	107.0	V	264.0	-16.79	83.52	47.49	QP
141.075625	31.13	182.0	H	110.0	-11.85	83.52	52.39	QP
151.506625	31.99	232.0	H	110.0	-12.08	83.52	51.53	QP
777.737625	30.27	242.0	H	31.0	-2.02	83.52	53.25	QP

***** END OF REPORT *****