# FCC TEST REPORT

for

## PART 18, SUBPART C

EQUIPMENT : INDUCTION COOK-TOP

MODEL NO. : SR-1151F-1

**F C C I D** : LFUSUN1151F-1

**FILING TYPE** : Original Grant

APPLICANT : **SUNPENTOWN ELECTRIC CO., LTD.**
1R., 16F, No. 248, Sec. 3, Nan-King E. Rd.,
Taipei, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

***SPORTON INTERNATIONAL INC.***

*6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.*

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CERTIFICATE NO. : F9D2211

# CERTIFICATE OF COMPLIANCE

for

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**F C C I D** : LFUSUN1151F-1

APPLICANT : **SUNPENTOWN ELECTRIC CO., LTD.**
1R., 16F, No. 248, Sec. 3, Nan-King E. Rd.,
Taipei, Taiwan, R.O.C.

## I **HEREBY** CERTIFY THAT :

The measurement shown in this report were made in accordance with the procedures given in **FCC/OET MP-5 (1986)** and the energy emitted by this equipment was ***passed*** both radiated and conducted emissions **Class B** limits.
Testing was carried out on ***Jan. 20, 2000*** at **SPORTON International Inc.**

W. L. Huang
General Manager

***SPORTON INTERNATIONAL INC.***

*6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.*

# 1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST

## 1.1. APPLICANT

**SUNPENTOWN ELECTRIC CO., LTD.**
1R., 16F, No. 248, Sec. 3, Nan-King E. Rd.,
Taipei, Taiwan, R.O.C.

## 1.2. MANUFACTURER

Same as 1.1

## 1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

EQUIPMENT : INDUCTION COOK-TOP
MODEL NO. : SR-1151F-1
FCC ID: LFUSUN1151F-1
TRADE NAME : MR. INDUCTION
POWER SUPPLY TYPE : Switching
POWER CORD : Non-shielded, 1.7m, 3 pin

## 1.4. FEATURE OF EQUIPMENT UNDER TEST

| | |
|---|---|
| ***Voltage*** | 120V/60Hz |
| ***Consumption*** | 1500W |
| ***Power Range*** | 450~1500W |

# 2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

## 2.1. TEST MANNER

a. The EUT pursuant to FCC/OET MP-5 (1986) and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
b. Frequency range investigated: Conduction 10 KHz to 30 MHz, Radiation 9 KHz to 30 MHz.
c. Before testing, the engineer turns on the power of the equipment to make it work normally during testing.

## 2.2. DESCRIPTION OF TEST SYSTEM

There is only a test equipment on the table. No support unit was needed while testing.

# 3. EUT OPERATION CONDITION

1. *Turn on the power of the INDUCTION COOKTOP (EUT).*
2. *Change the EUT operation switch to "COOK" mode.*
3. *Adjust the temperature setting to maximum.*

# 4. GENERAL INFORMATION OF TEST

## 4.1. TEST FACILITY

### < CONDUCTION >

This test was carried out by SPORTON International Inc.

Open Area Test Site Location : No. 3, Lane 238, Kang Lo Street, Nei Hwu District, Taipei 11424, Taiwan, R.O.C.
TEL : 886-2-2631-4739
FAX : 886-2-2631-9740

### < RADIATION >

This test was carried out by SPORTON International Inc.

Test Site Location : No. 30-2, Lin 6, Diing-Fwu Tsuen, Lin-Kou-Hsiang, Taipei Hsien, Taiwan, R.O.C.
TEL : 886-2-2601-1640
FAX : 886-2-2601-1695

## 4.2. STANDARD FOR METHODS OF MEASUREMENT

FCC/OET MP-5 (1986)

## 4.3 .TEST IN COMPLIANCE WITH

FCC PART 18, SUBPART C

## 4.4. FREQUENCY RANGE INVESTIGATED

a. Conduction : from 10 KHz to 30 MHz

b. Radiation : from 9 KHz to 30 MHz.

## 4.5. TEST DISTANCE

The test distance of radiated emission from antenna to EUT is 10M.

# 5. TEST OF CONDUCTED POWERLINE

Conducted Emissions were measured from 10 KHz to 30 MHz with a bandwidth of 10 KHz for 150KHz to 30MHz and 200Hz for 10KHz to 150KHz on the 120VAC power and return leads of the EUT according to the methods defined in FCC/OET MP-5(1986). The EUT was placed on a nonmetallic stand in a shielded room 0.4 meters above the ground plane as shown in Section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

## 5.1. MAJOR MEASURING INSTRUMENTS

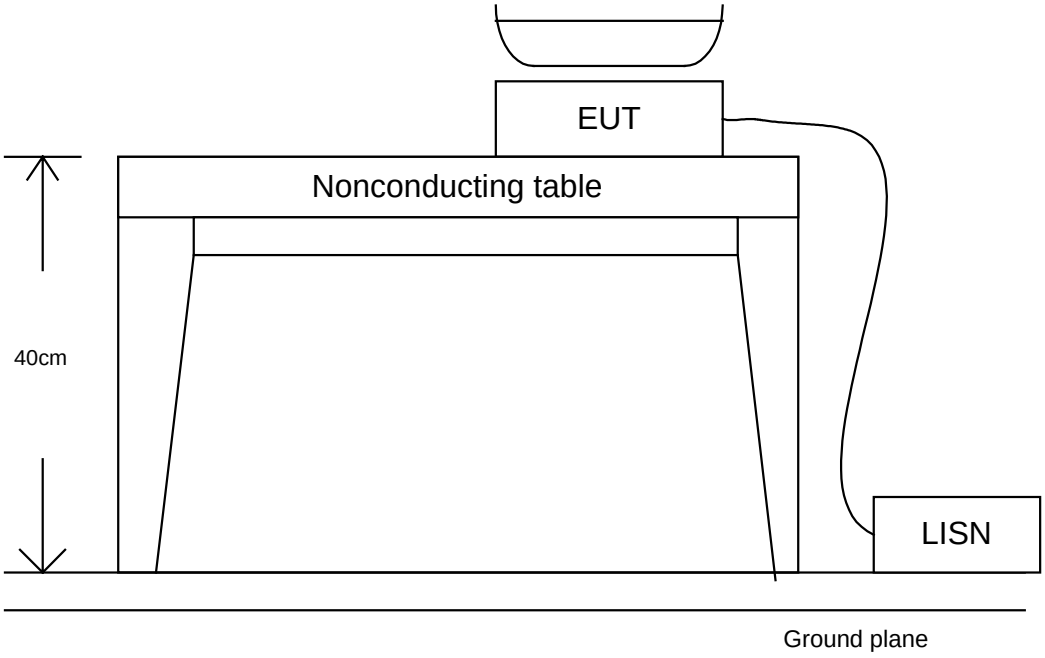
- Test Receiver ( R&S ESH3 )

| | | |
|---|---|---|
| Attenuation | 0 dB | 0 dB |
| Start Frequency | 150 KHz | 10 KHz |
| Stop Frequency | 30 MHz | 150 KHz |
| Step MHz | 0.007 MHz | 0.007 MHz |
| IF Bandwidth | 10KHz | 200Hz |

## 5.2. TEST PROCEDURES

a. The EUT was connected to power mains (120VAC/60Hz) through a line impedance stabilization network (LISN). This provides 50 ohm coupling impedance for the measuring instrument. The FCC states theat a 50 ohm, 5 microhenry LISN should be used, Both sides of AC line were checked for maximum conducted interference.

## 5.3. TYPICAL TEST SETUP LAYOUT OF CONDUCTED POWERLINE



## 5.4. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION

- Frequency Range of Test : from 10 KHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 14
- Relative Humidity : 58 % RH
- Operation switch mode: *High (1500W)*
- Test Date : Jan. 20, 2000

**The Conducted Emission test was passed at Neutral 0.5575 MHz / 45.20 dBuV.**

| Frequency | Line / Neutral | Meter Reading | | Limits | | Margin |
|---|---|---|---|---|---|---|
| ( MHz ) | | ( dBuV ) | ( uV ) | ( dBuV ) | ( uV ) | ( dB ) |
| 0.0253 | Line | 71.50 | 3758.37 | 79.69 | 9650.40 | -8.19 |
| 0.0503 | Line | 62.90 | 1396.37 | 79.19 | 9105.27 | -16.29 |
| 0.0753 | Line | 54.80 | 549.54 | 78.68 | 8590.93 | -23.88 |
| 0.5575 | Line | 44.90 | 175.79 | 48.00 | 251.19 | -3.10 |
| 0.6094 | Line | 43.80 | 154.88 | 48.00 | 251.19 | -4.20 |
| 0.7544 | Line | 44.00 | 158.49 | 48.00 | 251.19 | -4.00 |
| 0.0252 | Neutral | 70.90 | 3507.52 | 79.69 | 9652.65 | -8.79 |
| 0.0500 | Neutral | 63.70 | 1531.09 | 79.19 | 9111.63 | -15.49 |
| 0.0749 | Neutral | 55.90 | 623.73 | 78.69 | 8598.93 | -22.79 |
| 0.5575 | Neutral | 45.20 | 181.97 | 48.00 | 251.19 | -2.80 |
| 0.6315 | Neutral | 45.00 | 177.83 | 48.00 | 251.19 | -3.00 |
| 0.7477 | Neutral | 44.30 | 164.06 | 48.00 | 251.19 | -3.70 |

Test Engineer :

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*Benson Tsai*

## 5.5. PHOTOGRAPHS OF CONDUCTED POWERLINE TEST CONFIGURATION

FRONT VIEW


REAR VIEW

SIDE VIEW

# 6. TEST OF RADIATED EMISSION

Radiated emissions from 9KHz to 30MHz were measured with a bandwidth of 9 KHz for 150KHz to 30MHz and 200Hz for 9KHz to 150KHz according to the methods defines in FCC/OET MP-5 (1986). The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in Section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

## 6.1. MAJOR MEASURING INSTRUMENTS

| | | | |
|---|---|---|---|
| • Test Receiver | ( R&S ESH3 ) | | |
| Attenuation | 0 dB | 0 dB | |
| Start Frequency | 150 KHz | 9 KHz | |
| Stop Frequency | 30 MHz | 150 KHz | |
| Step MHz | 0.007 MHz | 0.007 MHz | |
| IF Bandwidth | 9KHz | 200Hz | |

*Note: 1. For the EUT operating frequency below 1.705MHz, the frequency rang of measurement which is according to the Commission rule 18.309 is from 9KHz to 30MHz.*

*2. Distance refers to the distance in meters between the measuring antenna and the closet point of EUT.*

## 6.2. TEST PROCEDURES

a. The EUT was placed on a rotatable table top 0.8 meter above ground.

b. The EUT was set 10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

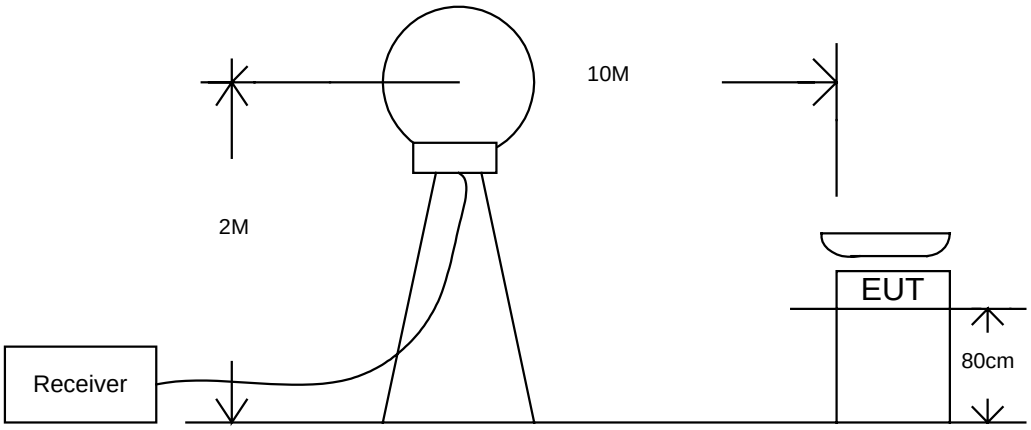
d. The antenna is a shielded balanced loop antenna is varied between one meter and two meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the turn table ( from 0 degree to 360 degrees ) to find the maximum reading.

f. Set the test-receiver system ( R/S ESH3 ) to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported otherwise the emissions which do not have 6 dB margin will be repeated one by one using the quasi-peak method and reported.

## 6.3. TYPICAL TEST SETUP LAYOUT OF RADIATED EMISSION



## 6.4. TEST RESULT OF RADIATED EMISSION

- Frequency Range of Test : from 9KHz to 30 MHz
- Test Distance : 10 M
- Temperature : 14
- Relative Humidity : 58% RH
- Operation switch mode: *High (1500W)*
- Test Date : Jan. 23, 2000

- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 0.025MHz
  Corrected Reading : Cable Loss + Reading = Emission

**The Radiated Emission test was passed at minimum margin**

**Horizontal 0.019 MHz / 70.10 dBuV**

| Frequency | Polarity | Cable Loss | Reading | Limits | | Emission | Level | Margin |
|---|---|---|---|---|---|---|---|---|
| ( MHz ) | | ( dB ) | ( dBuV ) | (dBuV/m) | (uV/m) | (dBuV/m) | (uV/m) | ( dB ) |
| 0.0199 | V | 0.20 | 67.20 | 73.10 | 4519 | 67.40 | 2344.23 | -5.70 |
| 0.0399 | V | 0.40 | 50.80 | 73.10 | 4519 | 51.20 | 363.08 | -21.90 |
| 0.0599 | V | 0.20 | 48.10 | 73.10 | 4519 | 48.30 | 260.02 | -24.80 |
| 0.0799 | V | 0.20 | 34.10 | 73.10 | 4519 | 34.30 | 51.88 | -38.80 |
| 0.0199 | H | 0.20 | 69.90 | 73.10 | 4519 | 70.10 | 3198.90 | -3.00 |
| 0.0399 | H | 0.40 | 47.70 | 73.10 | 4519 | 48.10 | 254.10 | -25.00 |
| 0.0599 | H | 0.20 | 35.40 | 73.10 | 4519 | 35.60 | 60.26 | -37.50 |
| 0.0799 | H | 0.20 | 44.90 | 73.10 | 4519 | 45.10 | 179.89 | -28.00 |

Test Engineer :

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*Jones Jan*

## 6.5. PHOTOGRAPHS OF RADIATED EMISSION TEST CONFIGURATION

FRONT VIEW

REAR VIEW

# 7. CABLE LOSS

| Frequency (MHz) | Cable Loss (dB) |
|---|---|
| 0.01 | 0.4 |
| 0.02 | 0.2 |
| 0.04 | 0.4 |
| 0.06 | 0.2 |
| 0.10 | 0.2 |
| 0.20 | 0.3 |
| 0.40 | 0.4 |
| 0.60 | 0.3 |
| 0.80 | 0.3 |
| 1.00 | 0.3 |
| 2.00 | 0.2 |
| 4.00 | 0.3 |
| 6.00 | 0.1 |
| 8.00 | 0.0 |
| 10.00 | 0.2 |
| 20.00 | 0.1 |
| 30.00 | 0.1 |

*Remark : The R&S test receiver will automatically offset the antenna factor, therefore, the reading value shown on the R&S test receiver is included receiving value added antenna factor.*

# 8. LIST OF MEASURING EQUIPMENT USED

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---|---|---|---|---|---|---|
| Test Receiver | R&S | ESH3 | 893495/013 | 9 KHz - 30 MHz | Apr. 19, 1999 | Conduction |
| Spectrum Monitor | R&S | EZM | 894987/011 | N/A | Apr. 21, 1999 | Conduction |
| LISN | EMCO | 3625/2 | 9512-1047 | 50 ohm / 5mH | Nov. 16, 1999 | Conduction |
| LISN (for support device) | EMCO | 3810/2 | 9703-1838 | 50 ohm / 50 μH | Aug. 30, 1999 | Conduction |
| EMI Filter | CORCOM | MRI-2030 | N/A | 480VAC / 30A | N/A | Conduction |
| Loop Antenna | R&S | HFH2-Z2.335.4711.52 | N/A | 9KHz-30MHz | Dec. 22, 1999 | Radiation |
| Turn Table | EMCO | 1060-1.211 | 9507-1805 | 0 ~360 degree | N/A | Radiation |