

# EMC TEST REPORT

For

Microwave Oven

Model Number: WP800D-H20E.1

FCC ID:NRTSZJENSMWOC320B

Class II Change

Report Number: WT068001735

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory Guangdong EMC Compliance Test Center
Site Location	:	Bldg. of Metrology & Quality Inspection, Longzhu Road, Shenzhen, Guangdong, China
Tel	:	0086-755-26941637, 26941529, 26941531
Fax	:	0086-755-26941545
Email	:	emclab@sohu.com

## TABLE OF CONTENTS

<b>TEST REPORT DECLARATION .....</b>	<b>3</b>
<b>1. TEST RESULTS SUMMARY .....</b>	<b>4</b>
<b>2. GENERAL INFORMATION .....</b>	<b>5</b>
2.1. Report information .....	5
2.2. Laboratory Accreditation and Relationship to Customer .....	5
2.3. Measurement Uncertainty .....	5
<b>3. PRODUCT DESCRIPTION .....</b>	<b>6</b>
3.1. EUT Description .....	6
3.2. Block Diagram of EUT Configuration.....	6
3.3. Operating Condition of EUT .....	6
3.4. Support Equipment .....	6
3.5. Test Conditions .....	6
3.6. Modifications .....	6
<b>4. TEST EQUIPMENT USED .....</b>	<b>7</b>
4.1. Test Equipment Used to Measure Conducted Disturbance .....	7
4.2. Test Equipment Used to Measure Radiated Disturbance .....	错误！未定义书签。
<b>5. CONDUCTED DISTURBANCE TEST .....</b>	<b>8</b>
5.1. Test Standard and Limit.....	8
5.2. Test Procedure .....	8
5.3. Test Arrangement.....	8
5.4. Test Data .....	8
<b>6. RF POWER OUTPUT MEASUREMENT AND RESULT .....</b>	<b>12</b>
<b>7. RADIATED DISTURBANCE TEST .....</b>	<b>13</b>
7.1. Test Standard and Limit.....	13
7.2. Test Procedure .....	13
7.3. Test Arrangement.....	13
7.4. Test Data .....	13
<b>8. TABLE LIST .....</b>	<b>错误！未定义书签。</b>
<b>APPENDIX I TEST CURVES.....</b>	<b>15</b>
<b>APPENDIX II TEST PICTURE.....</b>	<b>18</b>

**TEST REPORT DECLARATION**

Applicant : SHENZHEN JENS ELECTRONIC CO., LTD  
Address : 71# Building changxing Industrial Zone Gongming Town, Baoan,  
Shenzhen, China.  
Manufacturer : SHENZHEN JENS ELECTRONIC CO., LTD  
Address : 71# Building changxing Industrial Zone Gongming Town, Baoan,  
Shenzhen, China.  
EUT Description : Microwave oven  
Model Number : WP800D-H20E.1  
FCC ID : NRTSZJENSMWOC320B


Test Standards:

**FCC Part 18**

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

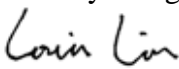
Tested by:

  
\_\_\_\_\_  
(Dewelly Yang)

Date:

Sep. 18, 2006  
\_\_\_\_\_

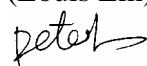
Checked by:

  
\_\_\_\_\_  
(Louis Lin)

Date:

Sep. 18, 2006  
\_\_\_\_\_

Approved by:

  
\_\_\_\_\_  
(Peter Lin)

Date:

Sep. 18, 2006  
\_\_\_\_\_

## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted Disturbance	Pass
Radiated disturbance	Pass

## 2. GENERAL INFORMATION

### 2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

### 2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Committee for Laboratories (**CNAL**) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (**FCC**), and the registration number are **97379**(open area test site) and **274801**(semi anechoic chamber).

The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (**VCCI**), and the registration number are **R-1974**(open area test site) , **R-1966**(semi anechoic chamber), **C-2117**(mains ports conducted interference measurement) and **T-180**(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (**IC**), and the registration number is **IC4174**.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

### 2.3. Measurement Uncertainty

Available upon request.

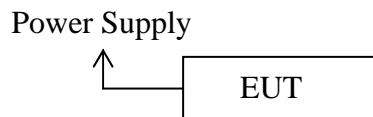
### 3. PRODUCT DESCRIPTION

#### 3.1. EUT Description

Description	:	Microwave oven
Applicant	:	WP800D-H20E.1
Model Number	:	SHENZHEN JENS ELECTRONIC CO., LTD
Input	:	AC120V/60Hz
Rated Microwave Power	:	1280W
Magnetron	:	TOSHIBA 2M248K(SJ)

WP800D-H20E.1 is based on Model WP800D-320, but the appearances of the door window and the control panel are not same.

#### 3.2. Block Diagram of EUT Configuration



#### 3.3. Operating Condition of EUT

Test mode 1: 100P Power

#### 3.4. Support Equipment

N/A

#### 3.5. Test Conditions

Date of test : Sep.4-Sep. 5,2006  
Date of EUT Receive : Sep.1,2006  
Temperature: 26  
Relative Humidity: 68%

#### 3.6. Modifications

No modification was made.

## 4. TEST EQUIPMENT USED

### 4.1. Test Equipment Used to Measure Conducted Disturbance

Table 2 Test Equipment List

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.26, 2006	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.26, 2006	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.26, 2006	1 Year
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.26, 2006	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.26, 2006	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.26, 2006	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.26, 2006	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.26, 2006	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.06, 2006	1 Year
SB3435/03	Horn Antenna	Rohde & Schwarz	AT4560	May.06, 2006	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Jan 26,2006	1 Year

## 5. CONDUCTED DISTURBANCE TEST

### 5.1. Test Standard and Limit

#### 5.1.1. Test Standard

FCC Part 18

#### 5.1.2. Test Limit

Table 3 Conducted Disturbance Test Limit (Part 18 consumer device)

Frequency	Limit (dB $\mu$ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

\* Decreasing linearly with logarithm of the frequency

### 5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

### 5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 5.4. Test Data

The emissions don't show in below are too low against the limits.



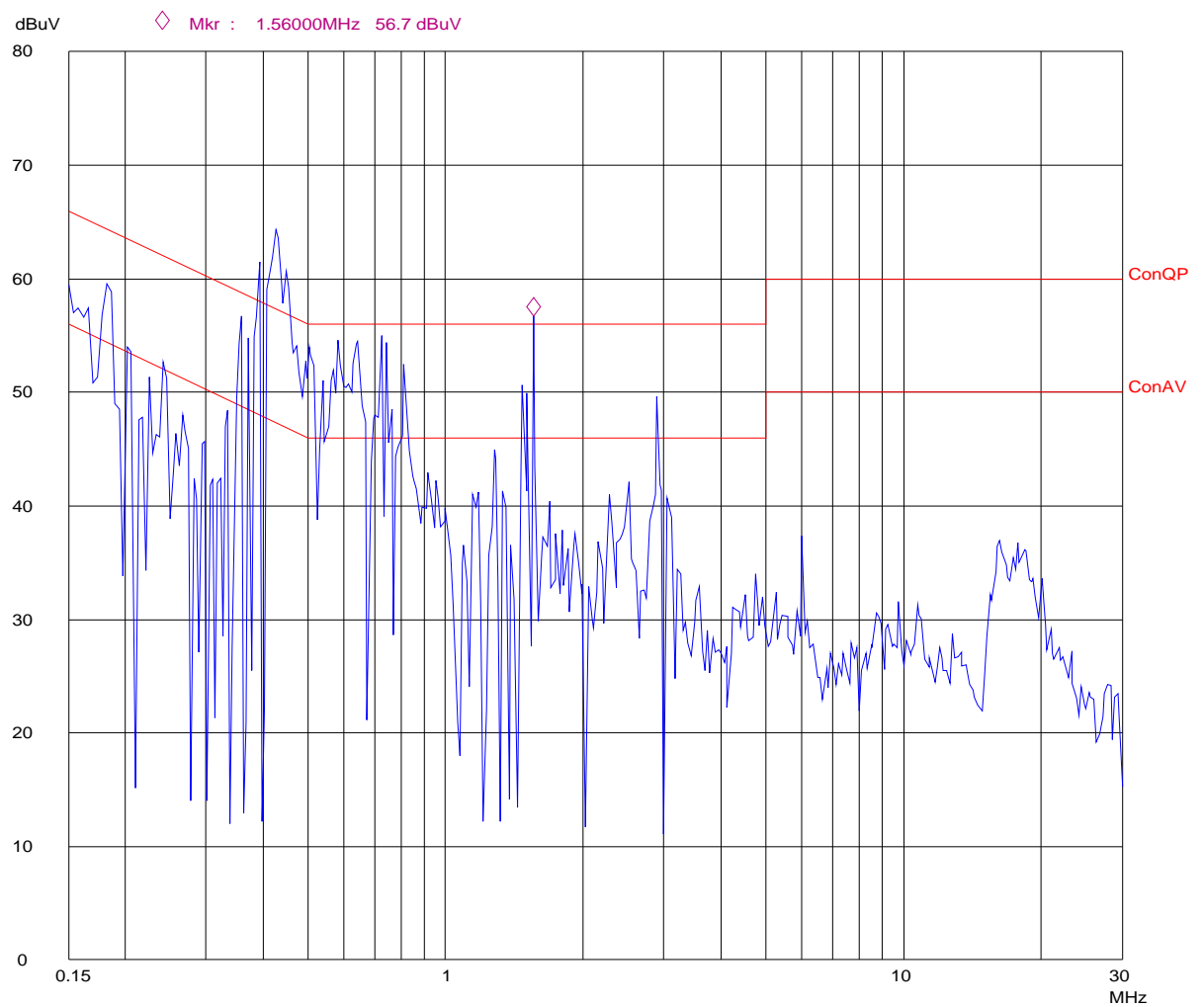
Table 4 Conducted Disturbance Test Data

Model No.: WP800D-H20E.1									
Test Mode: 1									
Line					Neutral				
Frequency (MHz)	Quasi-Peak		Average		Frequency (MHz)	Quasi-Peak		Average	
	Reading (dB $\mu$ V)	Limit (dB $\mu$ V)	Reading (dB $\mu$ V)	Limit (dB $\mu$ V)		Reading (dB $\mu$ V)	Limit (dB $\mu$ V)	Reading (dB $\mu$ V)	Limit (dB $\mu$ V)
0.182	52.0	64.4	24.0	54.4	0.266	55.8	61.2	28.2	51.2
0.426	56.8	57.3	33.2	47.3	0.378	57.7	58.3	31.0	48.3
1.560	42.3	56	17.9	46	0.508	54.6	56	27.0	46.0
0.256	56.7	61.5	35.0	51.5	0.350	56.1	58.9	33.5	48.9
0.391	57.1	60.5	34.1	50.5	0.371	52.8	58.4	30.1	48.4
0.620	45.1	56	30.0	46	0.420	54.1	57.4	38.0	47.4
0.710	48.1	56	34.5	46	0.580	51.0	56	34.1	46
---	---	---	---	---	1.810	49.1	56	30.5	46
---	---	---	---	---	2.901	43.1	56	30.1	46

Note: 1. The other emission levels were very low against the limit.

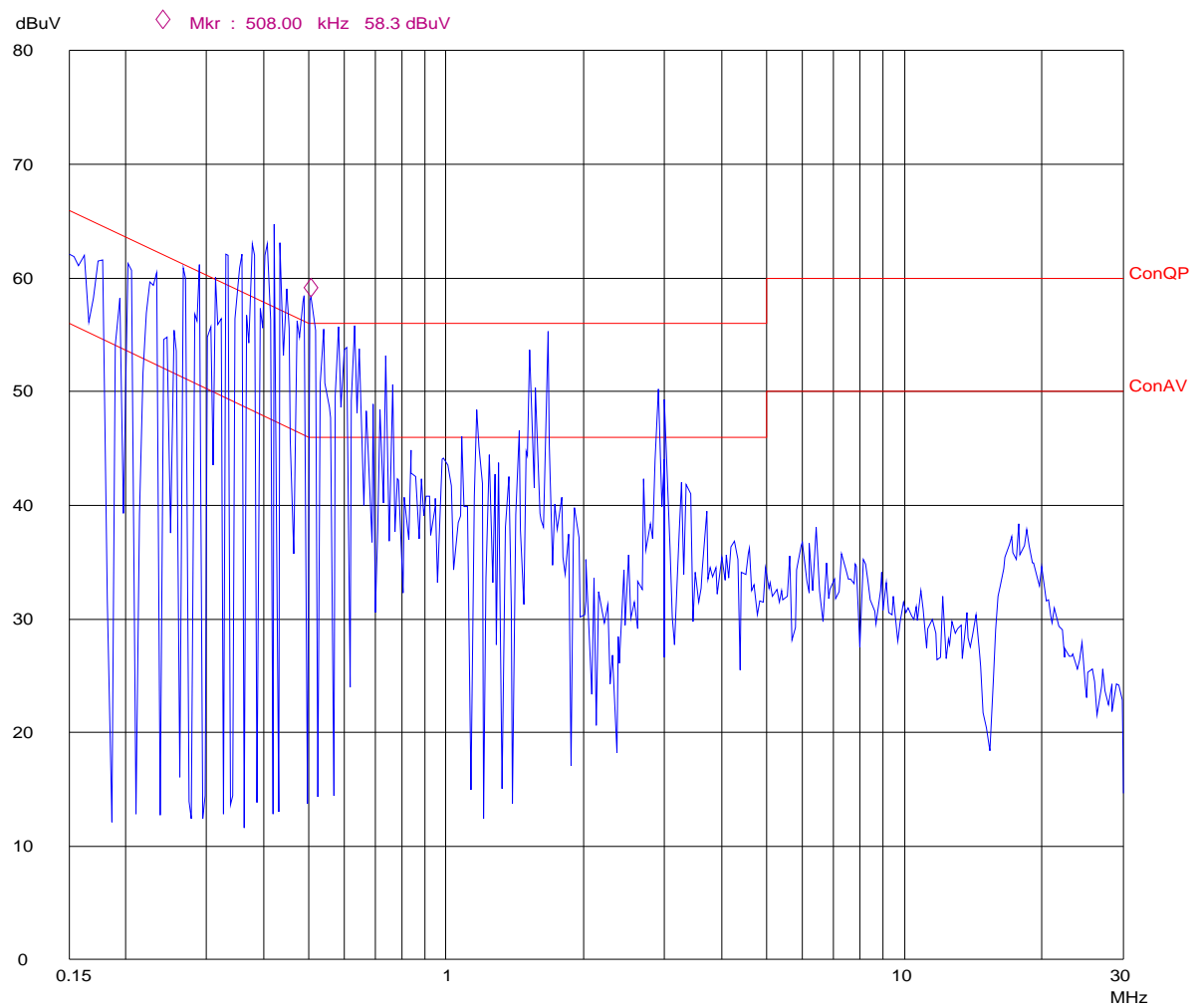
## Conducted Disturbance

EUT: WP800DI-H20E.1  
Op Cond: High  
Test Spec: L  
Comment: AC 120V/60Hz



## Conducted Disturbance

EUT: WP800DI-H20E.1  
Op Cond: High  
Test Spec: N  
Comment: AC 120V/60Hz



## 6. RF POWER OUTPUT MEASUREMENT AND RESULT

The Calorimetric Method was used to determine maximum output power. A 1000 ml water load was placed in the center of the oven. A thermometer was used to measure temperature rise.

$$Power(W) = \frac{(4.2 \text{ Joules / Cal}) * (VolumeInml) * (TemperatureRise)}{TimeinSeconds}$$

Magnetron type: TOSHIBA 2M248K(SJ)

Quantity of Water(ml)	Starting Temperature( )	Final Temperature(( )	Elasped Time(Second)
1000	10.9	22.2	60

$$Power(W) = \frac{(4.2) * (1000) * (11.3)}{60}$$

$$Power(W)=791$$

## 7. RADIATED DISTURBANCE TEST

### 7.1. Test Standard and Limit

#### 7.1.1. Test Standard

FCC Part 18

#### 7.1.2. Test Limit

Table 5 Radiated Disturbance Test Limit

Operating Frequency	RF Power generated by equipment(watts)	Field strength limit ( $\mu\text{V/m}$ )	Distance (m)
Any ISM Frequency	Below 500	25	300
	500 or more	$25 \times \text{SQRT}(\text{power}/500)$	300

\*For the EUT of this test report, the measured RF power is 791W, and at test distance of 3 meters, the test limit is provided as 70.0dB $\mu\text{V/m}$  according to the table above.

### 7.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

### 7.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 7.4. Test Data

Emissions don't show below are too low against the limits.

Table 6 Radiated Disturbance Test Data

Model No.: WP800D-H20E.1						
Test Mode: 1						
Frequency GHz	Emission (dBuV/m)	Read Value (dBuV)	Correction Factor (dB/m)	Polarization	Limits (dBuV/m)	Note
198.534	34.3	21.6	12.7	horizontal	43.5	
111.471	31.2	16.5	14.7	horizontal	43.5	

Note :

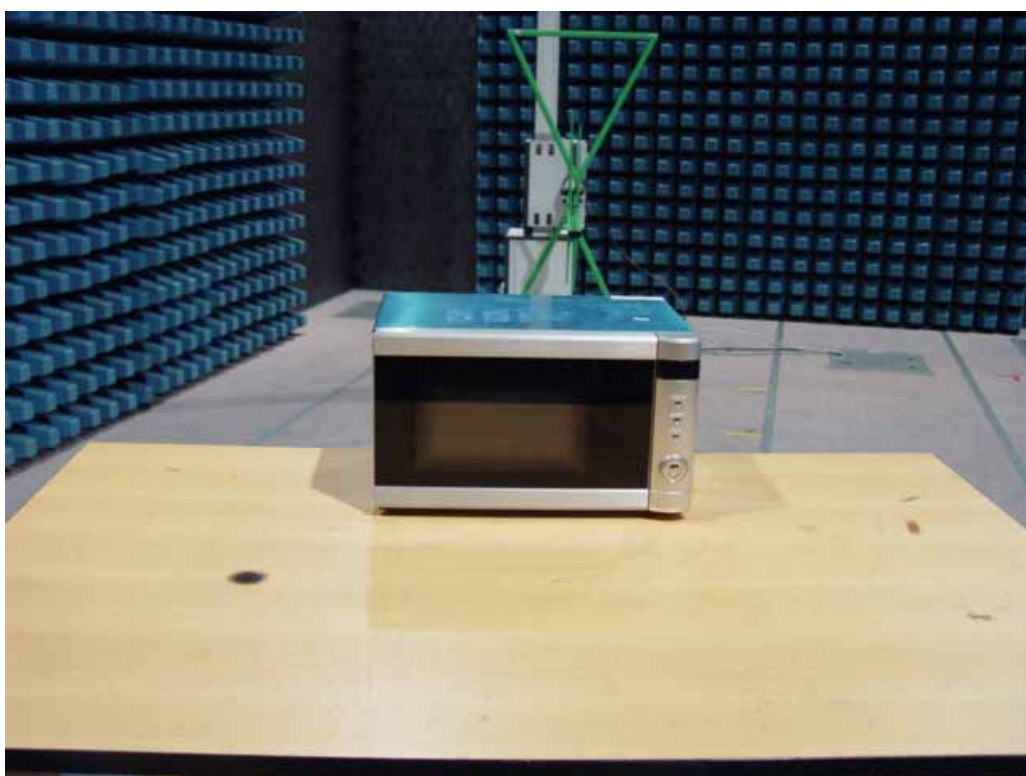
1. Emission level(dBuV/m)=Read Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit(>15dB to limit).
4. For test above1GHz, Average detector with 1MHz RBW is used.

## **APPENDIX I TEST PHOTO**

**Photo 1 Conducted Disturbance Test**

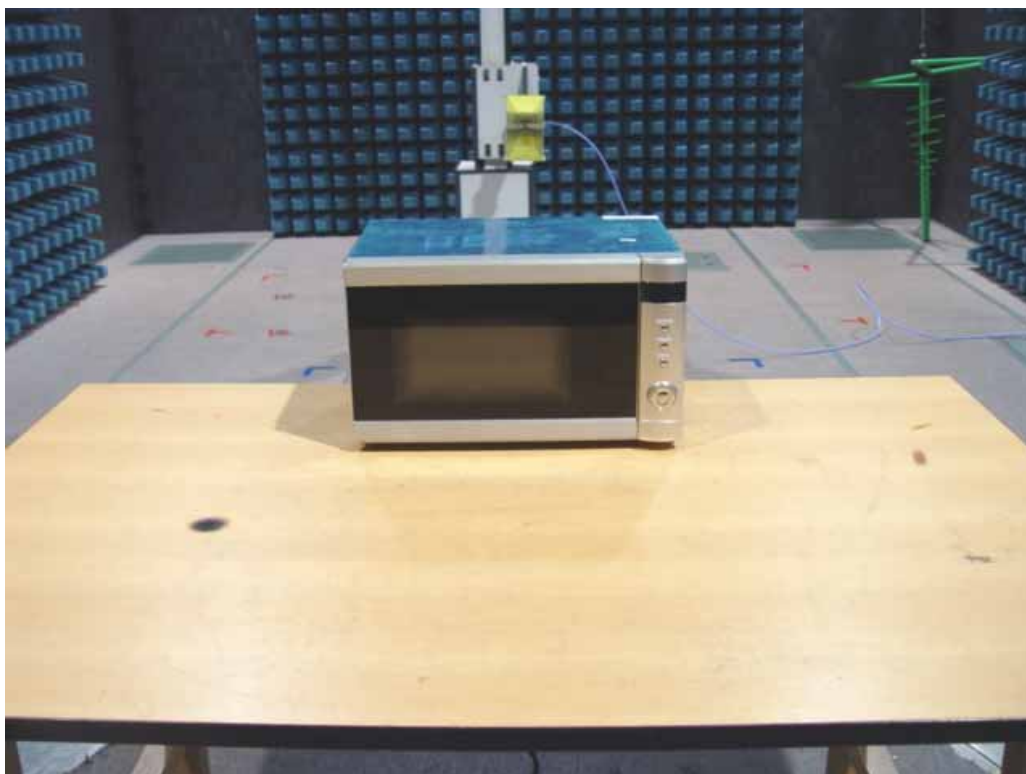


**Photo 2 Radiated disturbances (below 1GHz)**





**Photo 3 Radiated disturbances (Above 1GHz)**



**APPENDIX II TEST PICTURE**

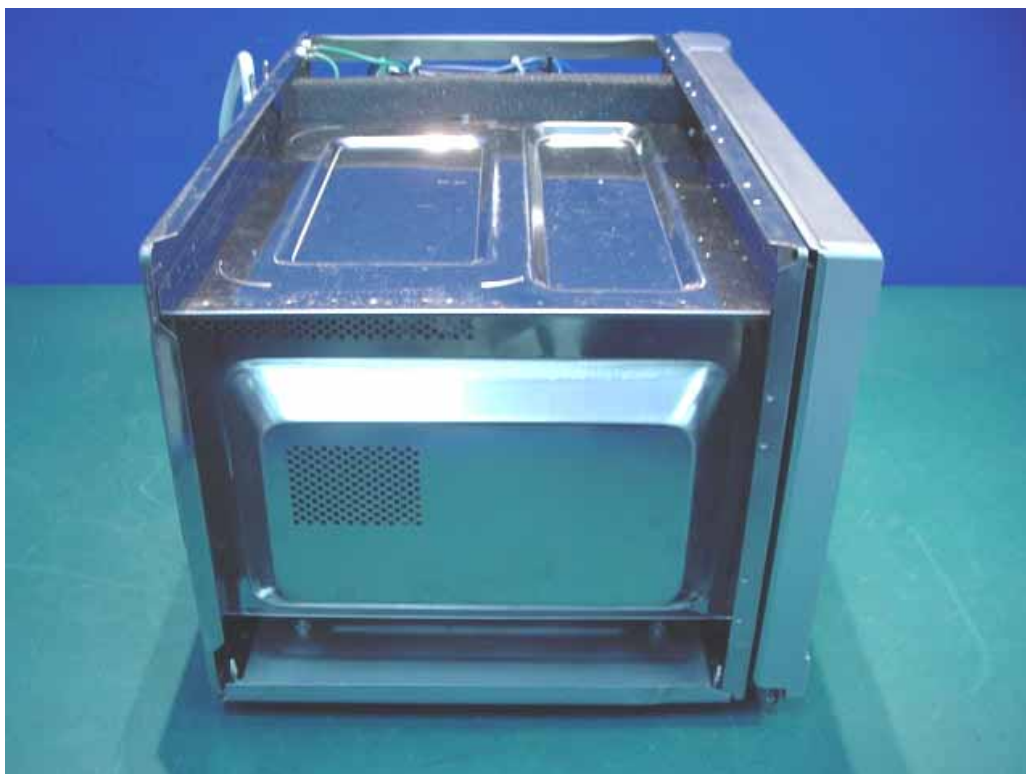
**Photo 1 Appearance of EUT**



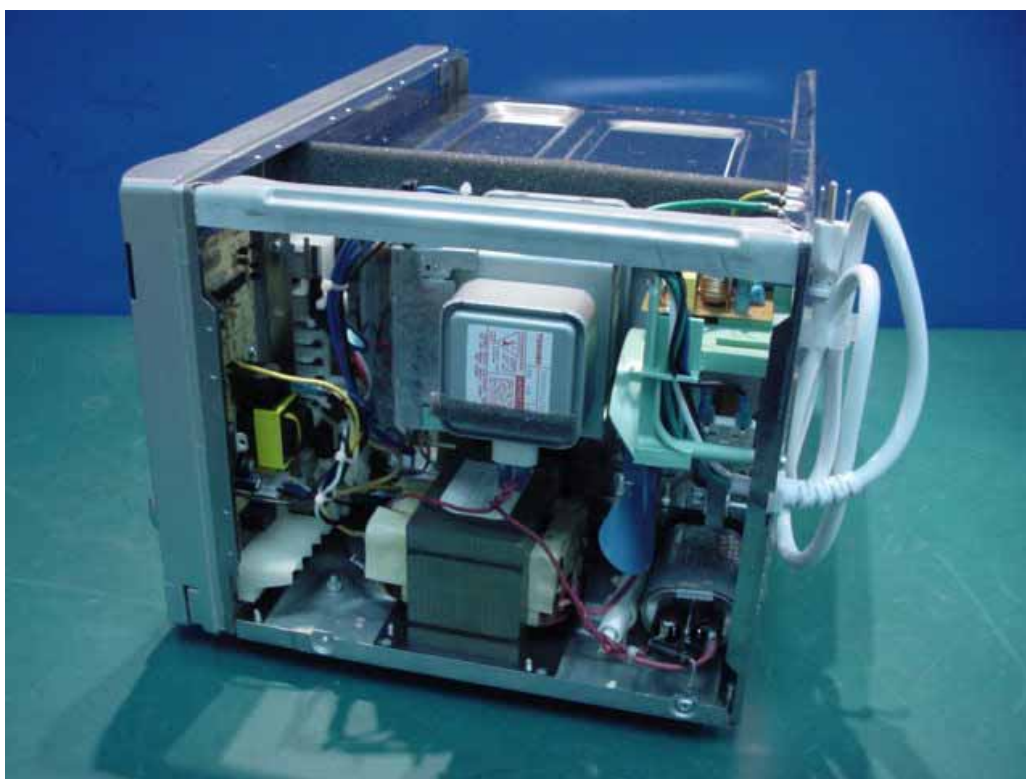
**Photo 2 Appearance of EUT**



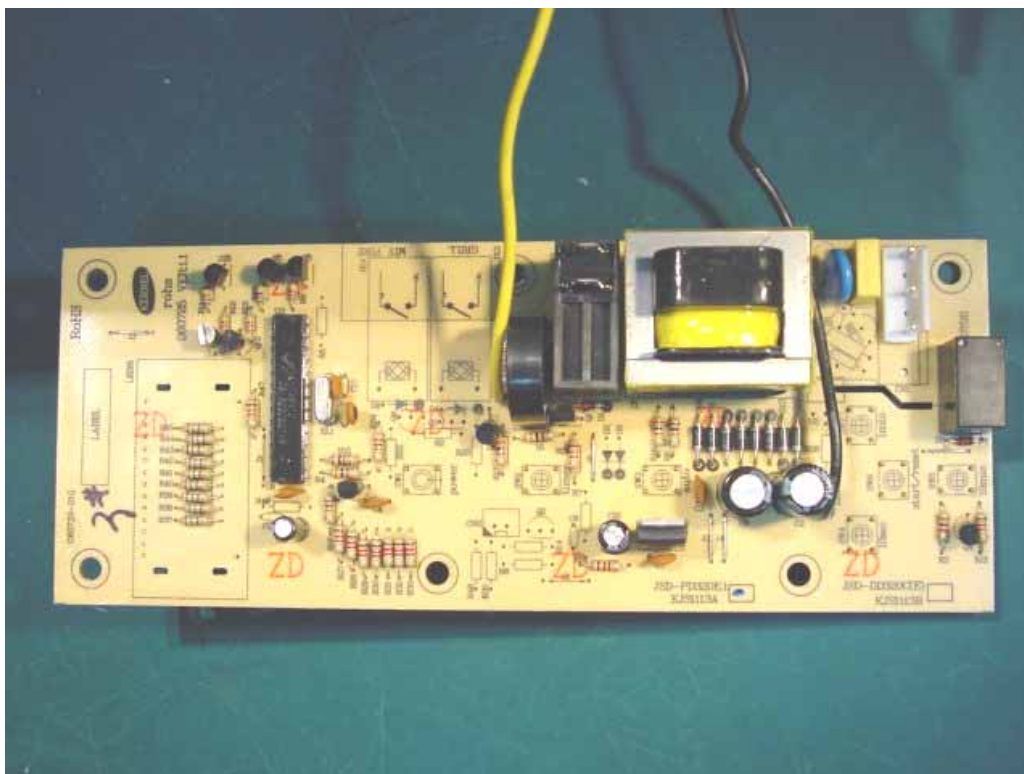
**Photo 3 Inside of EUT**



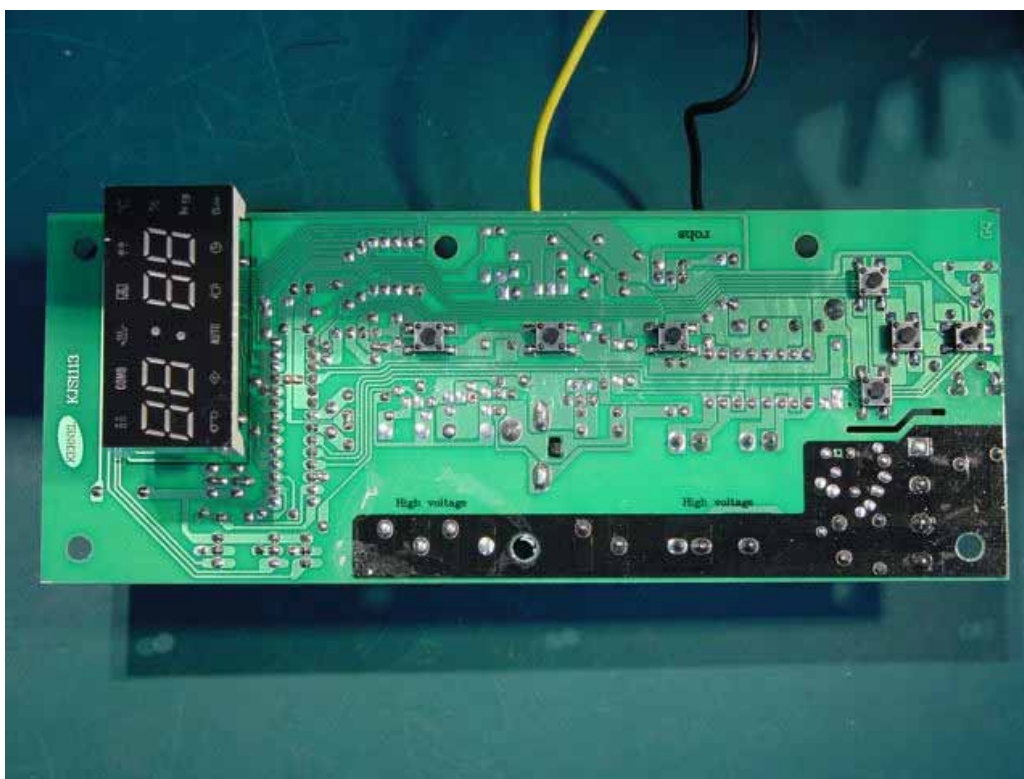
**Photo 4 Inside of EUT**



**Photo 5 Inside of EUT**



**Photo 6 Inside of EUT**





**Photo 7 Inside of EUT**



**Photo 8 Inside of EUT**

