

EMI TEST REPORT

On Model Name: Microwave Oven

Model Number: EM234GY-S

Brand Name: 

Prepared for Guangdong Midea Kitchen Appliances
Manufacturing Co.,Ltd.

FCC ID : VG8EM234GY

According to

FCC Part 18(2014)

Industrial, Scientific and Medical Equipment

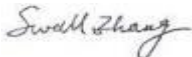
FCC/OST MP-5(1986)

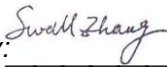
FCC methods of measurements of radio noise emission from
industrial, scientific and medical equipment

Test Report #: GUA-1410-11242-FCC

Tested by: 
Sewen Guo/Engineer ECMG
Company Name

Reviewed by: 
Jawen Yin/Senior Engineer ECMG
Company Name

QC Manager: 
Swall Zhang/QC Manager ECMG
Company Name

Test Report Released by: 
Swall Zhang November 9th, 2014
Date

Test Location

Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room.

*Test Site Location : GD WILOT VACUUM ELECTRONIC
EMC TEST LABORATORY*

*BeiJiao,ShunDe,FoShan,Guang
Dong, 528311,China*

Tel : (86)-757-26326917

Fax : (86)-757- 22607341

Test Facility

The test facility was recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 910385

GD WILOT VACUUM ELECTRONIC EMC TEST LABORATORY has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC was maintained in our files.

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Exhibit Type	File Description	File Name
<i>Test Report</i>	<i>Test Report</i>	<i>VG8EM234GYG_Test Report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>VG8EM234GYG_Operation Description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>VG8EM234GYG_External Photos</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>VG8EM234GYG_Internal Photos</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>VG8EM234GYG_Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>VG8EM234GYG_Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>VG8EM234GYG_Label & Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>VG8EM234GYG_User's Manual.pdf</i>
<i>Test set-up photos</i>	<i>Test set-up photos</i>	<i>VG8EM234GYG_Test Set-up Photos</i>

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Reproduction Clause

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of ECMG Electronic Technical Testing Corp (Shenzhen). Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : Microwave Oven

Model Numbers : EM234GY-S

Model Tested : EM234GTQ-S

Brand Name : 

Receipt Date : Oct. 23rd, 2014

Date Tested : Oct. 24th, 2014

Applicant : Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.

Address : No.6, Yong An Road, Beijiao, Shunde, Foshan.

Telephone : (86)-757-23606480

Fax : (86)-757-22607341

Manufacturer : Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.

Address : No.6, Yong An Road, Beijiao, Shunde, Foshan.

Telephone : (86)-757-23606480

Fax : (86)-757-22607341

Factory : Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.

Address : No.6, Yong An Road, Beijiao, Shunde, Foshan.

Telephone : (86)-757-23606480

Fax : (86)-757-22607341

EUT Description

Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd. model tested EM234GTQ-S (referred to as the EUT in this report) is a Microwave Oven.

Technical specifications of the EUT are as follows:

<i>Power Supply</i>	<i>120V AC/60Hz</i>
<i>Rated Input Power (Microwave)</i>	<i>2000W</i>
<i>Rated Output Power (Microwave)</i>	<i>1200W</i>
<i>Frequency</i>	<i>2450 MHz(Class B/Group 2)</i>
<i>Magnetron Model</i>	<i>2M248E/2M248K</i>
<i>Magnetron Manufacturer</i>	<i>TOSHIBA</i>

Note:

- 1. There are two model magnetron (Magnetron model #1:2M248E and Magnetron model #2:2M248K)can be used in this product.they are exactly the same except for model name.*
- 2. For more detailed information or features please refer to user's manual of EUT.*

EUT Model Derived

EM234GYY-S model designations are as follows:

“E”: Indicate Film type keypad Electronic Controller;

M: Indicate microwave function;

234: "2" indicate the microwave output power is 1200W, "34" indicate cavity capacity is 34 liters;

G: Indicate the design No;

YY= 0-9 or A-Z, indicate different appearance;

“-S” : Stands for stainless steel cavity;

Model EM234GTQ-S was selected for the final testing.

Test Summary

The electromagnetic compatibility requirements on model EM234GTQ-S for this test are stated below. all results listed in this report relate exclusively to this above-mentioned model as the equipment under test. this report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	Description	Test Results	Test Point	Remark
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	Radiation Hazard Measurement	Passed	Enclosure	Attachment 1
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	Input Power Measurement	Passed	AC Input Port	Attachment 2
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	RF Output power Measurement	Passed	EUT	Attachment 3
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	Operating Frequency Measurement	Passed	EUT	Attachment 4
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	Conducted Emission	Passed	AC Input Port	Attachment 5
FCC Part 18:2014 FCC/OST MP-5:1986 ANSI C63.4-2009	Radiated Emission	Passed	Enclosure	Attachment 6

Load for Microwave Oven

For all measurements the energy developed by the oven was absorbed by a dummy load consisting of a quantity of tap water in a beaker. If the oven was provided with a shelf or other utensil support, this support was in its initial normal position. For ovens rated at 1000watts or less power output, the beaker contained quantities of water as listed in the following subparagraphs. For ovens rated at more than 1000watts output, each quantity was increased by 50% for each 500watts or fraction thereof in excess of 1000 watts. Additional beakers were used if necessary.

-Load for power output measurement: 1000 milliliters of water in the beaker located in the center of the oven.

-Load for frequency measurement: 1000 milliliters of water in the beaker located in the center of the oven.

-Load for measurement of radiation on second and third harmonic: Two loads, one of 700 and the other of 300 milliliters, of water are used. Each load is tested both with the beaker located in the center of the oven and with it in the right front corner.

-Load for all other measurements: 700 milliliters of water, with the beaker located in the center of the oven.

Note: *Since rated output power of EUT is 1200 watts,so load shall be as follows:*

-Load for power output measurement: 1200 milliliters of water in the beaker located in the center of the oven.

-Load for frequency measurement: 1200 milliliters of water in the beaker located in the center of the oven.

-Load for measurement of radiation on second and third harmonic: Two loads, one of 870 and the other of 330milliliters, of water are used. Each load is tested both with the beaker located in the center of the oven and with it in the right front corner.

-Load for all other measurements: 870 milliliters of water, with the beaker located in the center of the oven.

EUT Exercise Software

The device is not programmable and does not use software.

Equipment Modification

Any modifications installed previous to testing by Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.

EUT Sample Photos for Model EM234GTQ-S



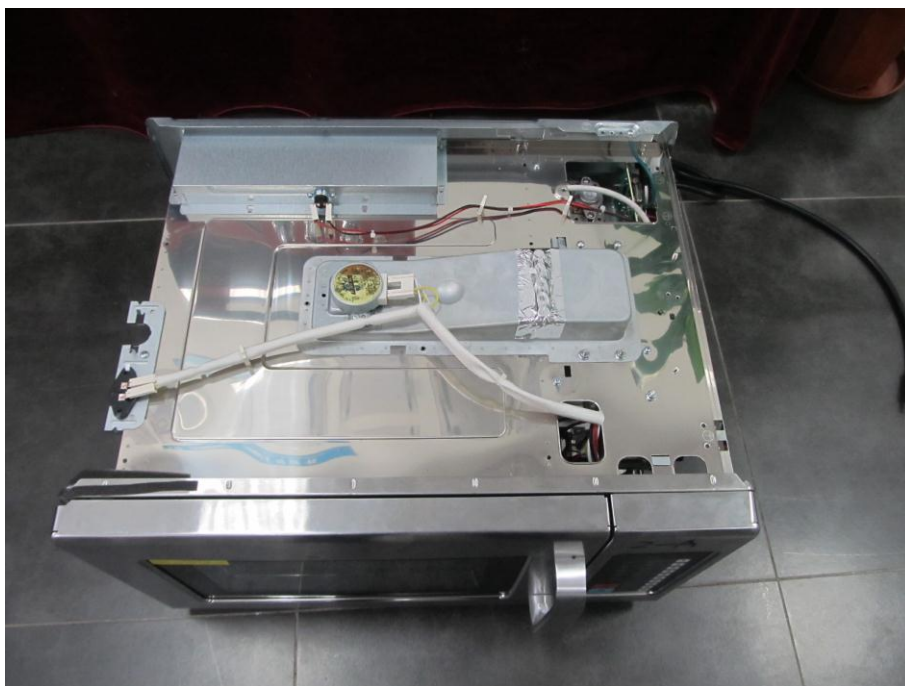
EUT Front View



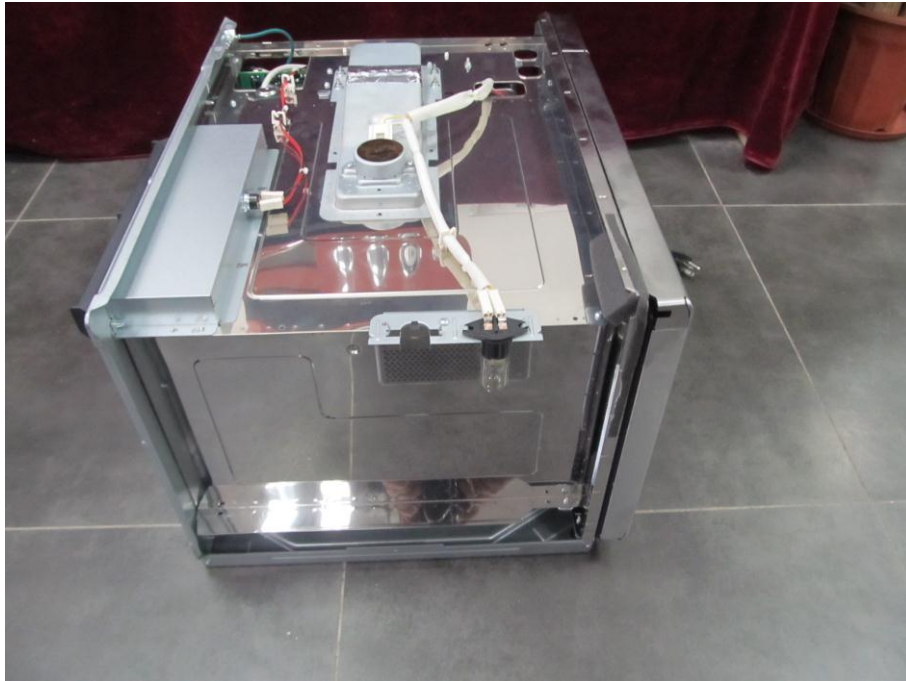
EUT Back View



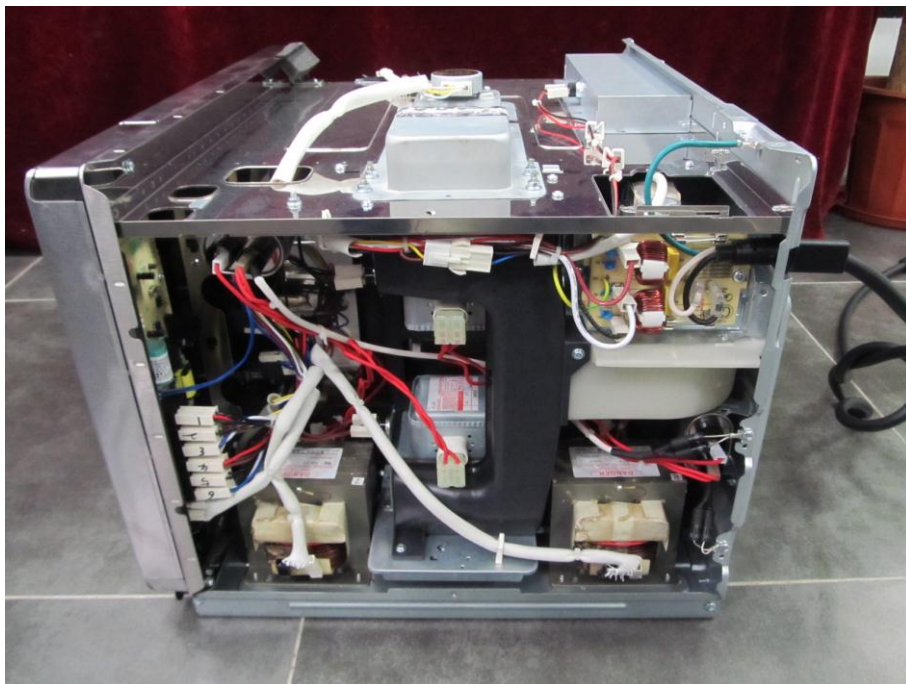
Door Opended View



EUT Uncovered View #1



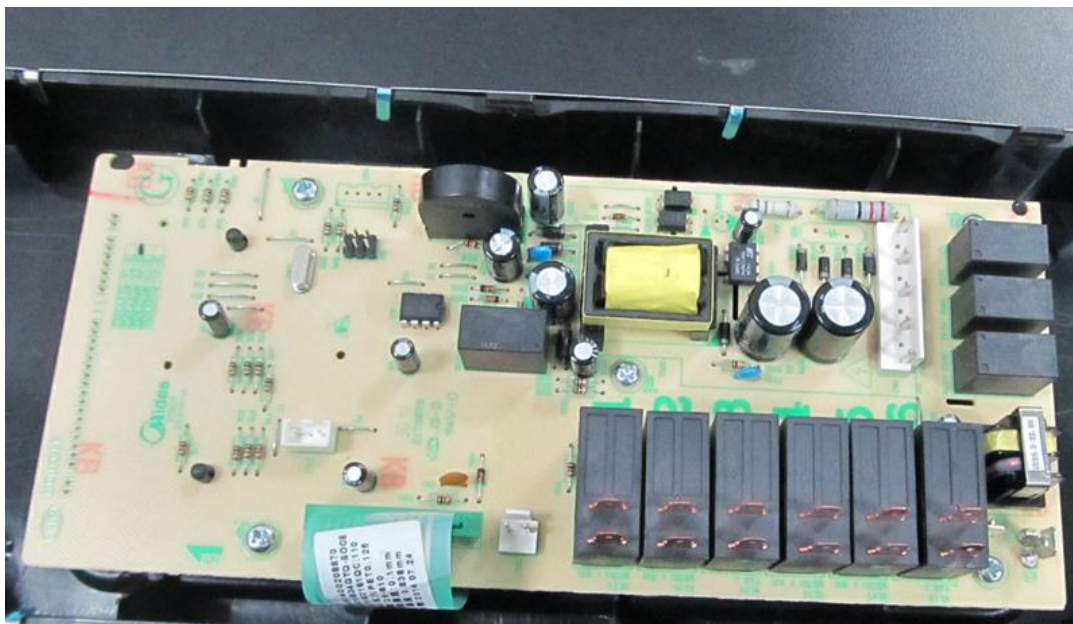
EUT Uncovered View #2



EUT Uncovered View #3



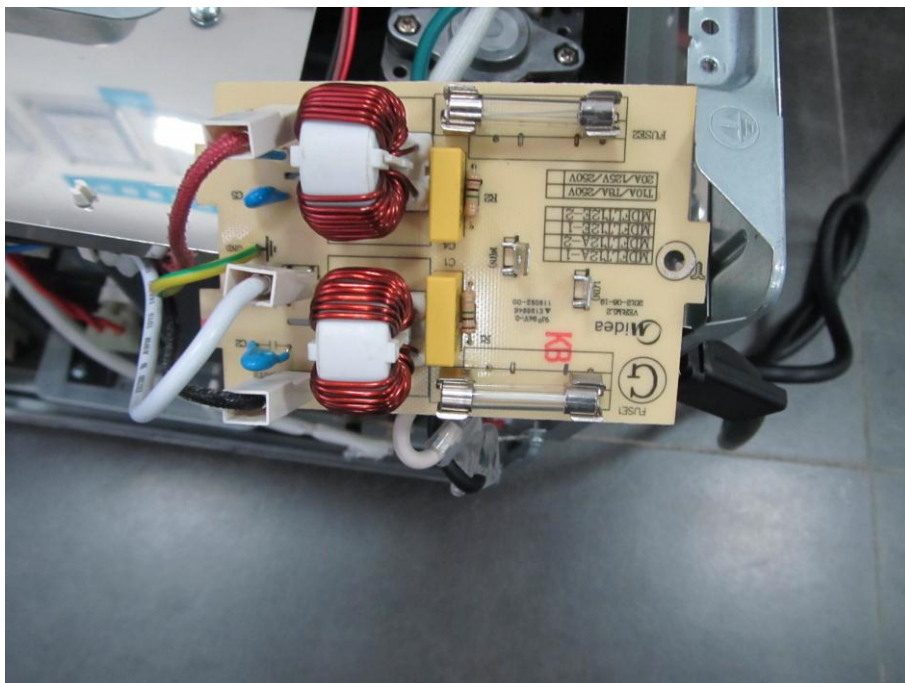
Magnetron Front View



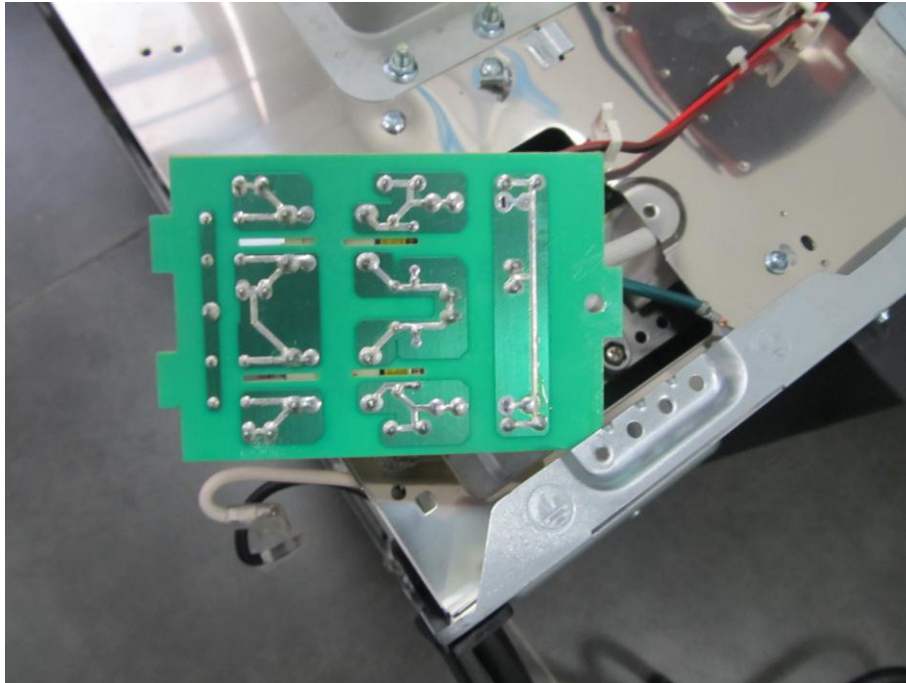
Mother board - Top View



Mother board- Bottom View



Power Filter Board -Top View



Power Filter Board -Bottom View

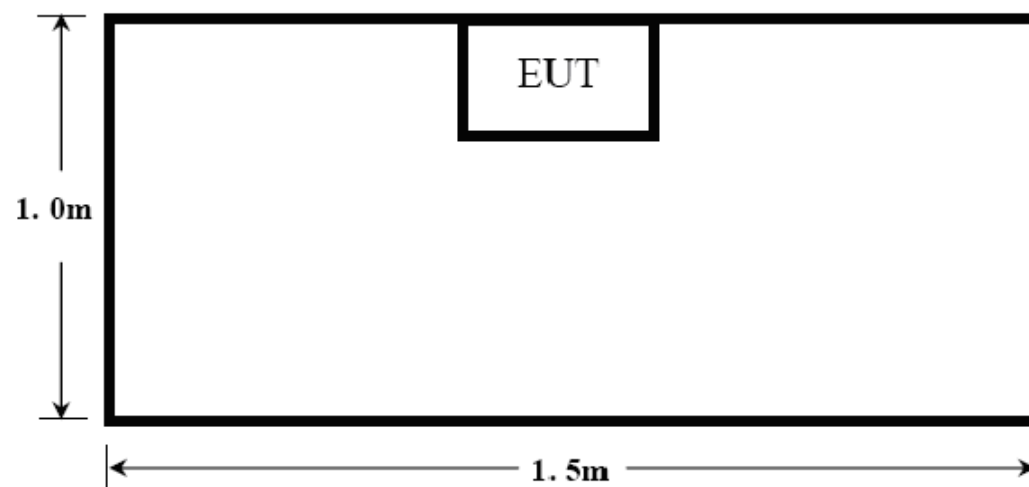
Test System Details

EUT					
Model Number:	EM234GY-S				
Model Tested:	EM234GTQ-S				
Description:	Microwave Oven				
Input:	AC 120V/60Hz				
Manufacturer:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.				
Support Equipment					
Description	Model Number	Serial Number	Manufacturer		
N/A					
Cable Description					
Description	From	To	Length (Meters)	Shielded (Y/N)	Ferrite (Y/N)
Power Cable	EUT	Plug	1.2	N	N
Note:The “EUT” means “Microwave Oven”.					

Note:

The EUT has been tested as an independent unit together with other necessary accessories or support units. The above support units or accessories were used to form a representative test configuration during the test tests.

Configuration of Tested System



ATTACHMENT 1 -RADIATION HAZARD TEST

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GYY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22 °C	HUMIDITY:	51%
ATM PRESSURE:	103kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th , 2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set-up according to the FCC MP-5 and FCC Part 18 for Radiation Hazard Measurement. The measurement was using a microwave leakage meter to measure the Radiation leakage in the as-received condition with the oven door closed. A 870ml water load in a beaker was located in the center of the oven and the Microwave Oven was set to maximum power. While the oven operating, the microwavemeter will check the leakage and then record the maximum leakage.		
TESTED RANGE:	N/A		
TEST VOLTAGE:	AC 120V/60Hz		
RESULTS:	There was no microwave leakage exceeding a power level of 0.05 mW/cm ² observed at any point 5cm or more from the external surface of the oven. A maximum of 1.0 mW/cm ² is allowed in accordance with the applicable FCC standards. Hence, microwave leakage in the as-received condition with the oven door closed was below the maximum allowed. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	0.0001mW/cm ²		

Test Equipment List:

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
Microwave Measurement	HOLADAY	HI-1710A	00022150	2014.03.03	2015.03.04

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

TESTED BY: *Jenervan* ECMG
ENGINEER COMPANY NAME

REVIEWED BY: *Jamertio* ECMG
SENIOR ENGINEER COMPANY NAME



Radiation Hazard Test Set-up

ATTACHMENT 2 – INPUT POWER MEASUREMENT

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	21°C	HUMIDITY:	69%
ATM PRESSURE:	103.1kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th ,2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set up according to the FCC MP-5 and FCC Part 18 for input power measurement. The input power and current was measured using a power analyzer. A 870ml water load in a beaker was located in the center of the oven and the Microwave Oven was set to maximum power. While the oven is operating, use a voltmeter and an ampmeter to test the AC input voltage and current.		
TESTED RANGE:	N/A		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS :	Based on the measured input power, the EUT was found to be operating within the intended specifications. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY :	± 5W		

Test Data:

Input Voltage (Vac/Hz)	Input Current (amps)	Measured Input Power(watts)	Rated Input Power(watts)
120.0	20.61	2109	2000

Test Equipments List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Power Meter	Ainuo	AN8726C	058704200	2014.02.24	2015.02.25

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

TESTED BY: *James Guo* ECMG
ENGINEER COMPANY NAME

REVIEWED BY: *James Guo* ECMG
SENIOR ENGINEER COMPANY NAME

**Input Power Test Set-Up**

ATTACHMENT 3 – RF OUTPUT POWER MEASUREMENT

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22°C	HUMIDITY:	60%RH
ATM PRESSURE:	103kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th ,2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set up according to the FCC MP-5 and FCC Part 18 for RF output power Measurement. The Caloric Method was used to determine maximum RF output power. The initial temperature of the water load was measured. A 1200ml water load in a beaker was located in the center of the oven. The oven was operated at maximum output power for 120 seconds, the temperature of the water was re-measured. RF Output Power = (4.2joules/calorie)(volume in milliliters)(temperature rise) / (time in seconds) = 4.2 joules/calorie × 1200 × (Final Temp - Initial Temp) / 120		
TESTED RANGE:	N/A		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	RF Output Power = 1024.8 watts. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	± 0.3°C		

Test Result:

<i>Initial Temp (°C)</i>	<i>Final Temp (°C)</i>	<i>Measured Times (s)</i>	<i>Rated input Power (W)</i>
20.0	44.4	120s	1024.8

Note : RF Output Power (W) = $4.2 \times 1200 \times (\text{Final Temp} - \text{Initial Temp}) / 120 = 1024.8\text{watts}$

Test Equipments List:

<i>Test Equipment</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Serial No.</i>	<i>Last Cal.</i>	<i>Cal. Due</i>
<i>Digit Thermometer</i>	<i>Fluke Corporation</i>	<i>Fluke 51 II</i>	<i>87500204</i>	<i>2014.03.25</i>	<i>2015.03.26</i>
<i>Stopwatch</i>	<i>JUNSD</i>	<i>JS-306</i>	<i>05Q07R</i>	<i>2014.08.05</i>	<i>2015.08.06</i>
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).					

TESTED BY:  ECMG
ENGINEER COMPANY NAME

REVIEWED BY:  ECMG
SENIOR ENGINEER COMPANY NAME



RF Output Power Test Set-Up

ATTACHMENT 4 - OPERATING FREQUENCY MEASUREMENT

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22°C	HUMIDITY:	60%RH
ATM PRESSURE:	101.1kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th ,2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set up according to the FCC MP-5 and FCC Part 18 for Operating Frequency Measurement. 1) The variation of frequency with time. The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1200ml water load in a beaker was located in the center of the oven. Set a spectrum analyzer with antenna at 3 meters distance form the oven and the oven was operated at maximum output power. The fundamental operating frequency was monitored until the water load was reduced to 20 percent of the original load. 2) The variation of frequency with Line Voltage. The operating frequency was measured using a spectrum analyzer. The EUT was operated/warmed by at least 10 minutes of use with a 1200ml water load at room temperature at the beginning of the test. Then the operating frequency was monitored as the input voltage was varied between 80 and 125 percent of the nominal rating.		
TESTED RANGE:	2450 ± 50MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	Please refer to following pages for details of the variation in operating frequency with time & line voltage measurement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	Freq. ±10kHz		

Variation in Operating Frequency with Time:

<i>Minimum Frequency (MHz)</i>	<i>Maximum Frequency (MHz)</i>
2448.90	2452.2

Variation in Operating Frequency with Line Voltage:

<i>Minimum Frequency (MHz)</i>	<i>Maximum Frequency (MHz)</i>
2446.90	2447.40

Note: Line voltage varied from 96Vac to 150Vac.

Test Equipments List:

<i>Test Equipment</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Serial No.</i>	<i>Last Cal.</i>	<i>Cal. Due</i>
EMI Test Receiver	R&S	ESIB-26	100174	11/18/2014	11/17/2015
Horn Antenna	R&S	HF906	100311	11/20/2014	11/21/2015

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

TESTED BY:  **ENGINEER** ECMG
COMPANY NAME

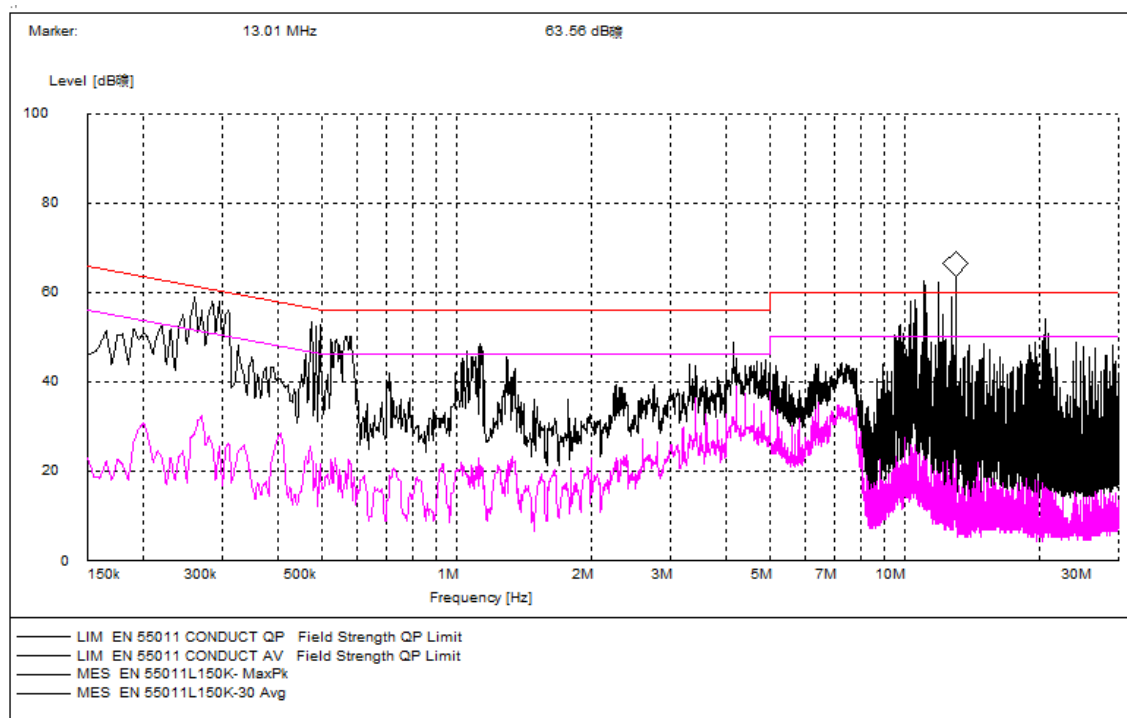
REVIEWED BY:  **SENIOR ENGINEER** ECMG
COMPANY NAME



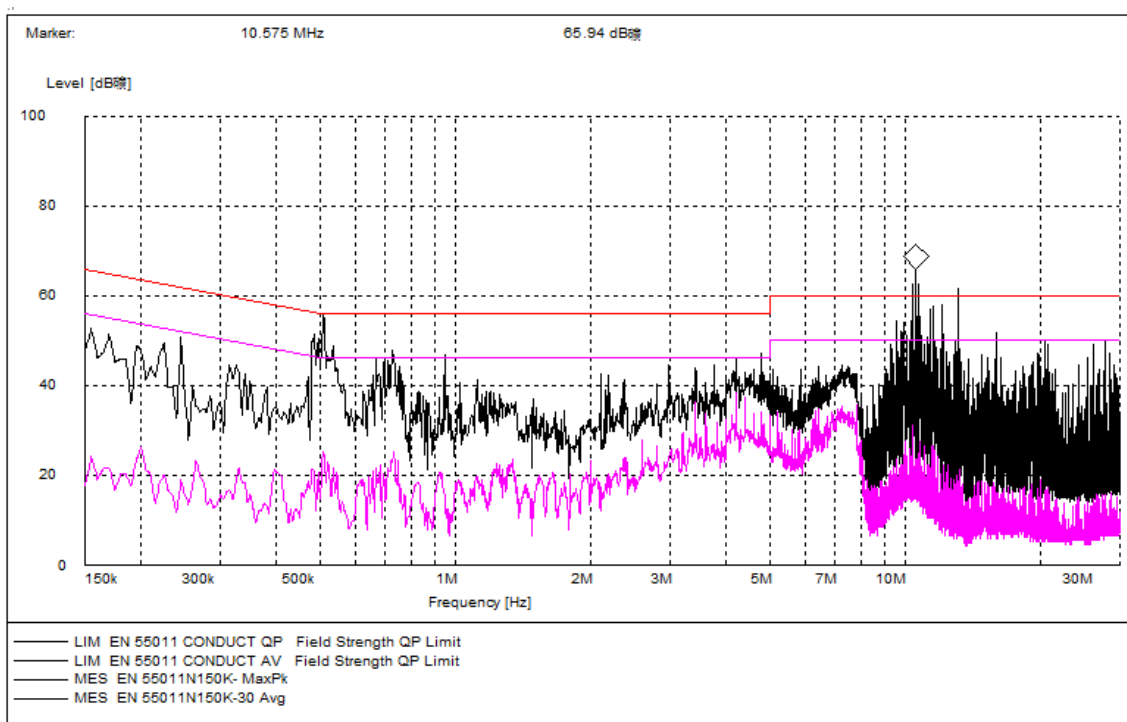
Operating Frequency Test Set-up

ATTACHMENT 5 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22°C	HUMIDITY:	67%RH
ATM PRESSURE:	101.1kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th , 2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set up according to the guideline of ANSI C63.4-2009 & FCC MP-5 for conducted emissions. The measurement was using a AMN on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged. The frequency range investigated was from 150kHz to 30MHz.		
TESTED RANGE:	150kHz to 30MHz		
TEST VOLTAGE:	120VAC / 60H		
RESULTS:	The EUT meets the requirements of test reference for Conducted Emissions. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	±2.5 dB		



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Test Data:

Lines (L/N)	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
L	0.540	39.4	56	-16.6	26.3	46	-19.7
L	0.685	46.2	56	-9.8	32.7	46	-13.3
L	1.495	47.6	56	-8.4	36.2	46	-9.8
N	0.550	39.0	56	-17.0	32.1	46	-13.9
N	0.655	38.1	56	-17.9	30.4	46	-15.6
N	0.835	39.4	56	-16.6	27.5	46	-18.5

Note :

- 1) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use.
- 2) "QP" means "Quasi-Peak" values, "AV" means "Average" values.
- 3) The other reading are too low against official limits that are not be recorded.

Test Equipments List:

Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
EMI Test Receiver	R&S	ESIB-26	100174	11/19/2013	11/18/2014
LISN	R&S	ESH2-Z5	100091	11/19/2013	11/18/2014
Transient Limiter	Agilent	11947A	3107A03648	11/19/2013	11/18/2014
Shielding Room	TDK	8m×4m×3m	N/A	04/17/2013	04/16/2015

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

TESTED BY:  **ENGINEER** ECMG
COMPANY NAME

REVIEWED BY:  **SENIOR ENGINEER** ECMG
COMPANY NAME



Conducted Emission Test Set-up

ATTACHMENT 6 - RADIATED EMISSION TEST RESULTS

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd.	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM234GY-S	PRODUCT:	Microwave Oven
MODEL TESTED:	EM234GTQ-S	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22°C	HUMIDITY:	67%RH
ATM PRESSURE:	103.0kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Sewen Guo	DATE OF TEST:	Oct. 24 th , 2014
TEST REFERENCE:	ANSI C63.4-2009, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set up according to the guidelines of ANSI C63.4-2009& FCC MP-5 for radiated emissions. Microwave Oven was placed on a 1m *1.5m nonconductive table. The top of the table is 1.0 m above the ground. The table is placed on a flush mounted metal turntable. An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber. Signal discrimination was then performed and the significant peaks marked. All data was recorded in Quasi-peak detection mode from 30 MHz to 1GHz and average detector mode above 1GHz. The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor are given as follows: $FS = RA + AF + CF - AG$ Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TESTED RANGE:	30MHz to 18GHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	± 3.2 dB		

Field strength limits for out-of-band emissions :

For RF output power <500W, Limit at 300m = 27.96 dBuV/m

For RF output power >500W, Limit at 300m = $20\log [25 \cdot \text{SQRT}(\text{Power}/500)] \text{dBuV/m}$

Test Data :

30MHz – 1GHz						
<i>Frequency [MHz]</i>	<i>Antenna Polarization [V/H]</i>	<i>Reading Level [dBμV/m]</i>	<i>Factor (dB)</i>	<i>Field Strength [dBμV/m]</i>	<i>Delta, QP [dB]</i>	<i>3 Meters Limits [dBμV/m]</i>
30.000	H	16.2	11.2	27.4	-43.7	71.1
35.832	H	10.3	11.0	21.3	-49.8	71.1
199.168	H	18.5	13.9	32.4	-38.7	71.1
33.888	V	13.1	11.2	24.3	-46.8	71.1
197.174	V	16.7	13.1	29.8	-41.3	71.1
265.210	V	19.7	12.7	32.4	-38.7	71.1
Note: 1) All readings are quasi-peak unless stated otherwise, using a bandwidth of 120kHz, with a 60s sweep time. A video filter was not used. 2) Field Strength = Reading Level + Factor, Factor = Antenna Factor + Cable Loss						
1 – 25GHz						
<i>Frequency [GHz]</i>	<i>Antenna Polarization [V/H]</i>	<i>Reading Level [dBμV/m]</i>	<i>Factor (dB)</i>	<i>Field Strength [dBμV/m]</i>	<i>Delta, AV [dB]</i>	<i>3 Meters Limits [dBμV/m]</i>
4.9234	H	19.90	18.80	38.7	-32.4	71.1
8.0501	H	22.96	22.24	45.2	-25.9	71.1
17.6092	H	8.93	44.29	53.2	-17.9	71.1
8.0501	V	28.38	22.24	41.7	-29.4	71.1
14.7234	V	11.63	40.77	52.4	-18.7	71.1
17.7299	V	11.41	44.29	55.7	-15.4	71.1
Note: 1) All readings are average unless stated otherwise, using a bandwidth of 1MHz, with a 60s sweep time. A video filter was not used. 2) Field Strength = Reading Level + Factor, Factor = Antenna Factor + Cable Loss - Preamp Factor.						

Test Equipments List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
EMI Test Receiver	R&S	ESIB-26	100174	11/19/2013	11/18/2014
Horn Antenna	R&S	HF906	100311	11/21/2013	11/20/2014
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130144	11/21/2013	11/20/2014
Loop Antenna	ETS	ETS-6152	24934	11/21/2013	11/20/2014
Anechoic Chamber	TDK	9m×6 m×5.7m	N/A	11/17/2013	11/16/2014

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

TESTED BY:  ECMG
ENGINEER COMPANY NAME

REVIEWED BY:  ECMG
SENIOR ENGINEER COMPANY NAME



Radiated Emission Test Set-up (30 -1,000MHz)



Radiated Emission Test Set-up (1-18GHz)