LG Electronics Tianjin Appliance Co., Ltd.,

EMC Center

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CERTIFICATION OF COMPLIANCE

Date of Issue: February 11, 2014 **Test Report No: 14-LTE-M004 B**

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

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:	2M246 (LG)
Noise Filter:	EAM35001888
Brand Name(s):	LG
Model No.:	LMHM2237S#, LMH2235S#, LMVM2033S#, LMV2031S#
FCC ID:	BEJS229TW

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.

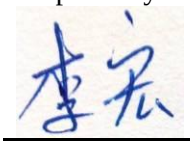
Dae-Woong Kim, Chief Research Engineer
Home Appliance Company, EMC Center
LG Electronics Inc.

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.:	LMHM2237ST
FCC ID:	BEJS229TW
Rule Part:	FCC Part 18
Test Procedure:	MP-5: 1986
Date of Test:	February 8, 2014 – February 10, 2014
Date of Issue:	February 11, 2014
Test Result:	Pass

Prepared by:



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LG Electronics Inc.

Approved by:

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LG Electronics Inc.

CONTENTS

1. CLIENT INFORMATION

The EUT has been tested by request of:

Company: (Manufacturer)	1. LG Electronics Inc. Changwow Plant 1 170, Sungsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, 641-711, Korea 2. LG Electronics Tianjin Appliance Co., Ltd. No. 9 Jin Wei Road, Bei Chen Distr., 300402 Tianjin, People's Republic of China
Name of contact:	Feng Xinliang
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:	LMHM2237ST
Brand name:	LG
Serial number:	N/A
Magnetron:	2M246 by LG
Noise Filter:	EAM35001888
RF Frequency:	2450 +/- 50 MHz
RF Power Output (IEC 60705):	1000 W
Power Consumption Microwave Mode:	1600 W
Rated Input Voltage:	120 V~, 60 Hz
Rated Input Current Microwave Mode:	14 A
Cavity Volume:	2.2 or 2.0 Cu.ft
Oven Type:	Household
Mode Stirrer:	Turntable
Power Cord:	Unshielded
Outer Dimensions (inch)	29 15/16 (W) * 17 11/16 (H) * 18 5/16 (D)

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

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 C63.4-2009 on August 29, 2012.

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 C63.4-2009. 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 11:2009+A1:2010.

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 C63.4-2009 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 maximu m 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 which was initially 20 °C ± 5 °C and 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 26 GHz. Emissions to be measured is detected in average mode.

5.2.3 Unit of measurement

Test results of radiated emissions measurement are reported in microvolt 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 26 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 Uncertainty (2,450 MHz) >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	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: $\Diamond_l$ = 0.33 Antenna VRC: $\Diamond_g$ = 0.20 Uncertainty limits 20Log(1$\pm$ $\Diamond_l$ $\Diamond_g$)	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)			

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

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

$U = 2\,u_c(y) = 2 \times 1.53 = \pm 3.1$ *d*B

< 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: $\Diamond_l$ = 0.33 Antenna VRC: $\Diamond_g$ = 0.2 Uncertainty limits 20Log(1$\pm$ $\Diamond_l$ $\Diamond_g$)	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)			

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

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

$U = 2\,u_c(y) = 2 \times 1.65 = \pm 3.4$ *d*B

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

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	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	1.6	normal (k = 2)	2	0.80	0.6
V_3	Cable loss calibration	Expanded Uncertainty	0.1	normal (k = 2)	2	0.05	0.0
V_4	Receiver specification	Tolerance	2.0	rectangular	1.732	1.15	1.3
V_5	Antenna directivity	Tolerance	1.0	rectangular	1.732	0.58	0.3
V_6	Antenna factor variation with height	Tolerance	0.2	rectangular	1.732	0.12	0.0
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	0.2	rectangular	1.732	0.12	0.0
V_{10}	Site imperfections	Tolerance	3.0	triangular	2.449	1.22	1.5
V_{11}	Mismatch Receiver VRC: Γ_l = 0.09 Antenna VRC: Γ_g = 0.33 Uncertainty limits 20Log(1± Γ_l Γ_g)	Tolerance	0.25	U-shaped	1.414	0.18	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 $u_c(y)$		2.04	normal	2		
	Expanded uncertainty U		4.08	normal (k = 2)	2		

$$u_c(y) = \sqrt{\left(\frac{0.0}{1}\right)^2 + \left(\frac{0.1^2 + 1.6^2}{2}\right) + \frac{2.0^2 + 1.0^2 + 0.2^2 + 0.2^2 + 0.25^2 + 0.2^2 + 3.0^2}{3} + \frac{0.25^2}{2} + 0.5^2}$$

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

$U = 2\, u_c(y) = 2 \times 2.04 = \pm 4.1$ *d*B

< Line Conducted Uncertainty >

Symbol	Contribution	Value (dB)		Probability Distribution	Divisor	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± 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)			

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

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

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

6. MEASURING INSTRUMENT

Instrument	Model	Cal. Due date	Serial No.	Control No.
EMI Receiver	ESIB26	April 7, 2014	100328	05-IRE-01
Horn Antenna	3115 (EMCO)	May 6, 2014	00049219	05-IRE-06
Biconilog Ant.	3142C(EMCO)	August 7, 2014	00056884	05-IRE-07
High Pass Filter	WHKX4.5 /18GHz-10SS	April 7, 2014	2	05-IRE-02
Pre-amplifier	83006A	April 7, 2014	MY39500565	05-IRE-12
EMI Receiver	ESCI	April 7, 2014	100213	05-IRE-01
Dual device controllers	2090	-	-	05-IRE-11
LISN	ESH2-Z5 (R&S)	April 7, 2014	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/11 BNC/3000	-	HSCN200520	-
Antenna Master	2070-2 (EMCO)	-	N/A	05-IRE-10
Semi Anechoic Chamber	-	-	-	05-CFA-01
Shield Screen Room	-	-	-	05-CFA-02
Microwave Survey Meter	Holaday HI-1710	April 1, 2014	106530	M-FJZ059

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.

Mode	Input Voltage	Current [A]	Power Consumption [W]	Manufacturer Rating [A]
Microwave	120 Vac, 60 Hz	12.975	1497.8	14.0

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.

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

Quantity of Water	Starting Temperature	Final Temperature	Elapsed Time
1,000 ml	10.0 °C	32.0 °C	120 Sec

$$\text{Power [W]} = \frac{4.187 * 1{,}000 * 22.0}{120}$$

Power [W] = 767.6 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.

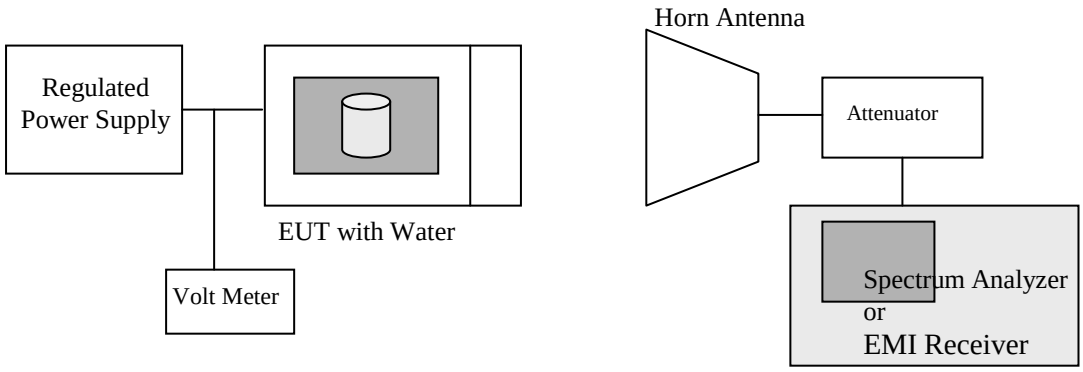
$$\text{Power [W]} = \frac{(4.187) * M_w * (T_2-T_1) + 0.55*M_c*(T_2-T_0)}{t}$$

1) Magnetron type: 2M246 by LG

M_w	:	Mass of the water, in grams	1000
M_c	:	Mass of the container, in grams	500
T_2	:	Final temperature of the water, in °C	20.1
T_1	:	Initial temperature of the water, in °C	10.0
T_0	:	Ambient temperature, in °C	19.5
t	:	Heating time in seconds, excluding the magnetron filament heat-up time.	42.0

$$\text{Power [W]} = \frac{4.187 * 1{,}000 * 10.1 + 0.55 * 500 * 0.6}{42} = 1010.8 \text{ Watts}$$

7.4 Frequency measurements



(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

Maximum Frequency Observed:	2,466 MHz
Minimum Frequency Observed:	2,459 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

Maximum Frequency Observed:	2,466 MHz
Minimum Frequency Observed:	2,461 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/cm^2 at any location when only primary interlock active, besides not greater than 5.0 mW/cm^2 when all interlock active or only secondary interlock active of the oven. The limits are 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 which greater than 0.56 mW/cm^2 (Only Primary interlock active) and 2.22 mW/cm^2 (only Secondary interlock active) were observed and did not exceed the specified limits.

Maximum Leakage Microwave Observed:

only Primary interlock active	**0.56 *mW/cm^2***
only Secondary interlock active	**2.22 *mW/cm^2***

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: 2009+A2:2010.
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).

	Quasi-Peak			Average			Result
Frequency [MHz]	Disturbance Level [dBuV]	Permitted Limit [dBuV]	Margin [dB]	Disturbance Level [dBuV]	Permitted Limit [dBuV]	Margin [dB]	
0.473	**51.4**	**56.5**	**-5.1**	**27.3**	**46.5**	**-19.2**	**PASS**
0.512	**52.2**	**56.0**	**-3.8**	**40.7**	**46.0**	**-5.3**	**PASS**
15.745	**23.8**	**60.0**	**-36.2**	**12.5**	**50.0**	**-37.5**	**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 26 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.

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 m [uV/m]	Field Strength @ 300 m [uV/m]	FCC Limit @ 300 m [uV/m]	Result
2,397	28.1	0.2	700	Center	24.9	53.2	457.1	4.6	31.0	PASS
4,495	32.4	0.2	700	Center	24.4	57.0	707.9	7.1	31.0	PASS
4,905	33.1	0.5	700	Center	1.5	35.1	56.9	0.6	31.0	PASS
4,918	33.1	0.2	700	Center	4.6	37.9	78.5	0.8	31.0	PASS
4,928	33.1	0.2	700	Rt. Front	13.6	46.9	221.3	2.2	31.0	PASS
4,929	33.1	0.2	300	Center	9.4	42.7	136.5	1.4	31.0	PASS
4,935	33.1	0.2	300	Rt. Front	-0.1	33.2	45.7	0.5	31.0	PASS
7,354	36.4	0.6	700	Center	0.2	37.2	72.4	0.7	31.0	PASS
7,118	35.6	0.6	700	Rt. Front	1.0	37.2	72.4	0.7	31.0	PASS
7,392	36.4	0.6	300	Center	13.2	50.2	323.6	3.2	31.0	PASS
7,121	35.6	0.6	300	Rt. Front	7.3	43.5	149.6	1.5	31.0	PASS
8,798	37.8	0.9	700	Center	-0.6	38.1	80.4	0.8	31.0	PASS
9,848	38.0	1.1	700	Center	9.6	48.7	272.3	2.7	31.0	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:

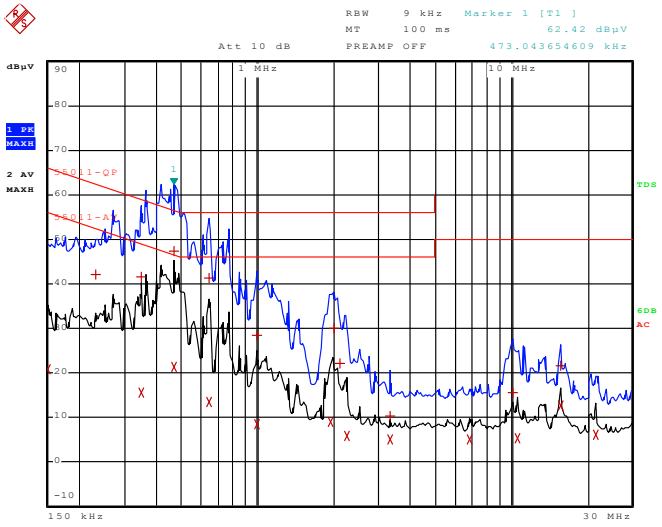
1. Two representative modes (full power and defrost) of operation were investigated.
2. A glass beaker was used as the container and the test was made with a shelf in its initial normal positio n.
3. Load for measurement of radiation on second and third harmonic: Two loads, one of 700 and the other of 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

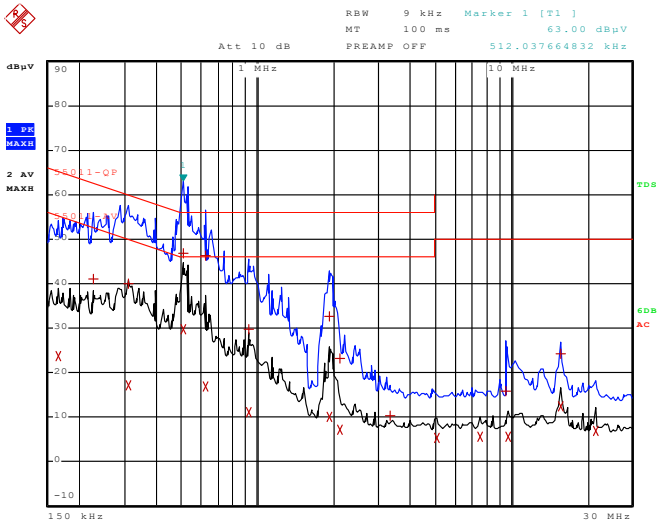
♦ **150 kHz ~ 30 MHz (Magnetron type: 2M246 by LG)**

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

<Phase: L1>



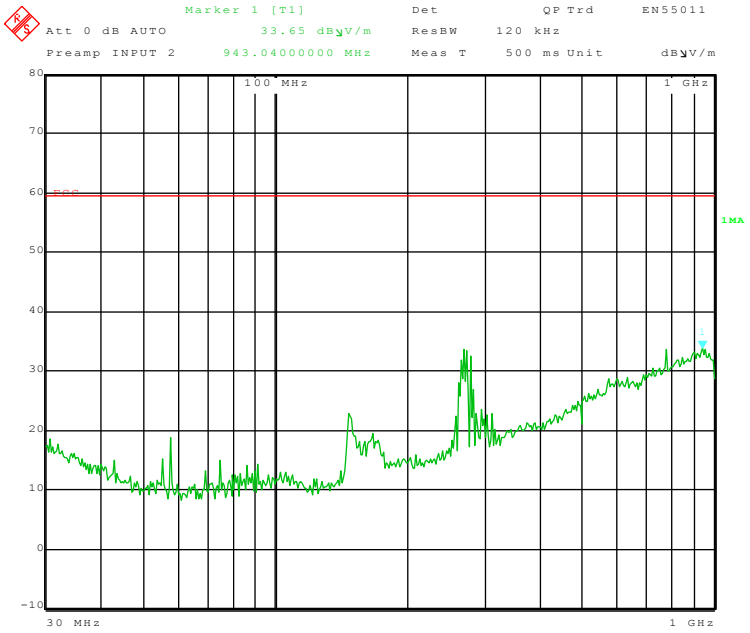
<Phase: N>



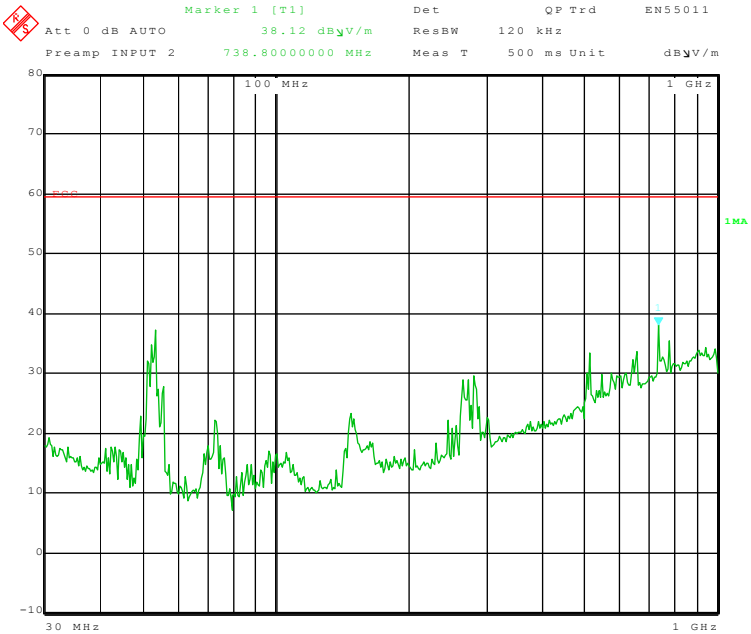
♦30 MHz ~ 1000 MHz (Magnetron type: 2M246 by LG)

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

<Antenna Polarization: Horizontal>



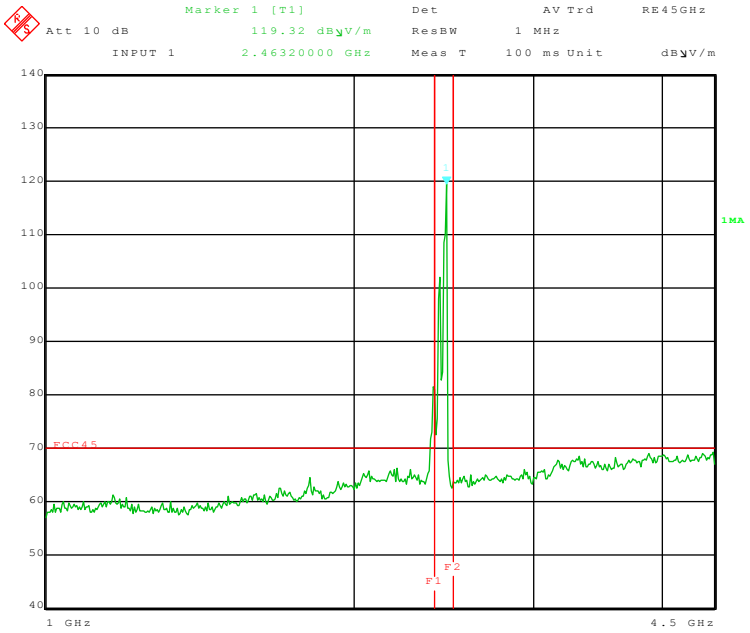
<Antenna Polarization: Vertical>



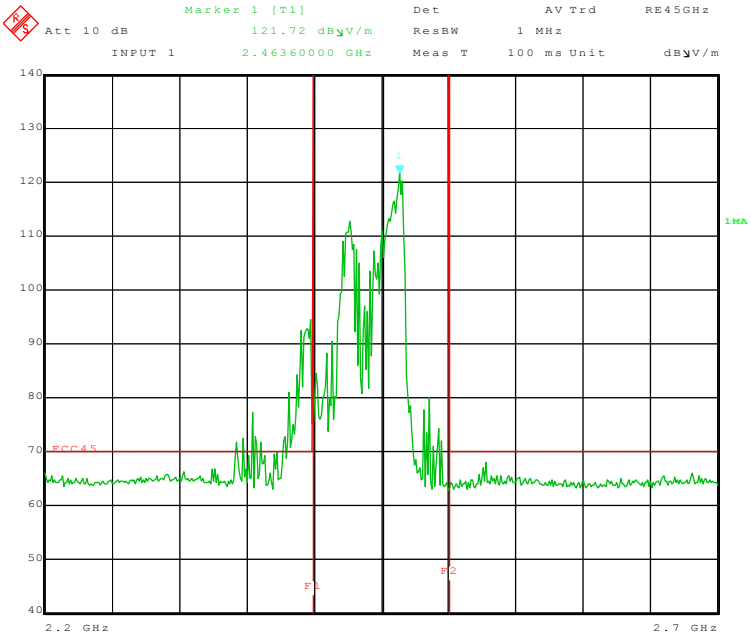
♦ **1 GHz ~ 4.5 GHz**

- Operating Mode: Maximum RF Power Output
- Detect Mode: Average, Scan Mode: Peak
- Measurement Distance: 3 meters

<Antenna Polarization: Vertical; Fund>



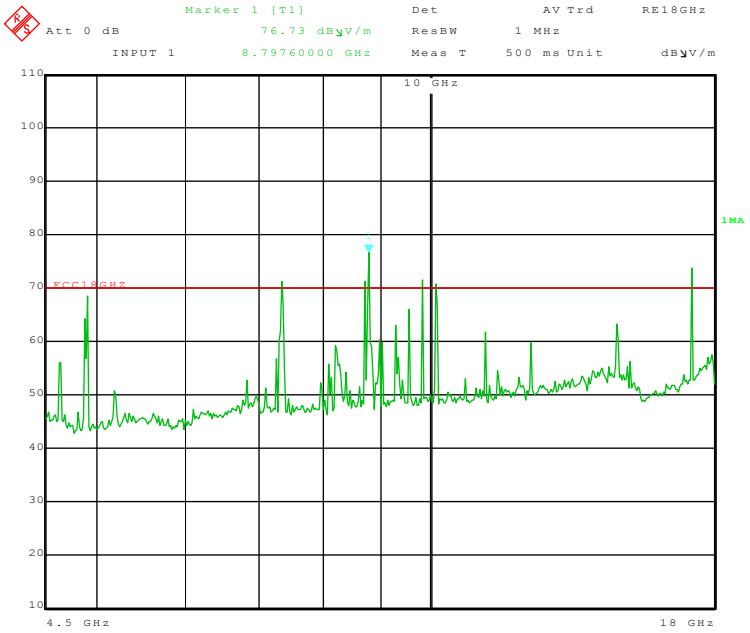
<Antenna Polarization: Vertical; Fund>



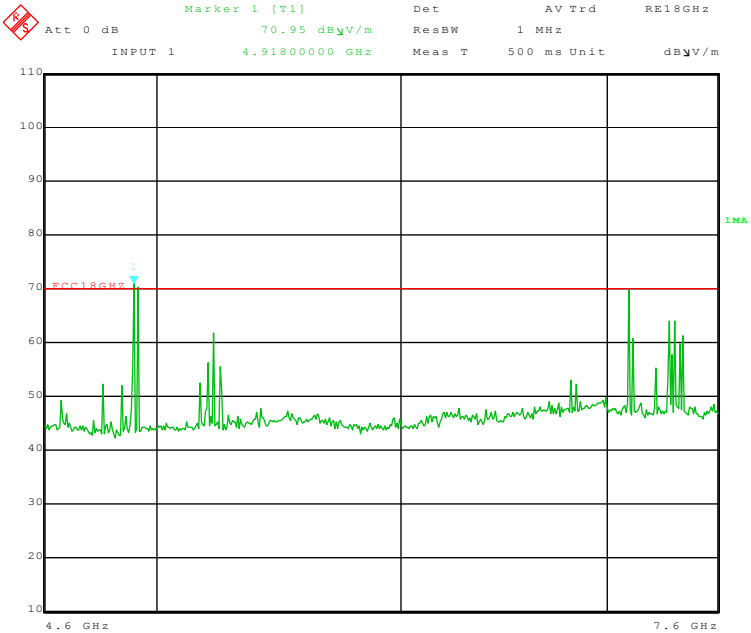
♦ **4.5 GHz ~ 18 GHz**

- Operating Mode: Maximum RF Power Output
- Detect Mode: Average, Scan Mode: Peak
- Measurement Distance: 3 meters

<Antenna Polarization: Vertical; Load: 700ml, Center>



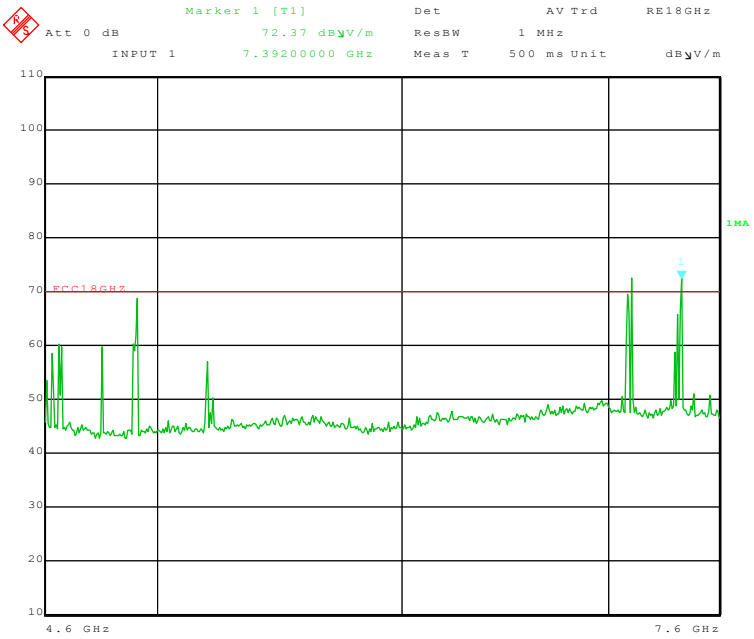
<Antenna Polarization: Vertical; Load: 700ml, Right Front>



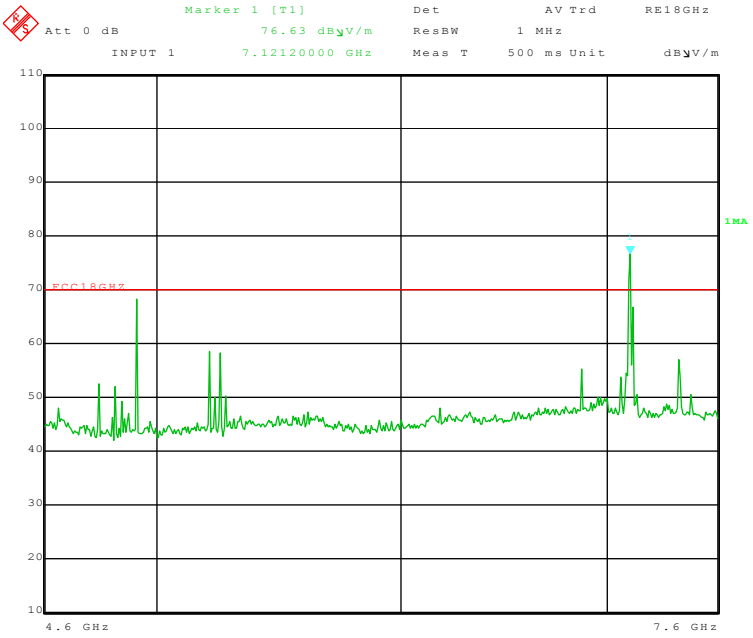
♦ **4.5 GHz ~ 18 GHz**

- Operating Mode: Maximum RF Power Output
- Detect Mode: Average, Scan Mode: Peak
- Measurement Distance: 3 meters

<Antenna Polarization: Vertical; Load: 300ml, Center>



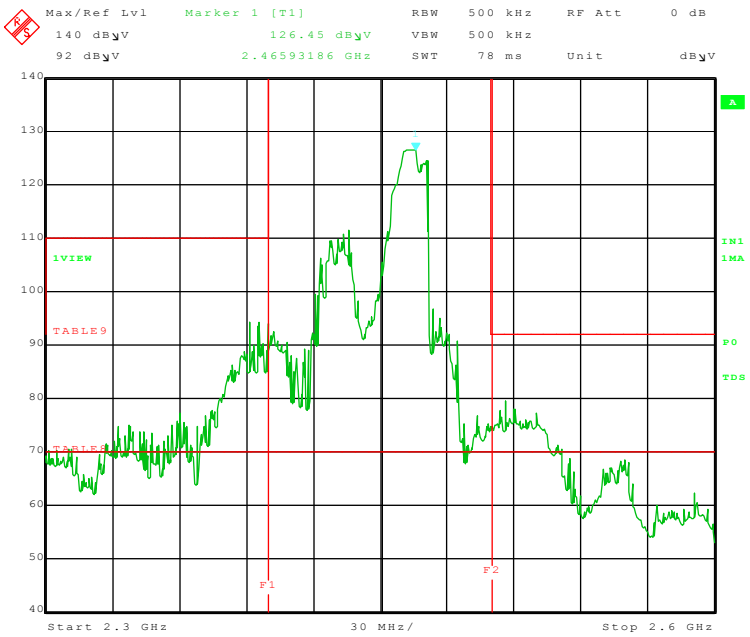
<Antenna Polarization: Vertical; Load: 300ml, Right Front>



♦Voltage Variation

Detect Mode: Average, Scan Mode: Peak

<Maximum Frequency Observed: 2,466 MHz>

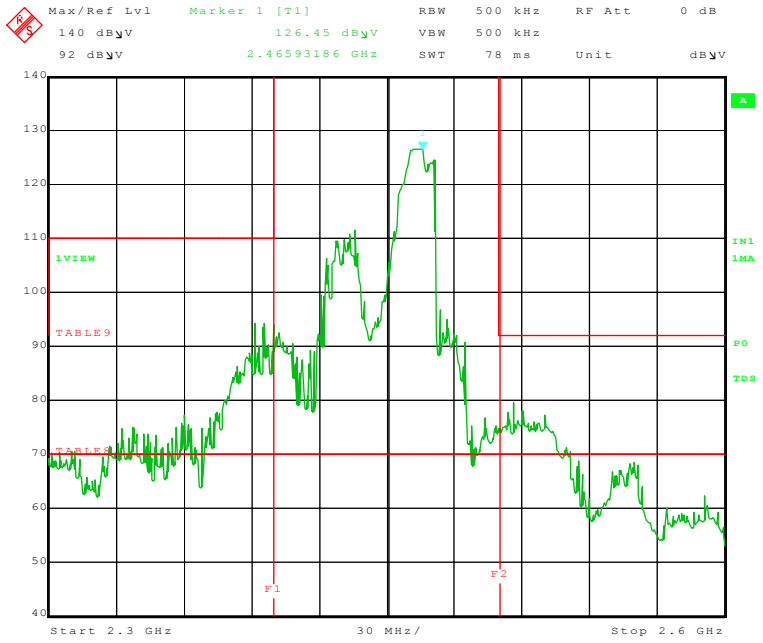


<Minimum Frequency Observed: 2,459 MHz>

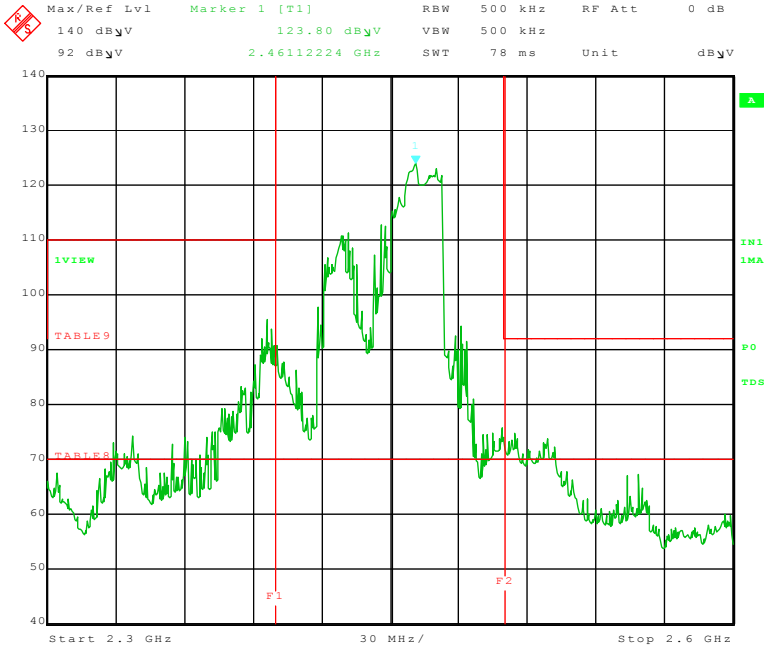
♦Load Variation

Detect Mode: Average, Scan Mode: Peak

<Maximum Frequency Observed: 2,466MHz >



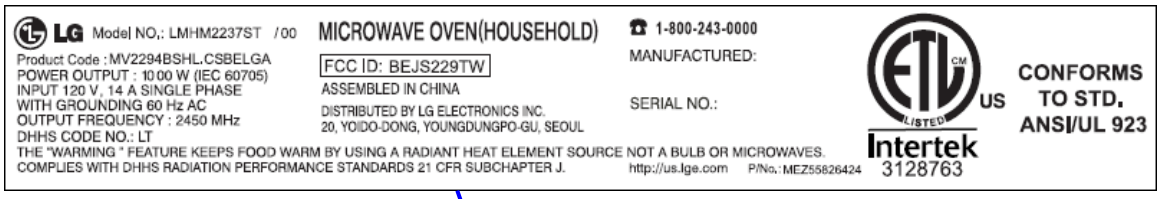
< Minimum Frequency Observed: 2,461MHz >



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.



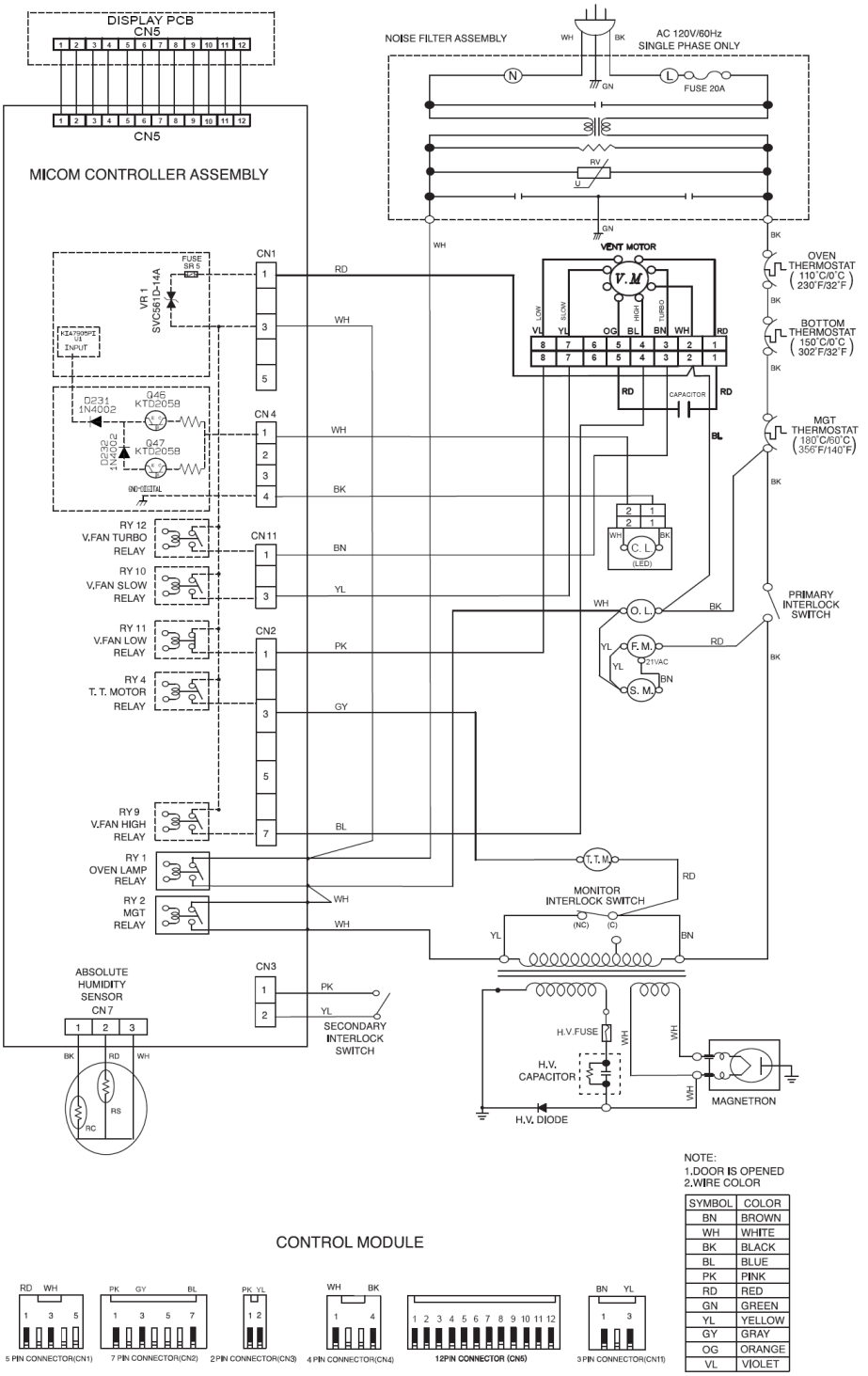
* Location:
Name plate is permanently affixed to the front cavity of the equipment as right.

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

APPENDIX C. Block Diagram / Schematics

Schematic Diagram

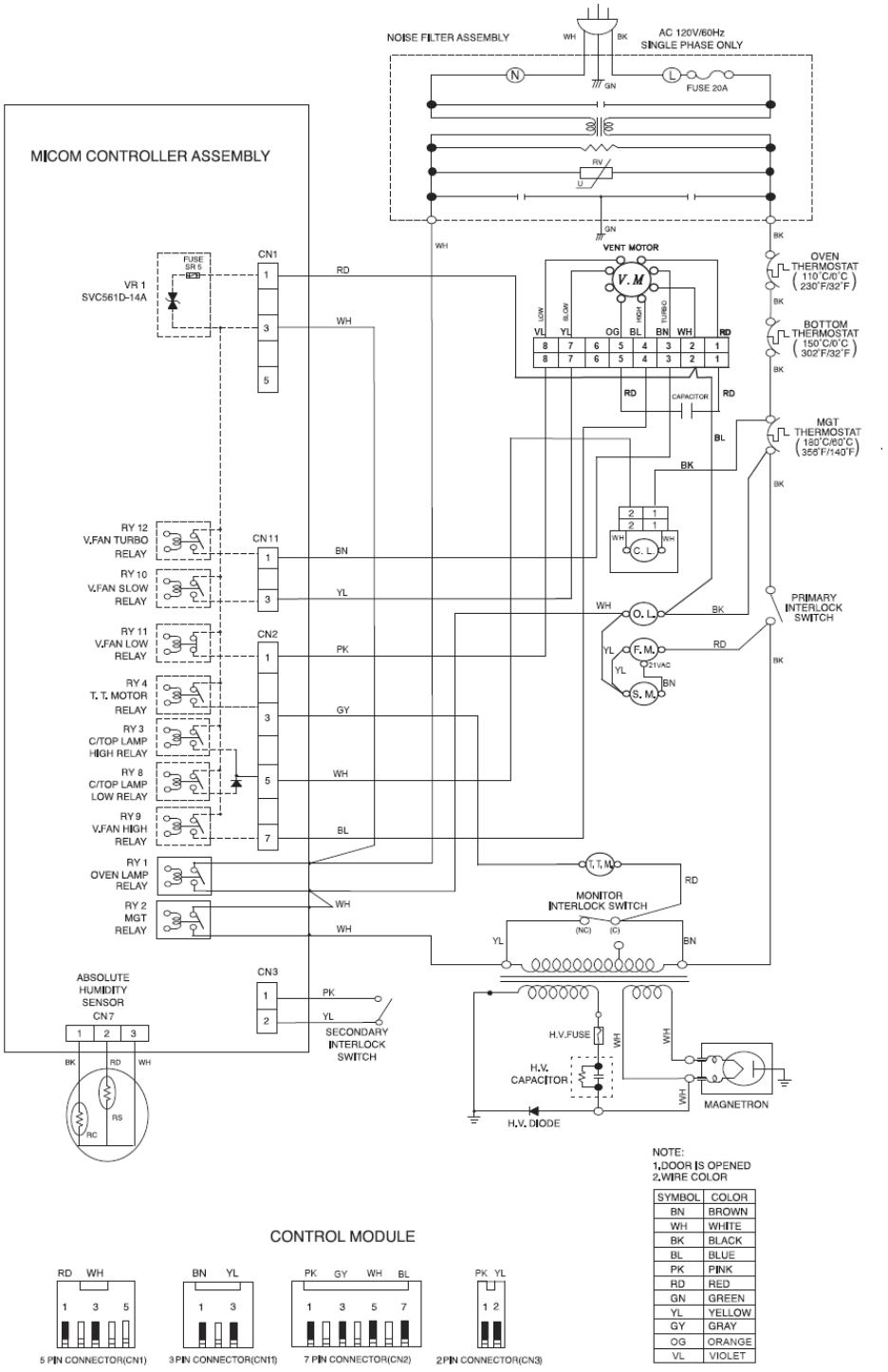
CAUTION: Disconnect from electrical supply before servicing unit.



<Fig. 3a. Schematic Diagram of Slide-out model>

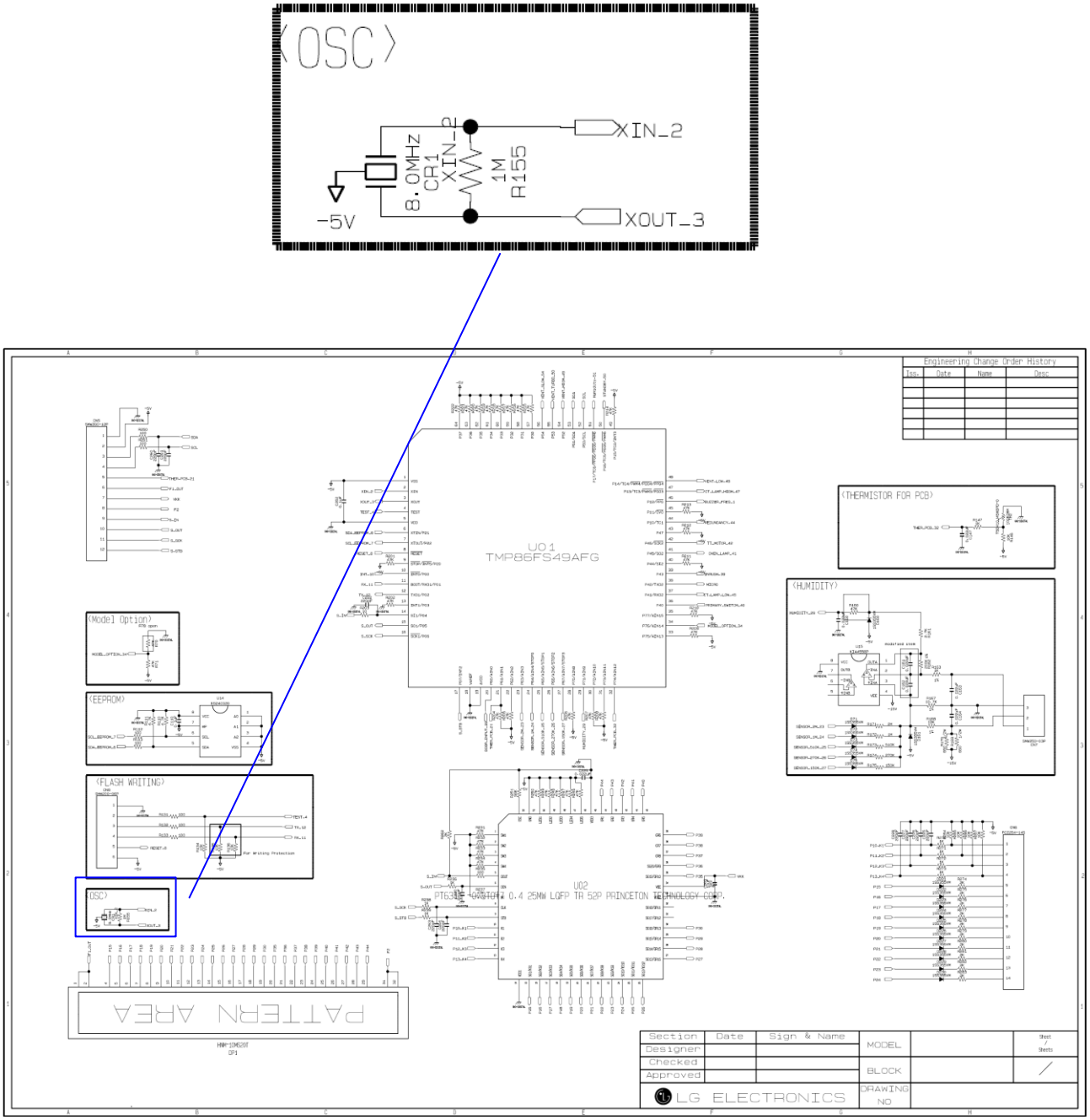
Schematic Diagram

CAUTION: Disconnect from electrical supply before servicing unit.



<Fig. 3b. Schematic Diagram of Non Slide-out model>

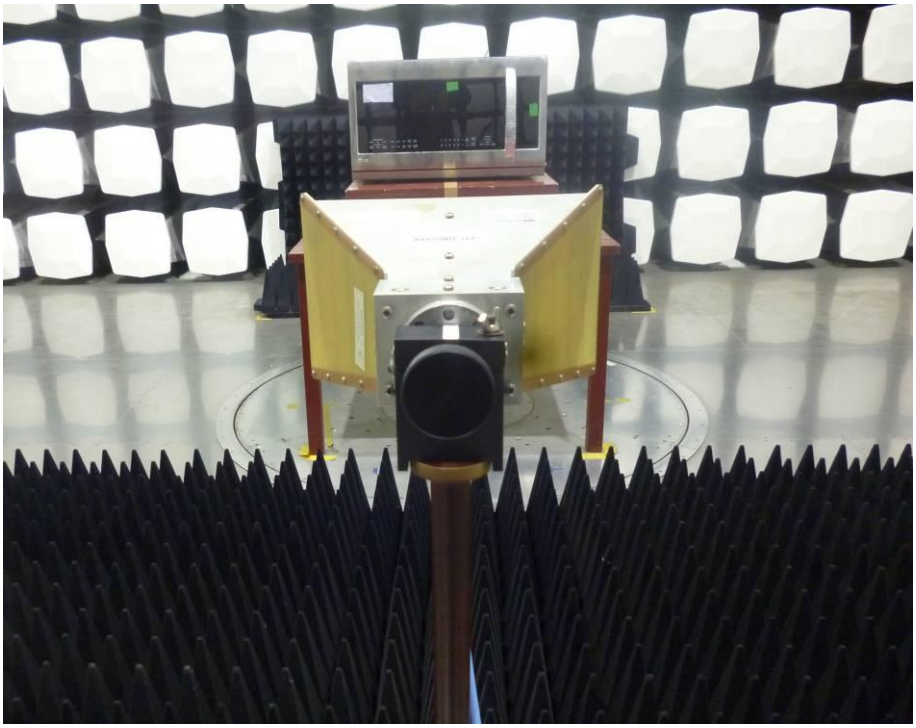
Requirements per section 2.1033 (5) of CFR Title 47.

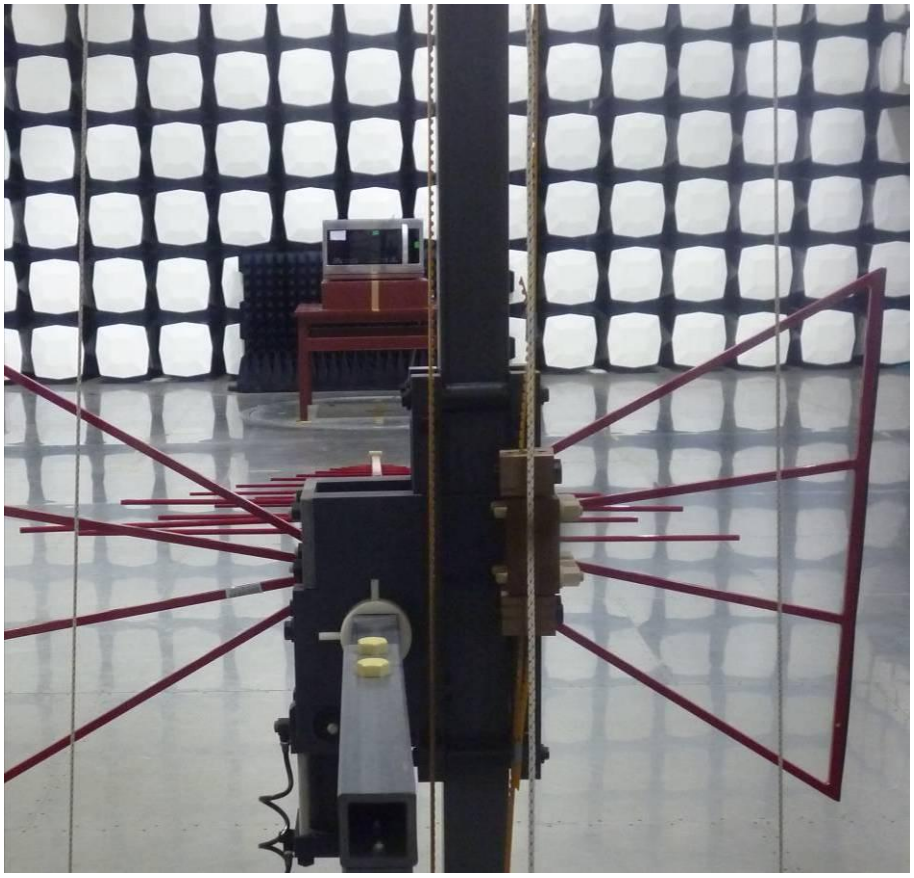


<Fig. 4. PCB Circuit Diagram>

APPENDIX D. Test Photos

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



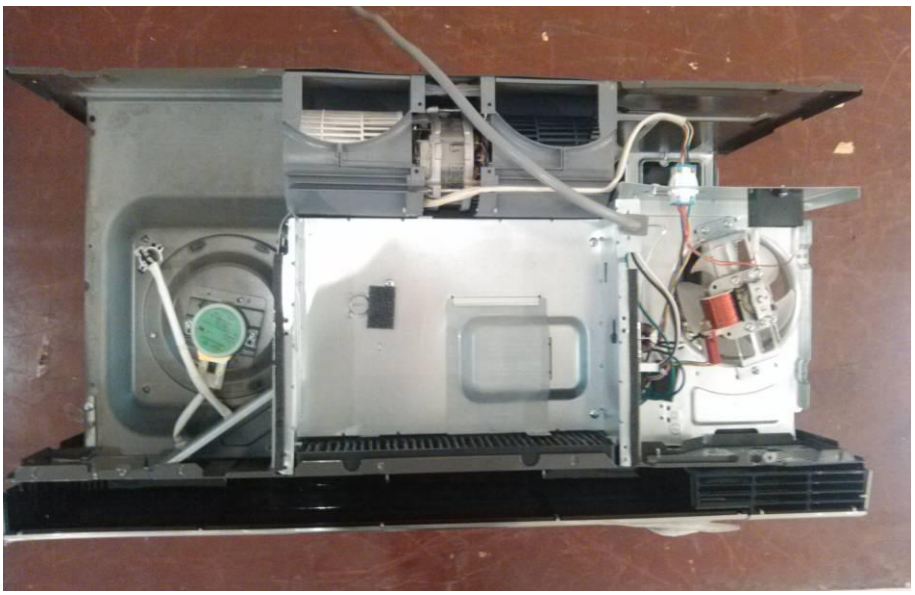


APPENDIX E. EUT Photos

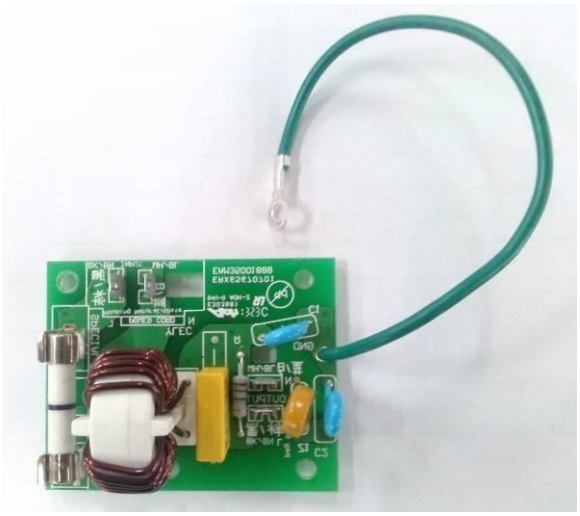
Slide-out Model

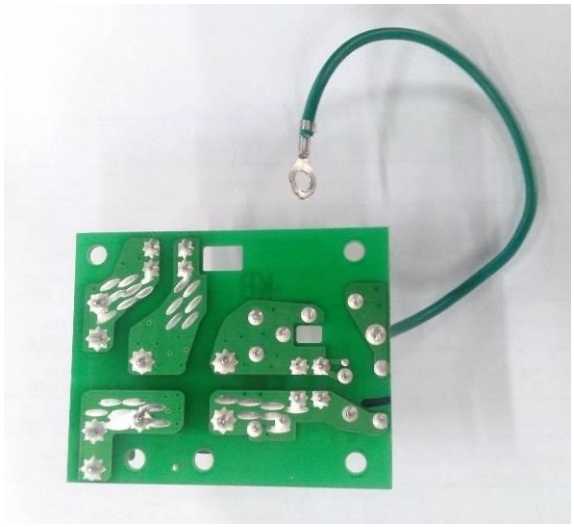
Non Slide-out Model

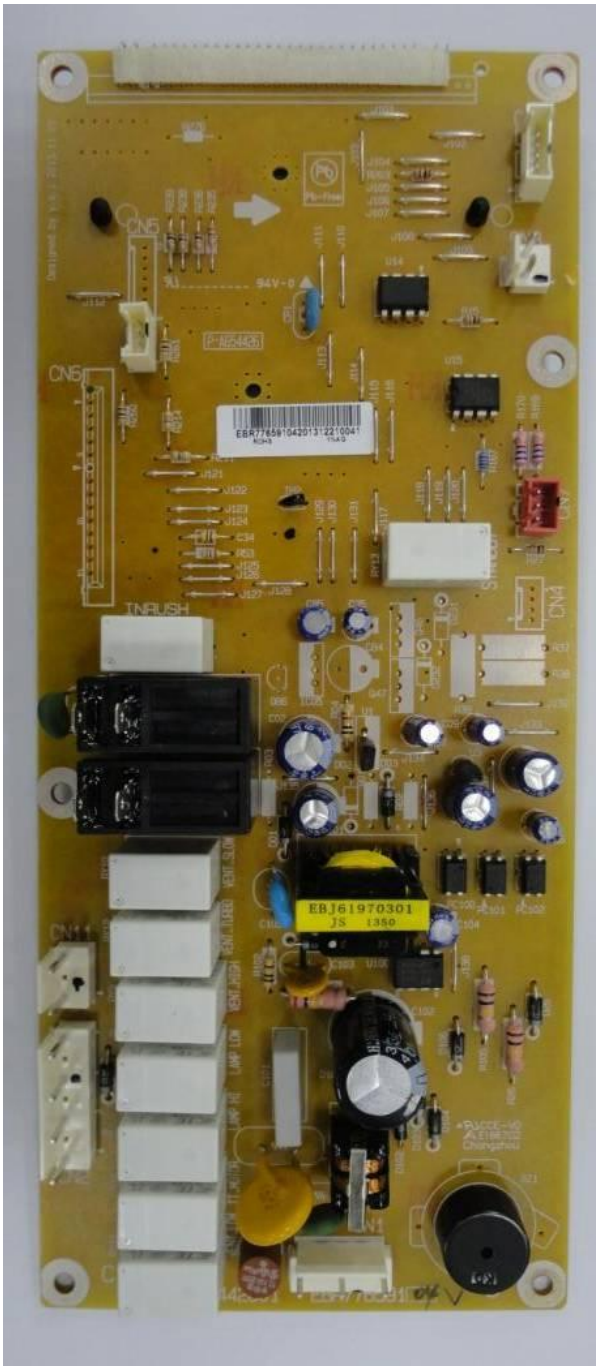
Both of these models

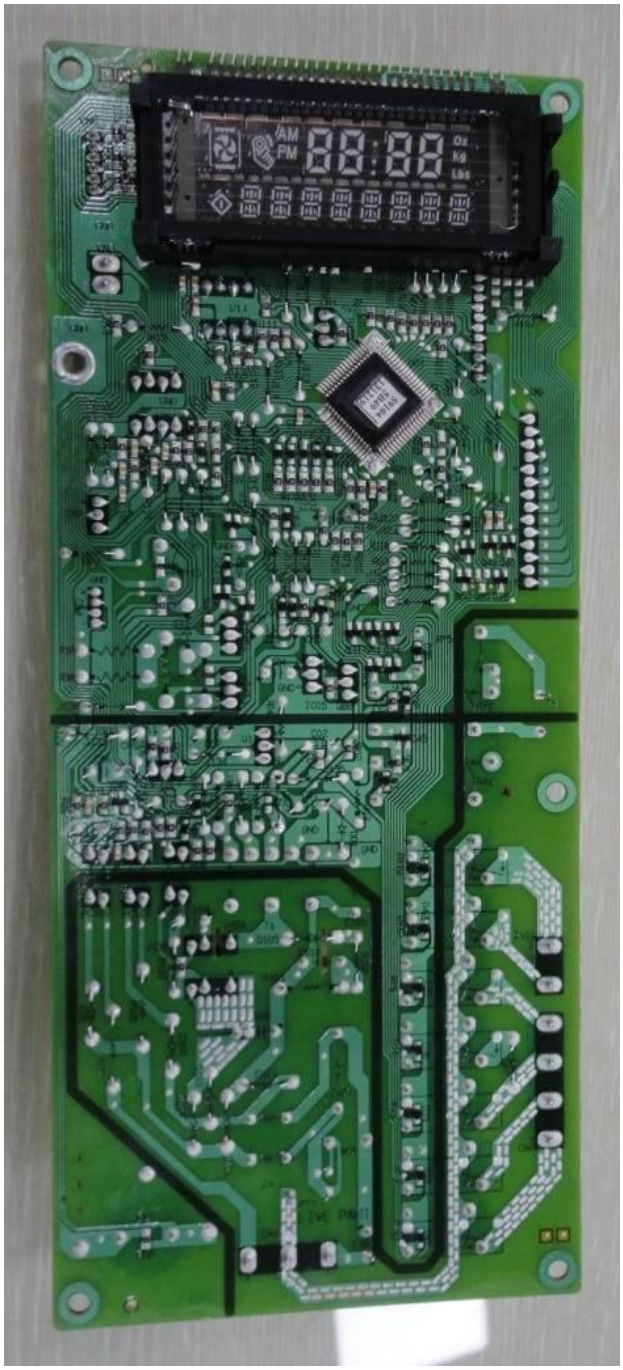



LG Magnetron
2M246
050GF
C14B - 010937
DANGER High Voltage
Microwave Radiation
CHINA






EBJ61970301
JS 1350



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

IMPORTANT SAFETY INSTRUCTIONS

- **To avoid improperly cooking some foods.**
  - **Do not heat any types of baby bottles or baby food.** Uneven heating may occur and possibly cause personal injury.
  - **Do not heat small-necked containers,** such as syrup bottles.
  - **Do not deep-fat fry in your microwave oven.**
  - **Do not attempt home canning in your microwave oven.**
  - **Do not heat the following items in the microwave oven:** whole eggs in the shell, water with oil or fat, sealed containers, or closed glass jars. These items may explode.
- Do not cover or block any openings in the oven.
- Use your oven only for the operations described in this manual.
- Do not run the oven empty, without food in it.
- Do not let the cord hang over the edge of the table or counter.
- **Preserve the oven floor:**
  - **Do not heat the oven floor excessively.**
  - **Do not** allow the gray film on special microwave-cooking packages to touch the oven floor. Put the package on a microwavable dish.
  - **Do not** cook anything directly on the oven floor or turntable. Use a microwavable dish.
  - Keep a browning dish at least 3/16 inch above floor. Carefully read and follow the instructions for the browning dish. If you use a browning dish incorrectly, you could damage the oven floor.
- Install or locate this appliance only in accordance with the provided installation instructions.
- This appliance should be serviced only by qualified service personnel. Contact the nearest authorized service facility for examination, repair, or adjustment.
- 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.

SAVE THESE INSTRUCTIONS

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTEREFERENCE STATEMENT (U.S.A. ONLY)

⚠WARNING:

This equipment generates and uses ISM frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with limits for ISM Equipment pursuant to part 18 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following:

- Reorient the receiving antenna of the radio or television.
- Relocate the Microwave Oven with respect to the receiver.
- Move the microwave oven away from the receiver.
- Plug the microwave oven into a different outlet so that the microwave oven and the receiver are on different branch circuits.

The manufacturer is not responsible for any radio or TV interference caused by **unauthorized modification** to this microwave oven. It is the responsibility of the user to correct such interference.

⚠**WARNING:** This product contains chemicals known to the State of California to cause cancer. ***Wash hands after handling.***