

FCC PART 18 TEST REPORT

For

Fruto Industrial International Ltd.

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

FCC ID: ZBNS2F1

Report Type: Original Report	Product Type: INDUCTION COOKER
Test Engineer: Webb Liu	<i>Webb Liu</i>
Report Number: RSZ150309551-00	
Report Date: 2015-05-08	
Reviewed By: EMC Leader	<i>Sunny Sun</i>
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Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Fruto Industrial International Ltd.*'s product, model number: *S2F1 (FCC ID: ZBNS2F1)* or the "EUT" in this report is a *INDUCTION COOKER*, which was measured approximately: 60.0 cm (L) x 36.0 cm (W) x 6.0 cm (H), the rated with input voltage: AC 120V/60Hz. The highest operating frequency is 28 KHz.

Note: The serial models S2F2, S2F3 and S2F1 are identical schematics, the differences among them are their model number and the glass size on the surface. Model S2F1 was selected for fully testing, the detail was explained in the attached product similarity declaration letter provided and guaranteed by applicant.

**All measurement and test data in this report was gathered from production sample serial number: 1503012 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2015-03-09.*

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.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. 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 modification was made to the EUT tested.

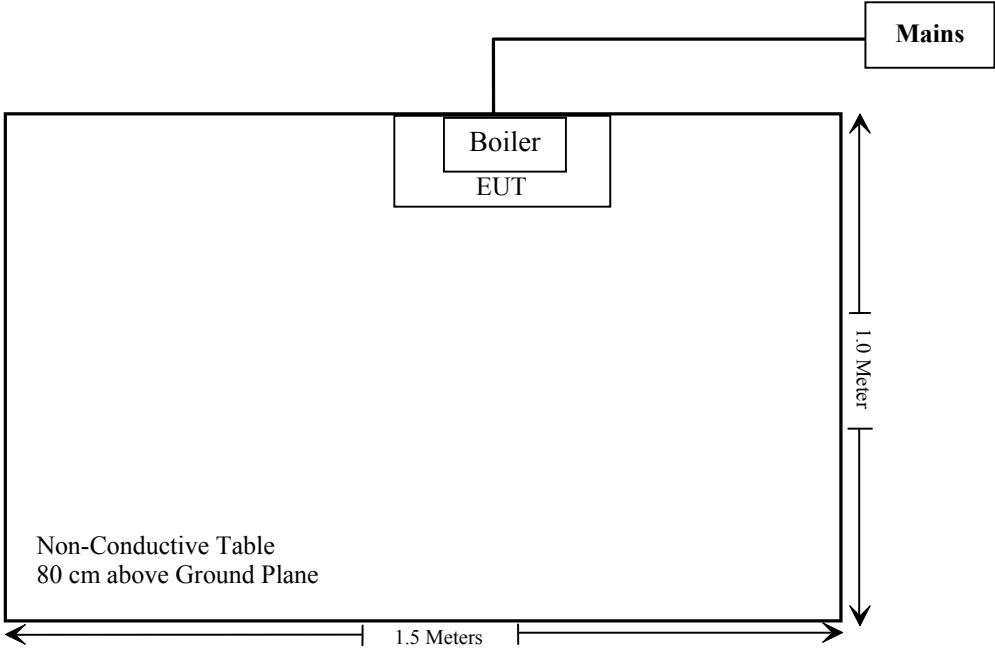
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	Socket	N/A	140217

External Cable

Cable Description	Length (m)	From Port	To
Un-shielding Un-detachable AC Power Cable	1.7	Mains	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULT

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

FCC §18.307 - AC LINE CONDUCTED EMISSIONS

Applicable Standard

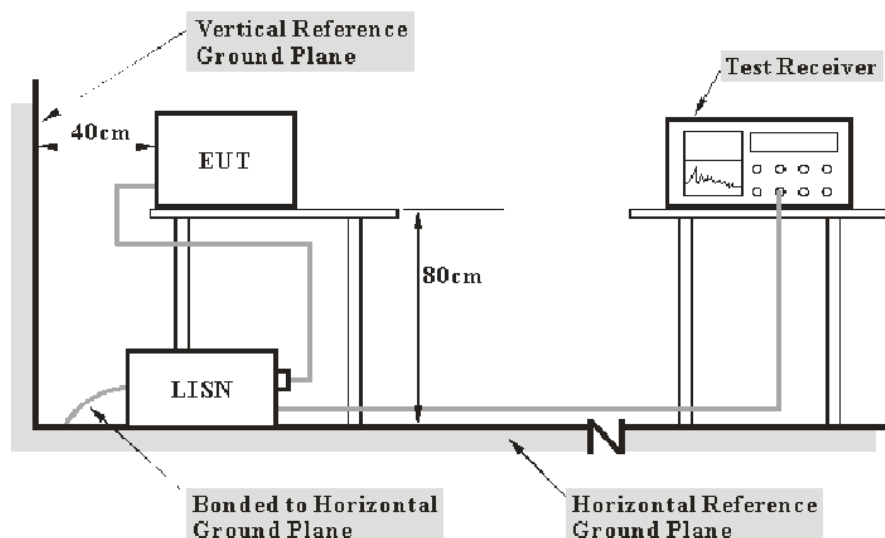
Conduction limits. For the following equipment, when designed to be connected to the public utility (AC) power line the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal using a 50 μ H/50 ohms line impedance stabilization network (LISN).

All Induction cooking ranges and ultrasonic equipment

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.009–0.05	110	-
0.05–0.15	90–80	-
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

* Decreases with the logarithm of the frequency *The tighter limits shall apply at the boundary between two frequency ranges

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

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

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 9 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
9 kHz – 150 kHz	200 Hz
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN.

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

All final data was recorded in the Quasi-Peak detection and Average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2014-06-03	2015-06-03
Rohde & Schwarz	2 nd L.I.S.N.	ESH3-Z5	100113	NCR	NCR
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2014-05-14	2015-05-14
Rohde & Schwarz	1 st L.I.S.N.	ENV216	3560.6650.12-101613-Yb	2014-06-09	2015-06-09
Rohde & Schwarz	CE Test software	EMC 32	V8.53	NCR	NCR

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 18.307(a), the worst margin reading as below:

9.9 dB at 4.982000 MHz in the Line conducted mod & 9.9 dB at 4.970000 MHz in the Neutral conducted mode

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**Environmental Conditions**

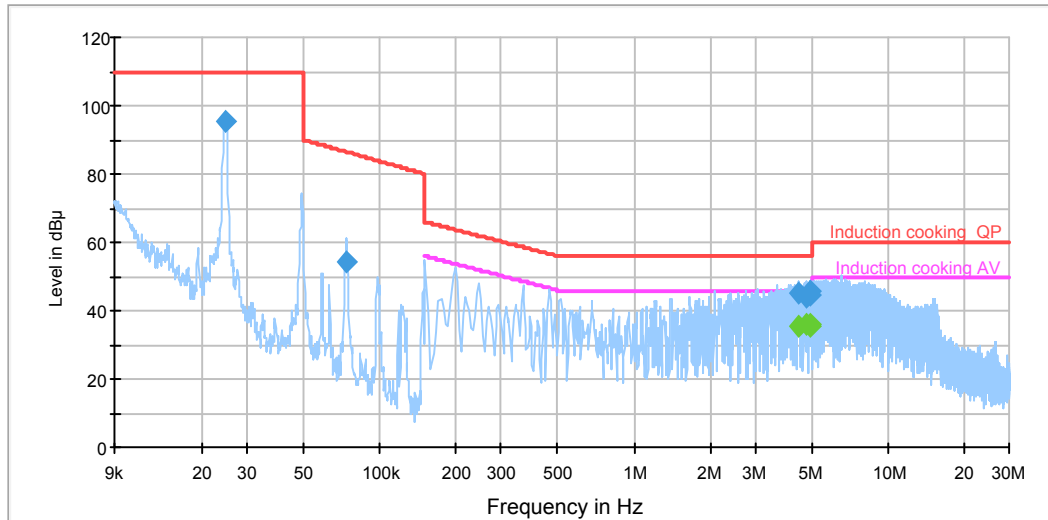
Temperature:	22°C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

Testing was performed by Webb Liu on 2015-03-11.

Test Mode: Max output power and hot water

AC 120V/60 Hz, Line:

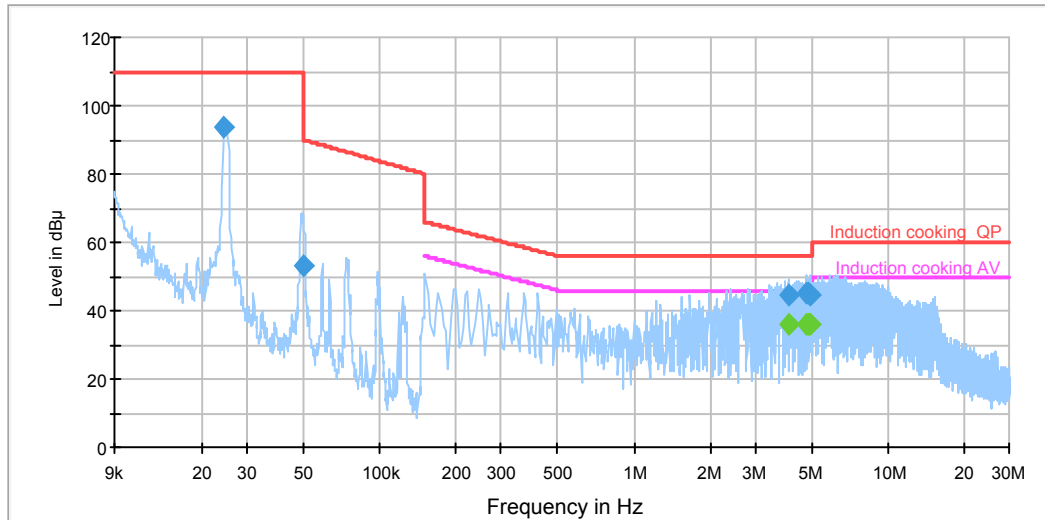
FCC part 18 Induction cooking L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.024513	95.4	19.3	110.0	14.6	QP
0.073481	54.2	19.2	86.5	32.3	QP
4.458000	44.9	19.4	56.0	11.1	QP
4.458000	35.5	19.4	46.0	10.5	Ave.
4.762000	44.3	19.5	56.0	11.7	QP
4.762000	35.7	19.5	46.0	10.3	Ave.
4.930000	44.5	19.5	56.0	11.5	QP
4.930000	35.5	19.5	46.0	10.5	Ave.
4.982000	45.6	19.5	56.0	10.4	QP
4.982000	36.1	19.5	46.0	9.9	Ave.

AC 120V/ 60 Hz, Neutral:

FCC part 18 induction cooking N



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
0.024319	93.7	19.2	110.0	16.3	QP
0.050089	53.3	19.2	90.0	36.7	QP
4.050000	44.8	19.4	56.0	11.2	QP
4.050000	35.8	19.4	46.0	10.2	Ave.
4.770000	45.0	19.4	56.0	11.0	QP
4.770000	35.9	19.4	46.0	10.1	Ave.
4.890000	45.0	19.4	56.0	11.0	QP
4.890000	36.0	19.4	46.0	10.0	Ave.
4.970000	44.4	19.4	56.0	11.6	QP
4.970000	36.1	19.4	46.0	9.9	Ave.

Note:

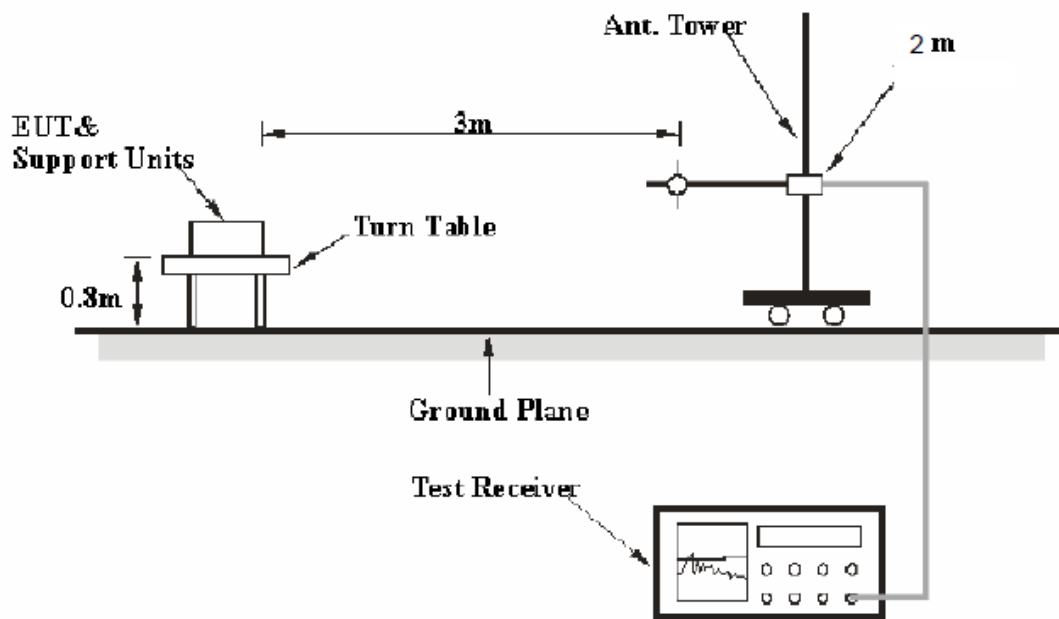
- 1) Corrected Amplitude = Reading + Correction Factor
- 2) Correction Factor = LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
- 3) Margin = Limit – Corrected Amplitude

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 9 kHz 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
9 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 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:

$$\text{Corrected Amplitude} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss}$$

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-LINDGREN	Passive Loop Antenna	6512	00029604	2012-11-30	2015-11-29
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2014-11-03	2015-11-03
TDK	Chamber	Chamber A	2#	2012-10-15	2015-10-15
HP	Amplifier	HP8447E	1937A01046	2014-05-06	2015-05-06
R&S	Auto test Software	EMC32	V9.10	NCR	NCR

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

Test Data

Environmental Conditions

Temperature:	22°C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Webb Liu on 2015-03-11

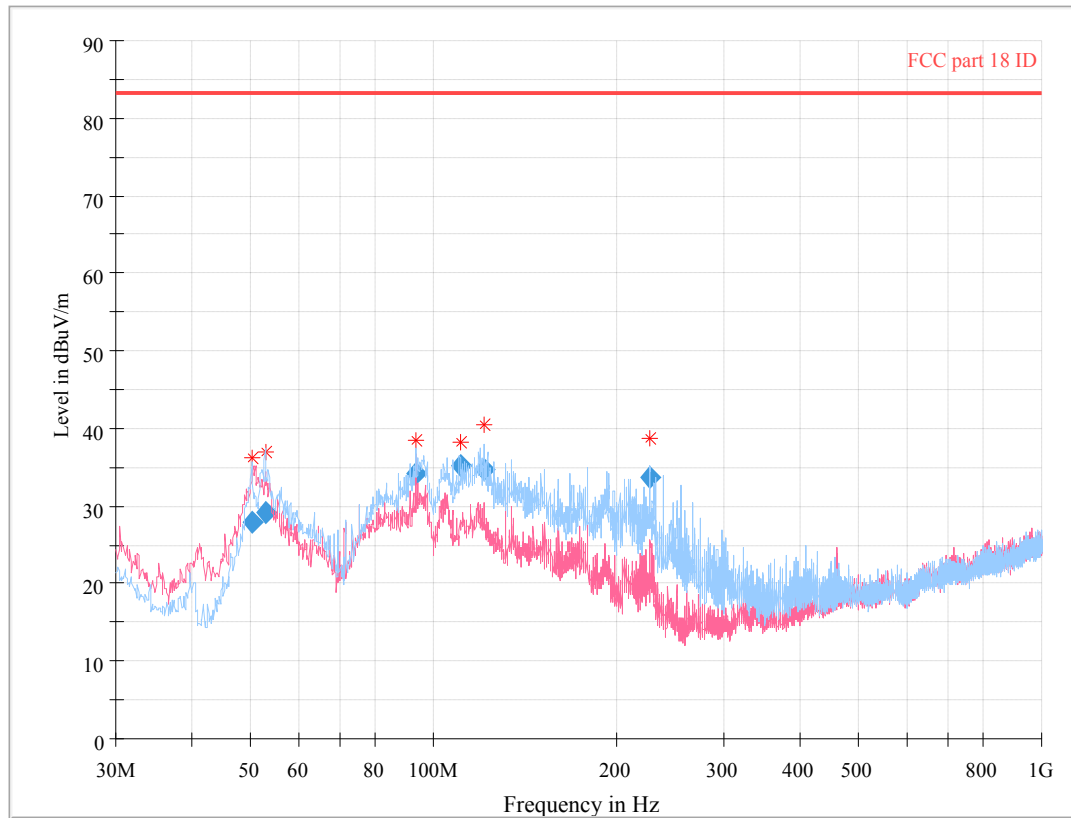
Test Mode: Max output power and hot water

1)9 kHz-30 MHz

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Detector (PK/QP/Ave.)	Direction (Degree)	Height (m)	Correction Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
2.56	54.86	QP	48	2	38.6	83.52	28.66
6.98	51.62	QP	69	2	33.4	83.52	31.90
7.95	52.69	QP	149	2	32.9	83.52	30.83
10.46	54.31	QP	72	2	32.2	83.52	29.21
12.86	51.00	QP	281	2	31.9	83.52	32.52
15.62	53.26	QP	195	2	31.9	83.52	30.26

2)30 MHz – 1000 MHz

Full Spectrum



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (deg)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)	Remark
50.331125	27.87	400.0	H	174.0	-19.7	83.52	55.65	QP
52.922000	29.27	389.0	H	172.0	-20.1	83.52	54.25	QP
93.613375	34.21	217.0	H	158.0	-18.3	83.52	49.31	QP
110.590000	35.08	275.0	H	327.0	-14.2	83.52	48.44	QP
121.525750	34.72	283.0	H	319.0	-12.9	83.52	48.80	QP
227.056750	33.62	134.0	H	187.0	-15.3	83.52	49.90	QP

PRODUCT SIMILARITY DECLARATION LETTER

Fruto Industrial International Ltd.

Unit 1921, 19/F, China Shine Plaza, No. 3-15 Lin H Tian He, Guangzhou, China
Tel: 86-20-38100902 Fax: 86-20-38100912

2015-5-7

Product Similarity Declaration

To Whom It May Concern,

We, Fruto Industrial International Ltd., hereby declare that we have a product named as INDUCTION COOKER (Model number: S2F1) was tested by BACL, meanwhile, for our marketing purpose, we would like to list a series models S2F2, S2F3 on reports and certificate, all the models are identical schematics only the glass size on the surface is different.

For the detailed difference description, pls refer to the sheet attached in the following pages.

No other changes are made to them.

We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

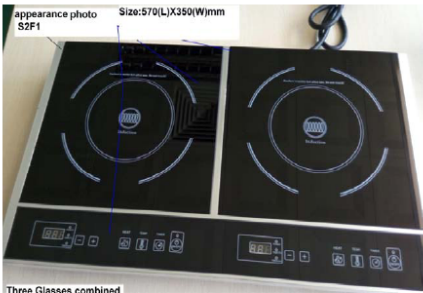
Signature:



Printed Name: April Chan

Title: Manager

ADD: RM.1921, 19TH FLOOR, CHINA SHINE PLAZA, NO.9, LIN HE XI ROAD, TIANHE DISTRICT, GUANGZHOU
Email: april@fruto.cn, Tel.: 86-20-38100900, Fax.: 86-20-38100912
Version 1.0 (2014-7-1) Page 1 of 1 QB-SA-040

Different item	S2F1	S2F2	S2F3
Appearance Photo and description	appearance photo S2F1 Size:570(L)X350(W)mm  Three Glasses combined	S2F2 Appearance photo Only one glass. Size:600(L)X360(W)mm 	S2F3 appearance photo Only one glass Size:630(L)X380(W)mm 
Inner view		S2F2 inner view 	S2F3 inner view 
PCB	S2F1 inner photo 	S2F2 inner view 	S2F3 inner view 

****END OF REPORT****