LG Electronics Tianjin Appliance Co., Ltd.,

EMC Center

Xing Dian Road, Bei Chen Distr., Tianjin 300402, P. R.China
Tel: + 86 22 2690 3777, Fax: +86 22 2690 2109

CLASS II PERMISSIVE CHANGE CERTIFICATION OF COMPLIANCE

Date of Issue: July 14, 2008 **Test Report No: 08-LTE-M057**

Test Site: LG Electronics Tianjin Appliance Co., Ltd.
EMC Laboratory

FCC ID: BEJS074MKA dated 04/20/2005 was complied with the line conducted requirements for unintentional radiators and consumer Industrial, Scientific and Medical (ISM) device in ET Docket 98-80, FCC 02-157.
This class II permissive change is to use the alternative Magnetron on the previous granted model MS-0743G, FCC ID: BEJS074MKA (Test Report No.: 05-LAE-M083) dated on 04/18/2005.

Applicant:	LG Electronics Tianjin Appliance Co., Ltd.
Regulation:	FCC Part 18 – ISM Consumer Device
Test Procedure:	MP-5: 1986
Equipment Class:	Industrial, Scientific, and Medical equipment
EUT Type:	Microwave oven
Magnetron Type:	2M229J (Toshiba)
Brand Name(s):	LG or Sears or GE
Model No.:	MS-0744A
FCC ID:	BEJS074MKA

This device has been verified to comply with the applicable requirements in the FCC Part 18 and was tested in accordance with the measurement procedures specified in MP-5: 1986.
I assure full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Dae-Woong Kim, Senior Research Engineer
Digital Appliance Company, EMC Center
LG Electronics Inc.

CLASS II PERMISSIVE CHANGE REPORT FOR A MICROWAVE OVEN

Scope - Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission

EUT Type:	Microwave oven
Model No.:	MS-0744A
FCC ID:	BEJS074MKA
Rule Part:	FCC Part 18
Test Procedure:	MP-5: 1986
Date of Test:	July 4, 2008 – July 7, 2008
Date of Issue:	July 14, 2008
Test Result:	Pass

EMC Center authorizes the above-named applicant to reproduce this report provided it is reproduced in its entirety.

EMC Center reports apply only to the specific sample(s) tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production unit of this model are manufactured with identical electrical and mechanical components.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

This report must not be used by the client to claim product endorsement by any agency of the U.S. Government.

The EMC Center facilities has been placed on file and the name of our organization added to the FCC's list for the FCC Part 15 and 18 of the Commission's Rules under Registration Number 93197.

Prepared by:

Song Qilun / Research Engineer
LGETA EMC Laboratory
LG Electronics Tianjin Appliance Co., Ltd.

Reviewed by:

Kwang-Mu Son / Senior Research Engineer
Digital Appliance Company, EMC Center
LG Electronics Inc.

Approved by:

Dae-Woong Kim / Senior Research Engineer
Digital Appliance Company, EMC Center
LG Electronics Inc.

CONTENTS

1. CLIENT INFORMATION

The EUT has been tested by request of:

Company: (Manufacturer)	1. LG Electronics Inc. Cooking & Cleaning Division 391-2, Ga Eum Jeong - Dong, Changwon City, Gyeong Nam, 641-711, Korea 2. LG Electronics Tianjin Appliance Co., Ltd. Xing Dian Road, Bei Chen Distr., Tianjin 300402, People's Republic of China
Name of contact:	Xu Zhaoyin
Telephone:	+86-22-2690-3308
Fax:	+86-22-2690-3643

2. EQUIPMENT UNDER TEST (EUT)

EUT is the LG Electronics Inc. Microwave Oven as followings:

Equipment:	Microwave oven
Model:	MS-0744A
Brand name:	LG or Sears or GE
Serial number:	N/A
Magnetron:	2M229J by Toshiba
RF Frequency:	2,450 MHz
RF Power Output (IEC 705):	750 W
Power Consumption Microwave Mode:	950 W
Rated Input Voltage:	120 V~, 60 Hz
Rated Input Current Microwave Mode:	9.0 A
Cavity Volume:	0.7 Cu.ft
Oven Type:	Countertop / Household
Mode Stirrer:	Turntable
Power Cord:	Shielded
Outer Dimensions (inch)	12.4 (W) * 7.9 (H) * 11.8 (D)

EMI suppression device(s) installed in production: See schematics (Appendix C)
EMI suppression device(s) added and/or modified during test: None

This class II permissive change certification of compliance is to use alternative magnetron type 2M229J by Toshiba on the previous granted model MS-0743G, FCC ID: BEJS074MKA dated 04/20/2005.

3. TEST SITE

Measurement of radiated emissions from EUT was made at semi-anechoic chamber that has been in compliance with Federal Communications Commissions (FCC) requirements of clause 2.948 according to ANSI C63.4-2003 on July 3, 2008.

4. CALIBRATIONS OF MEASURING INSTRUMENT

All measurement was made with instruments calibrated according to the recommendation by manufacturer. Measurement of radiated emissions and power line conducted emissions were made with instruments conforming to American National Standard Specification, ANSI C63.4-2003. The calibration of measuring instrument, including any accessories that may affect test results, was performed according to the recommendation by manufacturer.

5. DESCRIPTION OF TEST CONDITION

5.1 Power line conducted emission measurements

Power line conducted emission measurements were based on the std. CISPR 11:2003+A2:2006.

5.1.1 Shielded enclosure

The measurement for power-line emissions from EUT was made in shielded enclosure that provides sufficient shielding effectiveness enough not to affect test results.

5.1.2 Detector function selection and bandwidth

During conducted emission measurement, a radio noise meter that has a CISPR quasi-peak detector with 10 kHz IF bandwidth of 6 dB was utilized.

5.1.3 Frequency range to be scanned

For conducted emissions measurement, frequency range of 150 kHz to 30 MHz included, was investigated.

5.1.4 Unit of measurement

Test results for conducted emissions are reported in micro-volt.

5.1.5 Line impedance stabilization network (LISN)

A LISN with characteristics that conform to the requirements of ANSI C63.4-2003 was used for the measurement of conducted power-line radio noise; (50 micro-henries / 50 ohms). Chassis and earth-points for grounding of the LISN were earth-grounded.

5.1.6 Test conditions and configuration of EUT

The EUT was configured and operated in all modes of operation so as to find the maximum enumeration of emissions from EUT.

The EUT has designed to use the public AC lines with rated AC voltage as specified in owner's manual and Installation's manual of EUT and filtered to meet the requirement. AC power was supplied to the EUT through LISN with characteristics described in 5.1.5 of part I of this report.

The EUT was placed on a 1 m×1.5 m×40 cm high wooden table which is placed on the earth-grounded conducting surface larger than 2 square meter. The vertical conducting surface was replaced with horizontal ground plane. Length of the power lead in excess of 80 cm horizontally separating the EUT from LISN was folded back-and-forth form at the center of the power cord not exceeding 40 cm in length.
The EUT was operated with a load of 1000 ml water initially at 20 °C ± 5 °C placed at the center of the load-carrying surface.
Each type of accessory provided by manufacturer or typically used and support equipment were connected to the EUT during measurement to the typical usage and applicable as nearly as practicable.

5.1.7 Measurement uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT in the above-mentioned way.

The measurement uncertainty was calculated in accordance with NAMAS NIS 81:
"The treatment of uncertainty in EMC measurement."
For calculated uncertainty of each item, refer the next page.

The measurement uncertainty was given with a confidence of 95%.

5.2 Radiated emissions measurement

5.2.1 Test site
Measurement was made in semi-anechoic chamber as described at Clause 3 in this report.

5.2.2 Detector function selection and bandwidth
In radiated emissions measurement, field strength meter that has CISPR quasi-peak and average detector was used. The bandwidth of the detector of instrument is 120 kHz for frequency range of 30 MHz – 1,000 MHz, and 1 MHz for frequency range of 1 GHz to 18 GHz. Emissions to be measured are detected in average mode.

5.2.3 Unit of measurement
Test results of radiated emissions measurement are reported in microvolts per meter at the specific distance. Using the unit of dBμV on the test instrument, the indication unit was converted to field strength unit of μV/m as following method;

$$F / S = 10^{\{(R+AF+CF)/20\}} \ (\mu V/m)$$

here,

F / S: Field Strength in μV/m, R: Meter Reading Level in dB(μV),
AF: Antenna Factor in dB/m
CF: Conversion Factor
* 30 MHz ~ 1 GHz: CF = CL
* Above 1 GHz: CF = CL – PG + FL + AL
CL: Cable Loss (dB) FL: Filter Loss (dB)
PG: Preamplifier Gain (dB) AL: Attenuator Loss (dB)

5.2.4 Antennas

Measurements were made using calibrated biconilog antenna in range of 30 MHz to 1,000 MHz and horn antenna in range of 1 to 18 GHz to determine the emission characteristics of the EUT. Measurements were also made for both horizontal and vertical polarization.
The horizontal distance between the receiving antenna and the closest periphery of the EUT was 3 meters for horn antenna and 10 meters for biconilog antenna.

5.2.5 Frequency range to be scanned

For radiated emissions measurements, the spectrum in the range of 30 to 1,000 MHz and above, if found, was investigated.

5.2.6 Test conditions and configuration of EUT

The EUT was configured and operated in all modes of operation so as to find the maximum RF energy generated from EUT.
The power was furnished with rated (normal) AC 120 volts, as specified in the Owner's manual of EUT. The EUT was placed on a 1 m high non-metallic table. The turntable containing the system was rotated and the antenna height was varied 4 m to find the maximum RF energy detected from EUT.
Each type of accessory provided by manufacturer or typically used and support equipment were connected to the EUT during measurement to the typical usage and applicable as nearly as practicable.

5.2.7 Measurement uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT in mentioned above way.

The measurement uncertainty was calculated in accordance with NAMAS NIS 81: "The treatment of uncertainty in EMC measurement."
For calculated uncertainty of each item, refer the next page.

The measurement uncertainty was given with a confidence of 95%.

< Fundamental Frequency Uncerntainty (2,450 MHz) >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	Standard Uncertainty Horn Antenna (Value / Divisor)	Standard Uncertainty Squared
			3 m			3 m	3 m
V_1	Ambient signals				1	0.00	0.0
V_2	Antenna factor calibration	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_3	Cable loss calibration	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_4	Receiver specification	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_5	Measurement distance variation	Tolerance	0.6	rectangular	1.732	0.35	0.1
V_6	Site imperfections	Tolerance	2.0	rectangular	1.732	1.15	1.3
V_7	Mismatch Receiver VRC: η_l = 0.33 Antenna VRC: η_g = 0.20 Uncertainty limits 20Log(1$\pm$ η_l η_g)	Tolerance	0.6	U-shaped	1.414	0.42	0.2
V_8	System repeatability (previous assessment of s(q_k) from 5 repeats, 1 reading on EUT Repeatability of EUT*		0.5	Std Deviation	1	0.50	0.3
	Combined standard uncertainty u_c(y)		1.53	normal			
	Expanded uncertainty U		3.06	normal (k = 2)			

$$u_c(y) = \sqrt{\left(\frac{0.0}{1}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.0^2 + 0.6^2 + 2.0^2}{3} + \left(\frac{0.6}{2}\right)^2 + 0.5^2}$$

The level of confidence will be approximately 95%. (The coverage factor: k=2)

U = 2 u_c(y) = 2 x 1.53 = $\pm$ 3.1 dB

< Radiated Emission Uncertainty (Above 1 GHz) >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	Standard Uncertainty Horn Antenna (Value / Divisor)	Standard Uncertainty Squared
			3 m			3 m	3 m
V_1	Ambient signals			-	1	0.00	0.0
V_2	Antenna factor calibration #1	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_3	Antenna factor calibration #2	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_4	Cable loss calibration	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_5	Receiver specification	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_6	Highpass filter	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_7	Measurement distance variation	Tolerance	0.6	rectangular	1.732	0.35	0.1
V_8	Site imperfections	Tolerance	2.0	rectangular	1.732	1.15	1.3
V_9	Mismatch Receiver VRC: η_l = 0.33 Antenna VRC: η_g = 0.2 Uncertainty limits 20Log(1$\pm$ η_l η_g)	Tolerance	0.6	U-shaped	1.414	0.42	0.2
V_{10}	System repeatability (previous assessment of s(q_k) from 5 repeats, 1 reading on EUT Repeatability of EUT*		0.5	Std Deviation	1	0.50	0.3
	Combined standard uncertainty u_c(y)		1.65	normal			
	Expanded uncertainty U		3.31	normal (k = 2)			

$$u_c(y) = \sqrt{\left(\frac{0.0}{1}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.0^2 + 1.0^2 + 0.6^2 + 2.0^2}{3} + \left(\frac{0.6}{2}\right)^2 + 0.5^2}$$

The level of confidence will be approximately 95%. (The coverage factor: k=2)

U = 2 u_c(y) = 2 x 1.65 = $\pm$ 3.4 dB

< Electric Field Strength Uncerntainty (30 MHz – 1 GHz) >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	Standard Uncertainty UltraLog Antenna (Value / Divisor)	Standard Uncertainty Squared
			10 m			10 m	10 m
V_1	Ambient signals			Std Deviation	1	0.00	0.0
V_2	Antenna factor calibration	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_3	Cable loss calibration	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_4	Receiver specification	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_5	Antenna directivity	Tolerance	3.0	rectangular	1.732	1.73	3.0
V_6	Antenna factor variation with height	Tolerance	0.5	rectangular	1.732	0.29	0.1
V_7	Antenna phase center variation	Tolerance	0.2	rectangular	1.732	0.1	0.0
V_8	Antenna factor frequency interpolation	Tolerance	0.25	rectangular	1.732	0.14	0.0
V_9	Measurement distance variation	Tolerance	0.4	rectangular	1.732	0.23	0.1
V_{10}	Site imperfections	Tolerance	2.0	rectangular	1.732	1.15	1.3
V_{11}	Mismatch Receiver VRC: ξ_l = 0.09 Antenna VRC: ξ_g = 0.33 Uncertainty limits 20Log(1$\pm$ ξ_l ξ_g)	Tolerance	0.3	U-shaped	1.414	0.21	0.0
V_{12}	System repeatability (previous assessment of s(q_k) from 5 repeats, 1 reading on EUT Repeatability of EUT*		0.5	Std Deviation	1	0.50	0.3
	Combined standard uncertainty $u_c(y)$		2.35	normal	2		
	Expanded uncertainty U		4.70	normal (k = 2)	2		

$$u_c(y) = \sqrt{\left(\frac{0.0}{1}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.0^2 + 1.0^2 + 3.0^2 + 0.5^2 + 0.2^2 + 0.25^2 + 0.4^2 + 2.0^2}{3} + \frac{0.30^2}{2} + 0.5^2}$$

The level of confidence will be approximately 95%. (The coverage factor: k=2)

U = 2 $u_c(y)$ = 2 x 2.35 = $\pm$ 4.7 *d*B

< Line Conducted Uncerntainty >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	Standard Uncertainty (dB) 150 kHz - 30 MHz (Value / Divisor)	Standard Uncertainty Squared
V_1	Receiver specification	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_2	LISN coupling specification	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_3	Cable and input attenuator calibration	Expanded Uncertainty	0.5	normal (k = 2)	2	0.25	0.1
V_4	Mismatch Receiver VRC: ξ_l = 0.09 LISN VRC: ξ_g = 0.8 Uncertainty limits 20Log (1$\pm$ ξ_l ξ_g)	Tolerance	0.6	U-shaped	1.414	0.42	0.180
V_5	System repeatability (previous assessment of s(q_k) from 10 repeats, 1 reading on EUT)		0.35	standard deviation	1	0.35	0.12
	Combined standard uncertainty $u_c(y)$		1.02	normal			
	Expanded uncertainty U		2.03	normal (k = 2)			

$$u_c(y) = \sqrt{\frac{1.0^2 + 1.0^2}{3} + \left(\frac{0.5}{2}\right)^2 + \frac{0.6^2}{2} + 0.35^2} = dB$$

The level of confidence will be approximately 95%. (The coverage factor: k=2)

U = 2 $u_c(y)$ = 2 x *1.02* = $\pm$ 2.1 *d*B

6. MEASURING INSTRUMENT

Instrument	Model	Cal. Due date	Serial No.	Control No.
EMI Receiver	ESIB26	4/1/2009	100328	05-IRE-01
Horn Antenna	3115 (EMKO)	4/1/2009	00049219	05-IRE-06
Biconilog Ant.	3142C(EMKO)	4/1/2009	00056884	05-IRE-07
High Pass Filter	WHKX4.5 /18GHz-10SS	4/1/2009	2	05-IRE-02
Pre-amplifier	AFS42-00101800-25-S-42	4/1/2009	1101377	05-IRE-05
EMI Receiver	ESCI	4/1/2009	100213	05-IRE-01
Dual device controllers	2090	-	-	05-IRE-11
LISN	ESH2-Z5 (R&S)	4/1/2009	100136	05-ICE-06
Microwave Cable	Sucoflex 106	-	35105/6	-
Microwave Cable	Sucoflex 106	-	35111/6	-
Microwave Cable	Sucoflex 106	-	35109/6	-
Microwave Cable	RG400/11BNC/11BNC/3000	-	HSCN200520	-
Antenna Master	2070-2 (EMKO)	-	N/A	05-IRE-10
Semi Anechoic Chamber	-	-	-	05-CFA-01
Shield Screen Room	-	-	-	05-CFA-02
Microwave Survey Meter	Holaday HI-1710/HI-2623	4/1/2009	93083	FJZ431HA

7. TEST DATA

7.1 Input Power

The input power was measured using Wattmeter. A 275 ml water load in a polypropylene beaker is placed in the center of the oven. The 275 ml water was chosen for its compatibility with UL procedure to determine input ratings. The oven was operated at the rated input and full output power for 6 minutes.

1) Magnetron type: 2M229J by Toshiba

Mode	Input Voltage	Current [A]	Power Consumption [W]	Manufacturer Rating [A]
Microwave	120 Vac, 60 Hz	11.051	1,237	9.0

7.2 RF Power Output Measurement according to MP-5.

The Calorimetric Method was used to determine maximum output power. A 1,000 ml water load was placed in the center of the oven. A mercury thermometer was used to measure temperature rise. The test method was described in MP-5.

1) Magnetron type: 2M229J by Toshiba

$$\text{Power [W]} = \frac{(4.187\ \text{Joules/Cal}) * (\text{Volume in ml}) * (\text{Temperature Rise})}{\text{Time in Seconds}}$$

Quantity of Water	Starting Temperature	Final Temperature	Elapsed Time
1,000 ml	20.4 °C	37.2 °C	120 Sec

$$\text{Power [W]} = \frac{4.187 * 1,000 * 16.8}{120}$$

Power [W] = 586.2 Watts

7.3 RF Power Output Measurement according to IEC 60705.

The test was performed according to the IEC Publication 60705/1999.
A cylindrical container of borosilicate glass was used. It has a maximum thickness of 3 mm, external diameter of approximately 190 mm and height of approximately 90 mm.
Water having an initial temperature of 10 °C ± 1 °C and quantity of 1000 g ± 5 g was used.
Before starting the measurement, measure the initial temperature of water.
And then the container was placed in the center of the oven. The oven was operated until attaining temperature of water as 20 °C ± 2 °C and then measured the final water temperature.
A mercury thermometer was used to measure temperature rise. The RF output power was calculated as below formula.

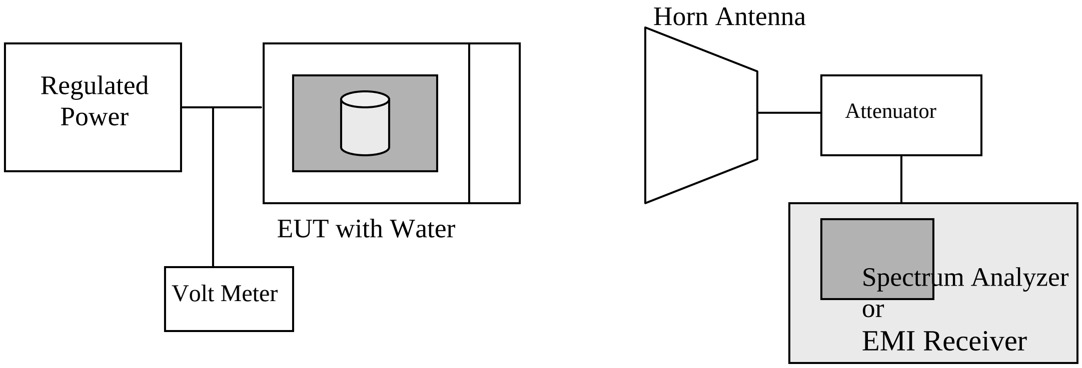
$$\text{Power [W]} = \frac{(4.187) * M_w * (T_2 - T_1) + 0.55 * M_c * (T_2 - T_0)}{t}$$

1) Magnetron type: 2M229J by Toshiba

M_w	:	Mass of the water, in grams	1000
M_c	:	Mass of the container, in grams	450.9
T_2	:	Final temperature of the water, in °C	19.9
T_1	:	Initial temperature of the water, in °C	10.0
T_0	:	Ambient temperature, in °C	19.0
t	:	Heating time in seconds, excluding the magnetron filament heat-up time.	58

$$\text{Power [W]} = \frac{4.187 * 1{,}000 * 9.9 + 0.55 * 450.9 * 0.9}{58} = 718.5 \text{ Watts}$$

7.4 Frequency measurements



1) Magnetron type: 2M229J by Toshiba

(1) Frequency vs Line Voltage Variation Test

Variation of line voltage from 80 % (96 V) to 125 % (150 V)
Load: 1,000 ml
Fundamental Frequency: 2,450 MHz
Limit: 2.4 GHz < f < 2.5 GHz

<u>Maximum Frequency Observed:</u>	2,446 MHz
<u>Minimum Frequency Observed:</u>	2,446 MHz
Result:	**Pass**

(2) Frequency vs Load Variation Test

Frequency was measured at the rated input voltage (AC 120 V).
Initial Load: 1,000 ml
Final Load: 200 ml
Fundamental Frequency: 2,450 MHz
Limit: 2.4 GHz < f < 2.5 GHz

<u>Maximum Frequency Observed:</u>	2,456 MHz
<u>Minimum Frequency Observed:</u>	2,451 MHz
Result:	**Pass**

7.5 Power Density Safety Check

The power density was check to ensure that the power is not greater than 1.0 mW/㎠ at any location of the oven. The 1.0 mW/㎠ is in accordance with CDRH and UL923 standard.

A microwave survey meter was placed on all sides, door and viewing, bottom, top and rear. No power greater than 0.16 mW/㎠ was observed and did not exceed the specified limits.

1) Magnetron type: 2M229J by Toshiba

Maximum Leakage Microwave Observed: 0.16 ***mW/㎠***

Result: Pass

7.6 Conducted emissions (Section 18.307)

Conducted emission was measured at a frequency range 150 kHz to 30 MHz. The Power Line disturbance voltage was measured with the equipment under test (EUT) in a shielded room. The EUT was connected to a line impedance stabilization network (LISN) placed on the floor. The EUT was placed on a non-metallic table 0.4 m above the metallic, grounded floor. The distance to other metallic surfaces was at least 0.4 m.
The line conducted emission measurement procedure and test configuration is based on CISPR 11: 2003+A2:2006.
Amplitude measurements were performed with a quasi-peak detector and, if required, with an average detector.

Below data are the highest levels in Microwave mode.
An overview sweep performed with peak detector is included in the APPENDIX A (Test Plot).

1) Magnetron type: 2M229J by Toshiba

	Quasi-Peak			Average			
Frequency [MHz]	Disturbance Level [dBuV]	Permitted Limit [dBuV]	Margin [dB]	Disturbance Level [dBuV]	Permitted Limit [dBuV]	Margin [dB]	Result
0.150	49.2	66.0	-16.8	24.5	59.0	-34.5	PASS
1.406	38.4	56.0	-17.6	15.3	46.0	-30.7	PASS
1.748	38.2	56.0	-17.8	7.4	46.0	-38.6	PASS
12.663	7.2	60.0	-52.8	0.1	50.0	-49.9	PASS

Remark: 1. "<<" means that disturbance level is lower than 20 dB below the limit.

7.7 Radiated emissions (Section 18.305)

Radiated emission was measured at a frequency range 30 MHz to 18 GHz. The EUT was supported by a 1 m high wood table, measurement above 1 GHz and below 1 GHz.
Preliminary measurements were made inside an anechoic chamber at 3 m to determine to emission characteristics of EUT. The EUT is configured and operated in a manner, which produces the maximum emission in a typical configuration. Final measurements were made outdoor in control room at 3-meter test method.

1) Magnetron type: 2M229J by Toshiba

Test distance: 3 m

Freq. [MHz]	Ant. Factor [dB]	Cable Loss [dB]	Load [ml]	Load Location	Meter Reading [dBuV]	Field Strength @ 3 m [dBuV/m]	Field Strength @ 3 [uV/m]	Field Strength @ 300 m [uV/m]	FCC Limit @ 300 m [uV/m]	Result
2,397	28.7	0.48	700	Center	13.5	42.7	136.5	1.4	30.0	PASS
2,518	29.0	0.52	700	Center	13.0	42.5	133.4	1.3	30.0	PASS
4,610	33.9	0.6	700	Center	8.7	43.2	144.5	1.4	30.0	PASS
4,912	33.9	0.6	700	Rt. Front	13.1	47.6	239.9	2.4	30.0	PASS
7,894	33.9	0.6	300	Center	16.7	51.2	363.1	3.6	30.0	PASS
4,611	33.9	0.6	300	Rt. Front	15.1	49.6	302.0	3.0	30.0	PASS
7,341	37.9	0.57	700	Center	21.9	60.4	1047.1	10.5	30.0	PASS
7,288	37.9	0.57	700	Rt. Front	1.6	40.1	101.2	1.0	30.0	PASS
7,306	37.9	0.57	300	Center	9.8	48.3	260.0	2.6	30.0	PASS
7,295	37.9	0.57	300	Rt. Front	22.9	61.4	1174.9	11.7	30.0	PASS
9,511	38.4	1.93	700	Center	3.3	43.6	151.4	1.5	30.0	PASS
14,686	40.6	0.97	700	Center	23.1	64.7	1717.9	17.2	30.0	PASS

Other frequencies: No detected.
For measurement of 30 MHz – 1,000 MHz, refer to APPENDIX A (Test Plot).

Result: Pass

* Limit (at 300 m) = 25 * (RF Power/500) $^{1/2}$ [μV/m]
* Field Strength below 1,000 MHz (at 300 m) [μV/m] = 10 $^{[(\text{Field strength at 10m(dBuV/m)}-29.5)/20]}$
* Field Strength above 1,000 MHz (at 300 m) [μV/m] = K * 10 $^{[\text{Field strength at 3m(dBuV/m)}/20]}$

NOTES:

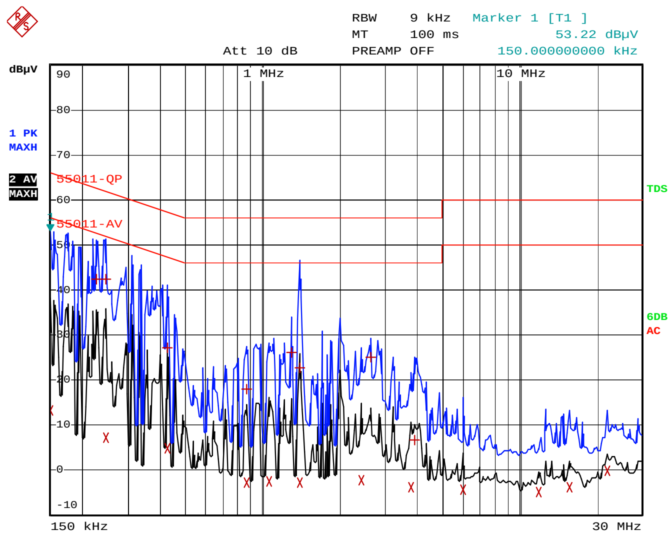
1. Two representative modes (full power and defrost) of operation were investigated.
2. A glass beaker was used as the container and the test was made with a shelf in its initial normal positi on.
3. Load for measurement of radiation on second and third harmonic: Two loads, one of 700 and the other of 300 ml, of water were used. Each load was tested both with the beaker located in the center of the oven and with it in the corner.
4. Load for all other measurements: 700 ml of water, with the beaker located in the center of the oven
5. All other emissions are non-significant.
6. The tests were made with average detector for frequency range of 30 MHz to 26 GHz.

APPENDIX A. Test Plot

♦ **150 kHz ~ 30 MHz (Magnetron type: 2M229J by Toshiba)**

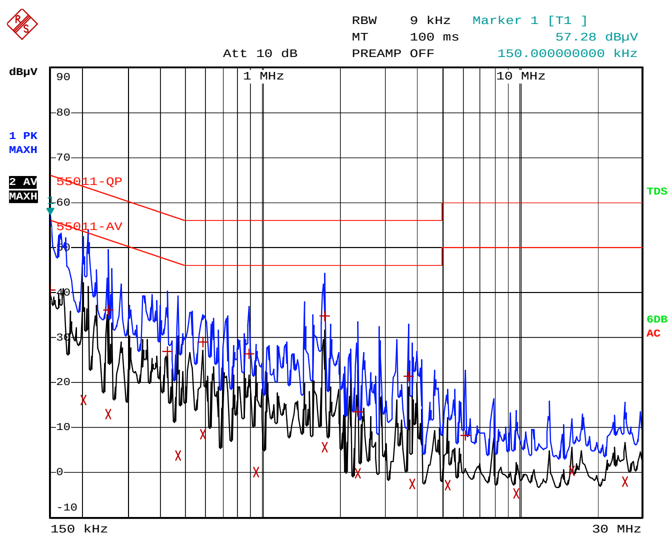
- Operating Mode: Maximum RF Power Output
- Detect Mode: Quasi-Peak(x)/Average(+), Scan Mode: Peak

<Phase: L1>



MS-0744A L1 Phase
Date: 7.JUL.2008 10:30:25

<Phase: N>

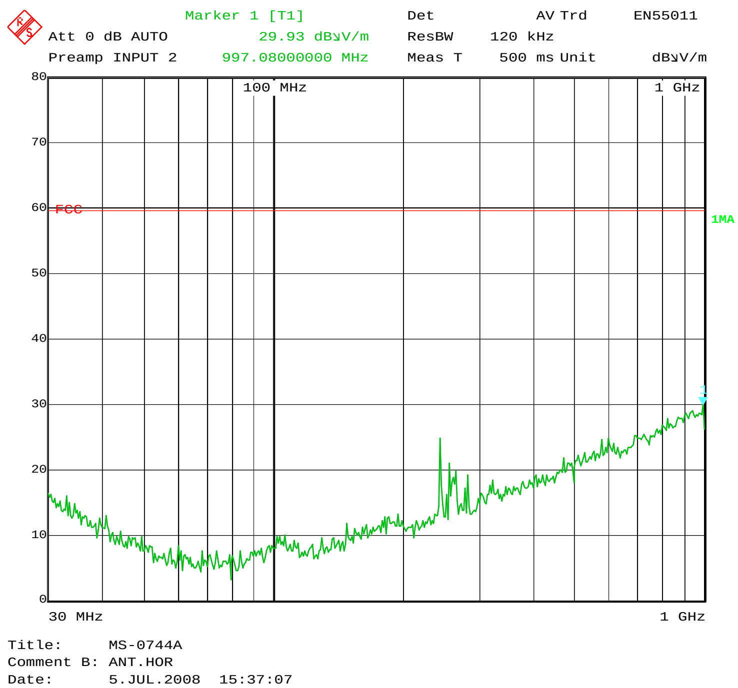


MS-0744A N Phase
Date: 7.JUL.2008 10:27:19

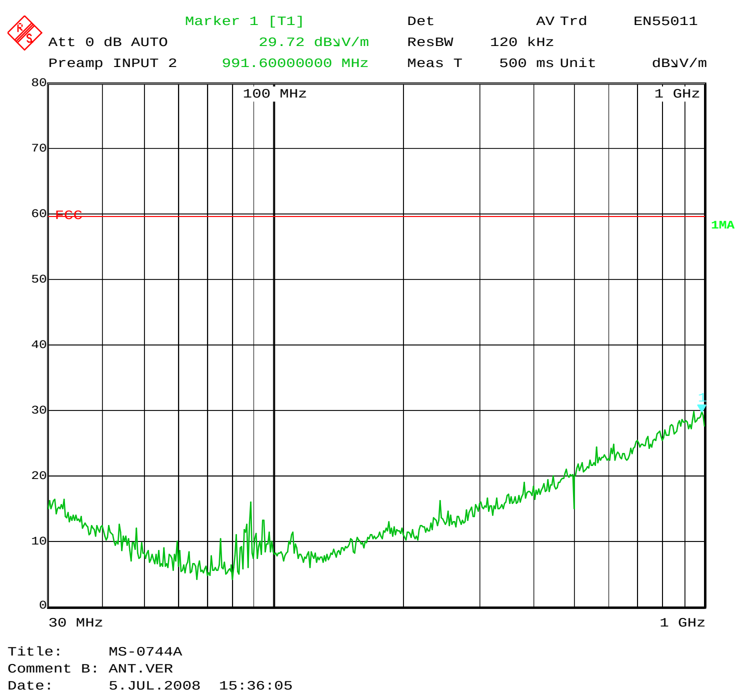
♦ 30 MHz ~ 1000 MHz (Magnetron type: 2M229J by Toshiba)

- Operating Mode: Maximum RF Power Output
- Detect Mode: Average, Scan Mode: Peak
- Measurement Distance: 10 meters

<Antenna Polarization: Horizontal>



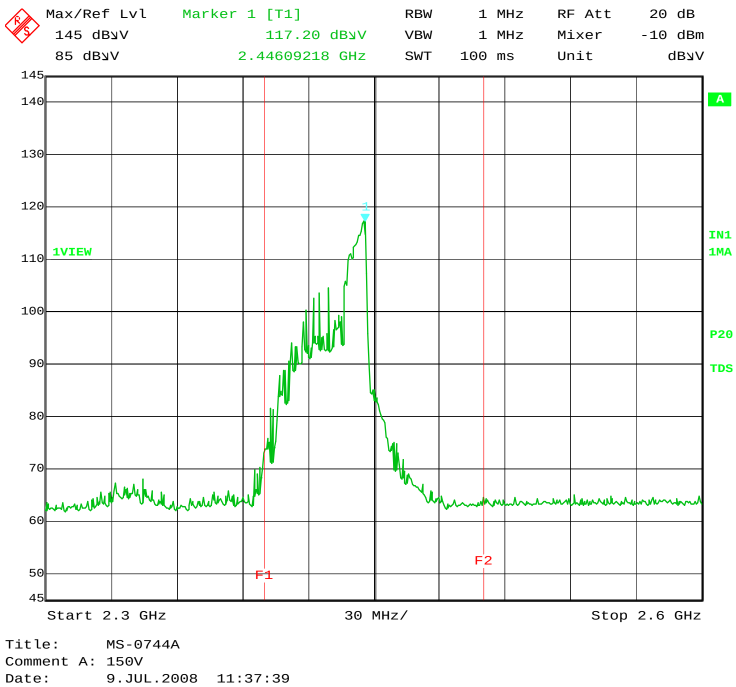
<Antenna Polarization: Vertical>



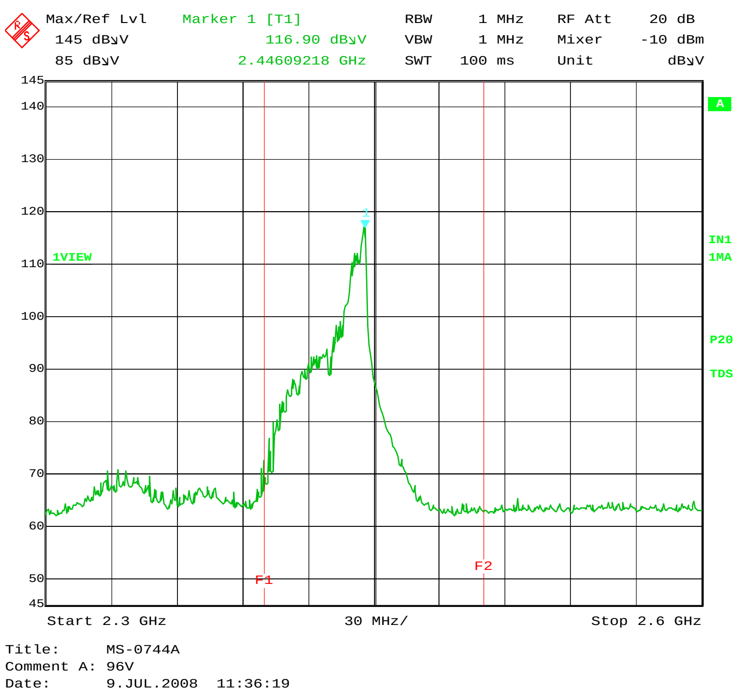
♦Voltage Variation (Magnetron type: 2M229J by Toshiba)

- Detect Mode: Average,   Scan Mode: Peak

<Maximum Frequency Observed: 2,446 MHz>



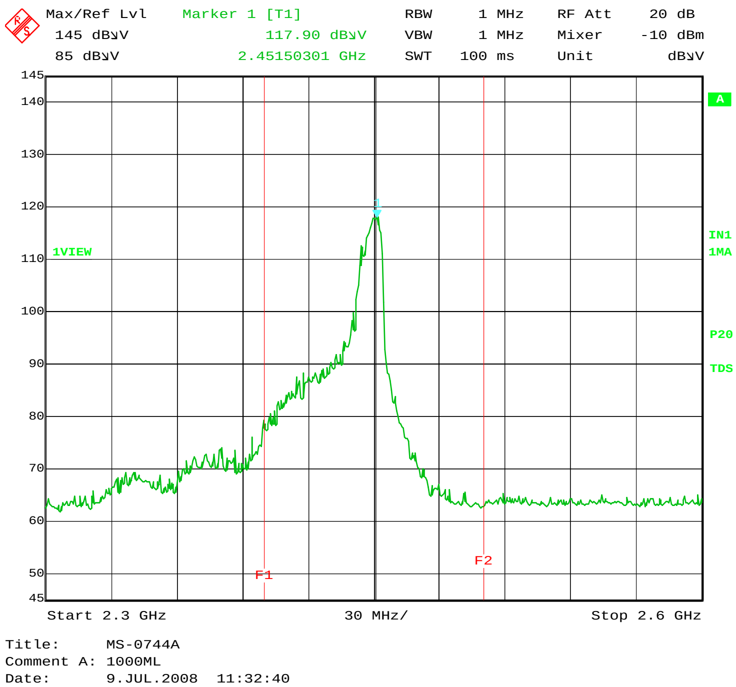
<Minimum Frequency Observed: 2,446 MHz>



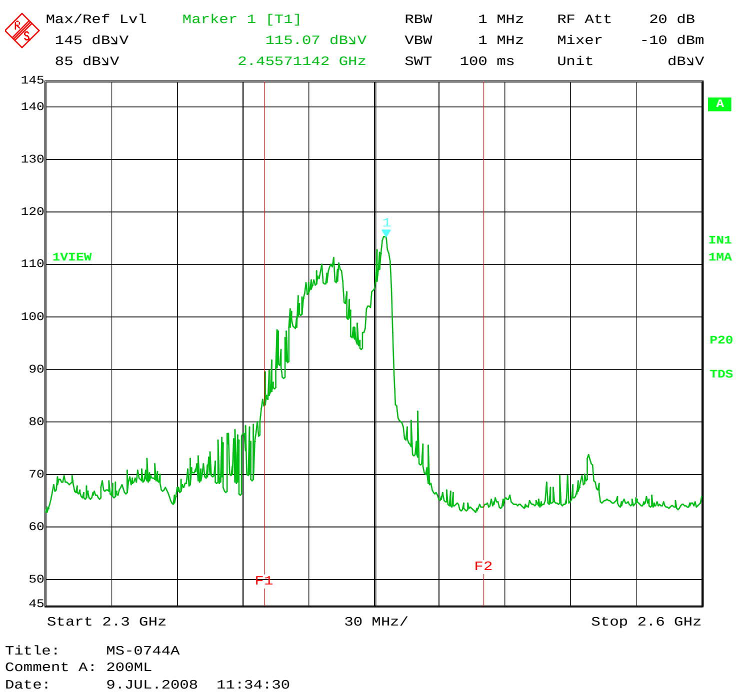
♦Load Variation (Magnetron type: 2M229J by Toshiba)

- Detect Mode: Average, Scan Mode: Peak

< Minimum Frequency Observed: 2,451 MHz >



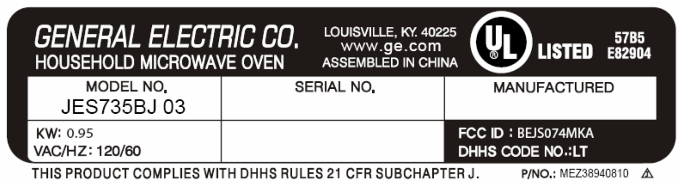
< Maximum Frequency Observed: 2,456 MHz >



APPENDIX B. Labeling Requirements

Labeling requirements per Section 2.925 and 15.19.

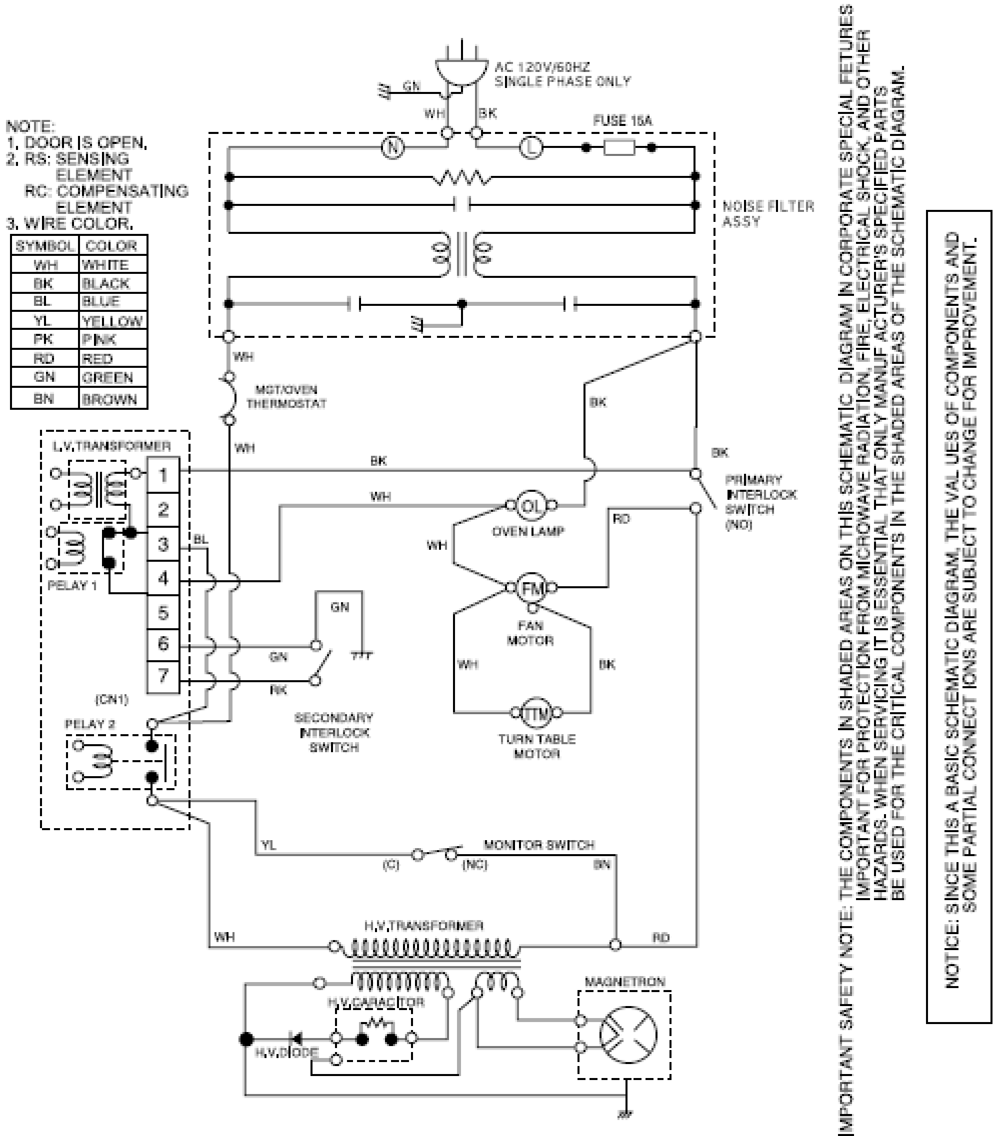
The label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time purchase.



< Fig. 2. Photo of the physical location of the label>

* Alternate location:
The nameplate may be alternatively affixed on the left side of control panel or internal surface of oven cavity or rear surface of oven.

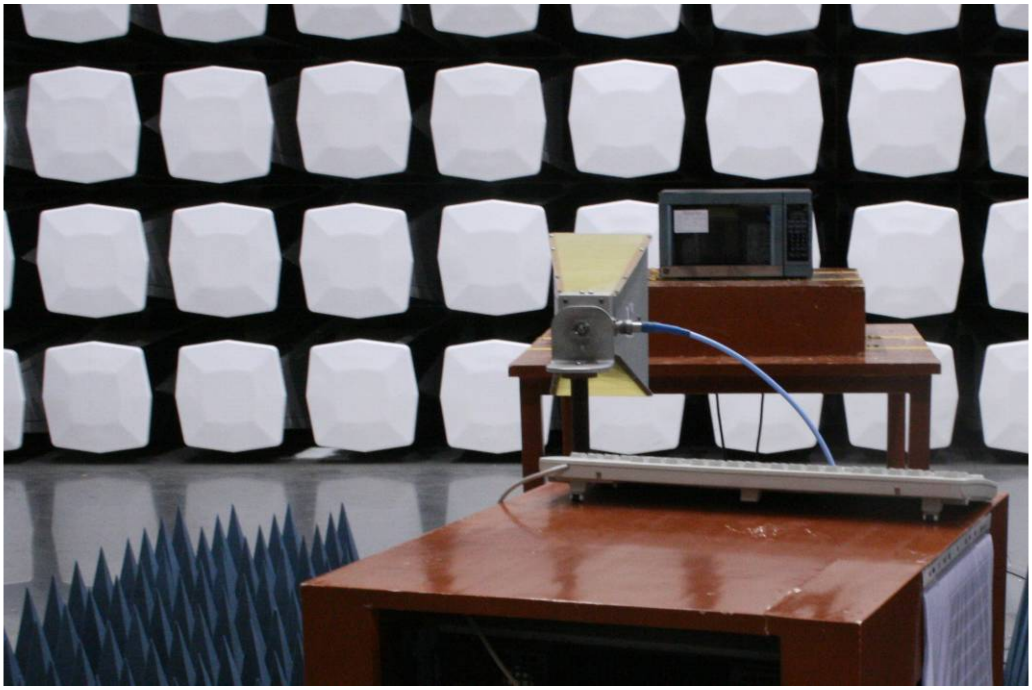
APPENDIX C. Block Diagram / Schematics

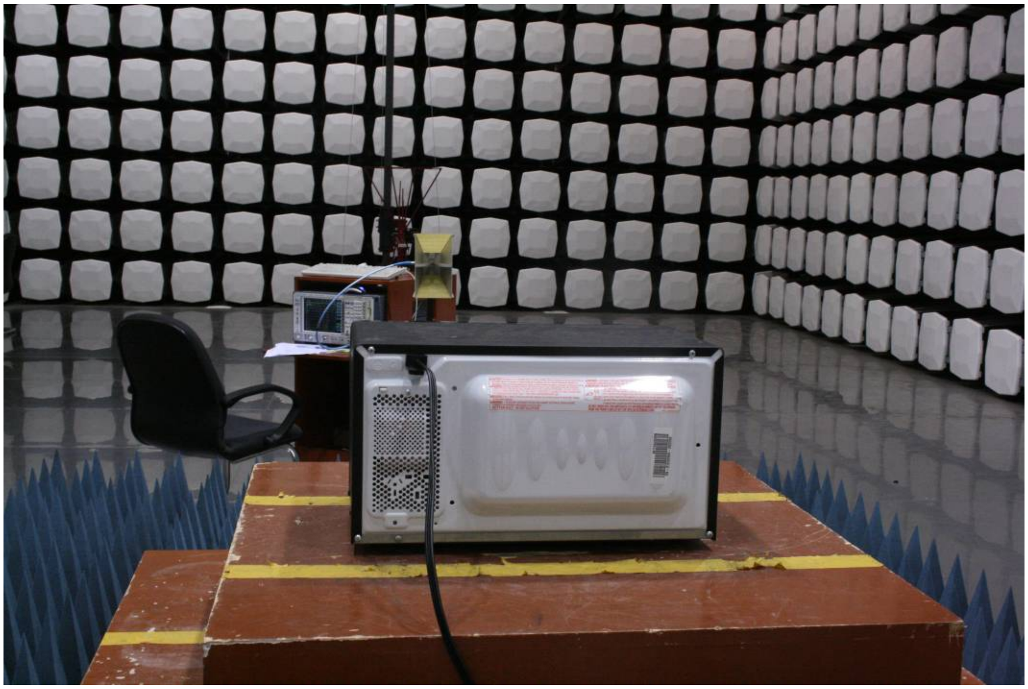


<Fig. 3. Schematic Diagram>

APPENDIX D. Test Photos

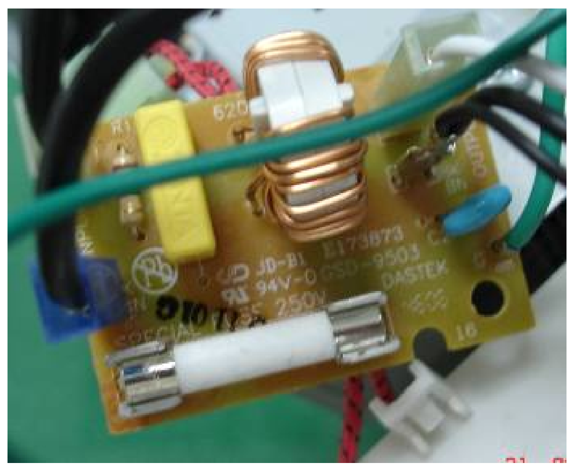
Test photos show the worst case configuration and cable placement with a minimum margin to the specifications.

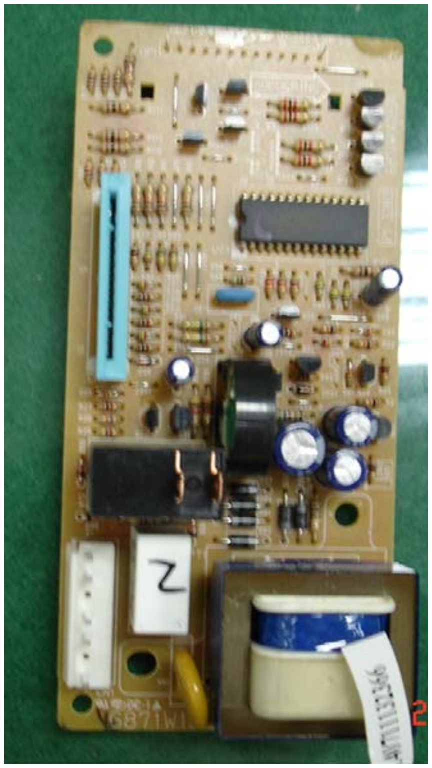




APPENDIX E. EUT Photos


TOSHIBA
2M229J(LG)
8E29
36
ATTENTION-MICROONDES
CAUTION
HIGH VOLTAGE MICROWAVES
DANGER
TOSHIBA HOKUTO ELECTRONICS MADE IN THAILAND
PAT. USP 4282463, 4287451, 4570843
AND 4705989
CL
134-1



APPENDIX F. Owner's Manual with regard to FCC Instruction

IMPORTANT SAFETY INFORMATION

SPECIAL NOTES ABOUT MICROWAVING

SAFETY FACT

SUPERHEATED WATER

Liquids, such as water, coffee or tea, are able to be overheated beyond the boiling point without appearing to be boiling. Visible bubbling or boiling when the container is removed from the microwave oven is not always present. THIS COULD RESULT IN VERY HOT LIQUIDS SUDDENLY BOILING OVER WHEN THE CONTAINER IS DISTURBED OR A SPOON OR OTHER UTENSIL IS INSERTED INTO THE LIQUID.

To reduce the risk of injury to persons:

— Do not overheat the liquid.

— Stir the liquid both before and halfway through heating it.

— Do not use straight-sided containers with narrow necks.

— After heating, allow the container to stand in the microwave oven for a short time before removing the container.

— Use extreme care when inserting a spoon or other utensil into the container.

- Avoid heating baby food in glass jars, even with the lid off. Make sure all infant food is thoroughly cooked. Stir food to distribute the heat evenly. Be careful to prevent scalding when warming formula or breast milk. The container may feel cooler than the milk really is. Always test the milk before feeding the baby.
- Don't defrost frozen beverages in narrow-necked bottles (especially carbonated beverages). Even if the container is opened, pressure can build up. This can cause the container to burst, possibly resulting in injury.
- Hot foods and steam can cause burns. Be careful when opening any containers of hot food, including popcorn bags, cooking pouches and boxes. To prevent possible injury, direct steam away from hands and face.
- Do not overcook potatoes. They could dehydrate and catch fire, causing damage to your oven.
- Cook meat and poultry thoroughly—meat to at least an INTERNAL temperature of 160°F and poultry to at least an INTERNAL temperature of 180°F. Cooking to these temperatures usually protects against foodborne illness.

6