

## EMI TEST REPORT

On Model Name: Microwave Oven

Model Number: XM159KYY

Brand Name: 

Prepared for Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd

FCC ID Number: VG8EM159KYY

According to

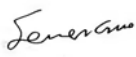
FCC Part 18(2012)

Industrial, Scientific and Medical Equipment

FCC/OST MP-5(1986)

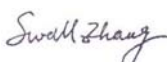
FCC methods of measurements of radio noise emission from industrial, scientific and medical equipment

Test Report #: GUA-1302-10944-FCC

Tested by:  ECMG  
Sewen Guo/Engineer Company Name

Reviewed by:  ECMG  
Jawen Yin/Senior Engineer Company Name

QC Manager:  ECMG  
Swall Zhang/QC Manager Company Name

Test Report Released by:  Feb. 28<sup>th</sup>, 2013  
Swall Zhang 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,GuangDong,  
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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## List Attached Files

<i>Exhibit Type</i>	<i>File Description</i>	<i>File Name</i>
<i>Test Report</i>	<i>Test Report</i>	<i>VG8EM159KYY_Test Report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>VG8EM159KYY_Operation Description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>VG8EM159KYY_External Photos</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>VG8EM159KYY_Internal Photos</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>VG8EM159KYY_Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>VG8EM159KYY_Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>VG8EM159KYY_Label &amp; Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>VG8EM159KYY_User's Manual.pdf</i>
<i>Test set-up photos</i>	<i>Test set-up photos</i>	<i>VG8EM159KYY_Test Set-up Photos</i>

### **Government Disclaimer Notice**

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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* : *XM159KYY*

*Model Tested* : *EM159KII*

*Brand Name* : 

*Receipt Date* : *Feb. 4<sup>th</sup>, 2013*

*Date Tested* : *Feb. 4<sup>th</sup> to 10<sup>th</sup>, 2013*

*Applicant* : *Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd*

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

*Telephone* : *(86)-757-23306480*

*Fax* : *(86)-757-22607341*

*Manufacturer* : *Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd*

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

*Telephone* : *(86)-757-23306480*

*Fax* : *(86)-757-22607341*

*Factory* : *Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd*

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

*Telephone* : *(86)-757-23306480*

*Fax* : *(86)-757-22607341*

## **EUT Description**

*Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd., model tested EM159KII (referred to as the EUT in this report) is a Microwave Oven.*

*The technical specifications of EUT are as below:*

<i>Power Supply</i>	<i>120V AC/60Hz</i>
<i>Rated Input Power (Microwave)</i>	<i>1650W</i>
<i>Rated Output Power (Microwave)</i>	<i>1100W</i>
<i>Frequency</i>	<i>2450 MHz(Class B/Group 2)</i>
<i>Magnetron Model</i>	<i>2M392J</i>
<i>Magnetron Manufacturer</i>	<i>WITOL</i>

*NOTE: For more detailed information or features please refer to user's manual of EUT.*

## ***EUT Model Derived***

*XM159KYY model designations as follow:*

*X: E or A;*

*M: indicate microwave function;*

*159: "1" indicates the microwave output power is 1100W, "59" indicate cavity capacity is 59 liters;*

*K: indicate the design No.;*

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

*Model EM159KII was selected for the final testing.*



## Test Summary

The electromagnetic compatibility requirements on model EM159KII 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.

<b>Emission Tests</b>				
<b>Specifications</b>	<b>Description</b>	<b>Test Results</b>	<b>Test Point</b>	<b>Remark</b>
FCC Part 18:2012 FCC/OST MP-5:1986 ANSI C63.4-2009	Radiation Hazard Measurement	Passed	Enclosure	Attachment 1
FCC Part 18:2012 FCC/OST MP-5:1986 ANSI C63.4-2009	Input Power Measurement	Passed	AC Input Port	Attachment 2
FCC Part 18:2012 FCC/OST MP-5:1986 ANSI C63.4-2009	RF Output power Measurement	Passed	EUT	Attachment 3
FCC Part 18:2012 FCC/OST MP-5:1986 ANSI C63.4-2009	Operating Frequency Measurement	Passed	EUT	Attachment 4
FCC Part 18:2012 FCC/OST MP-5:1986 ANSI C63.4-2009	Conducted Emission	Passed	AC Input Port	Attachment 5
FCC Part 18:2012 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 the EUT is 1100 watts, the following load water quantity shall apply:*

*-Load for power output measurement: 1100 milliliters of water in the beaker located in the center of the oven.*

*-Load for frequency measurement: 1100 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 770 and the other of 330 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: 770 milliliters of water, with the beaker located in the center of the oven.*

### ***EUT Exercise Software***

*No test software support this test.*

### ***Equipment Modification***

*Any modifications installed previous to testing by Guangdong Midea Microwave and Electrical 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 EM159KII**



**EUT Front View**



**EUT Back View**



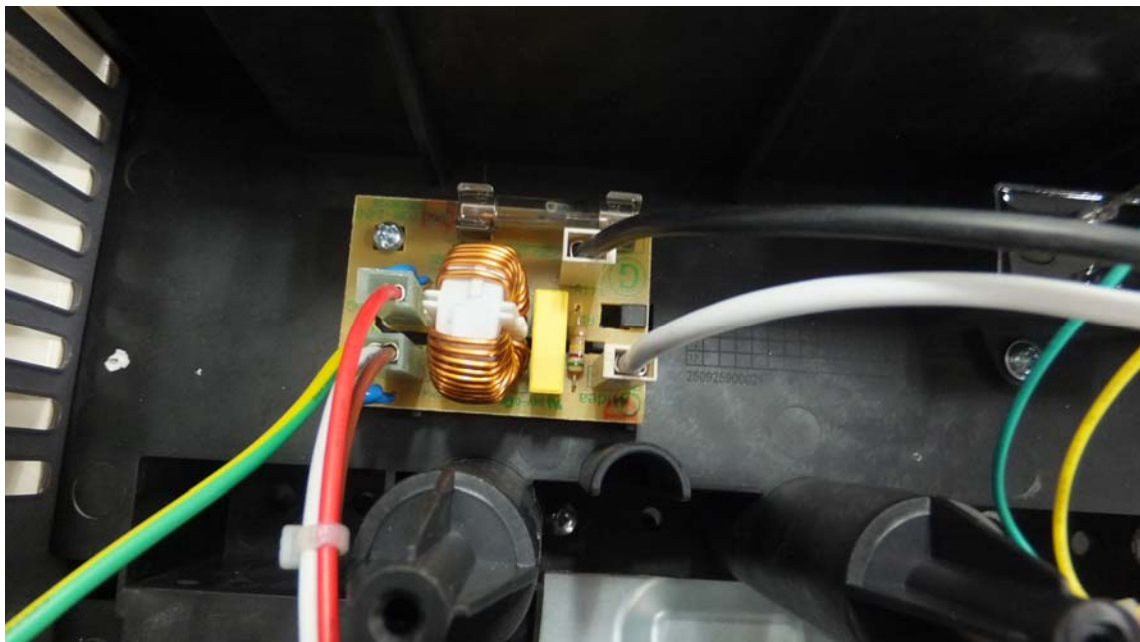
*Door Opemd View*



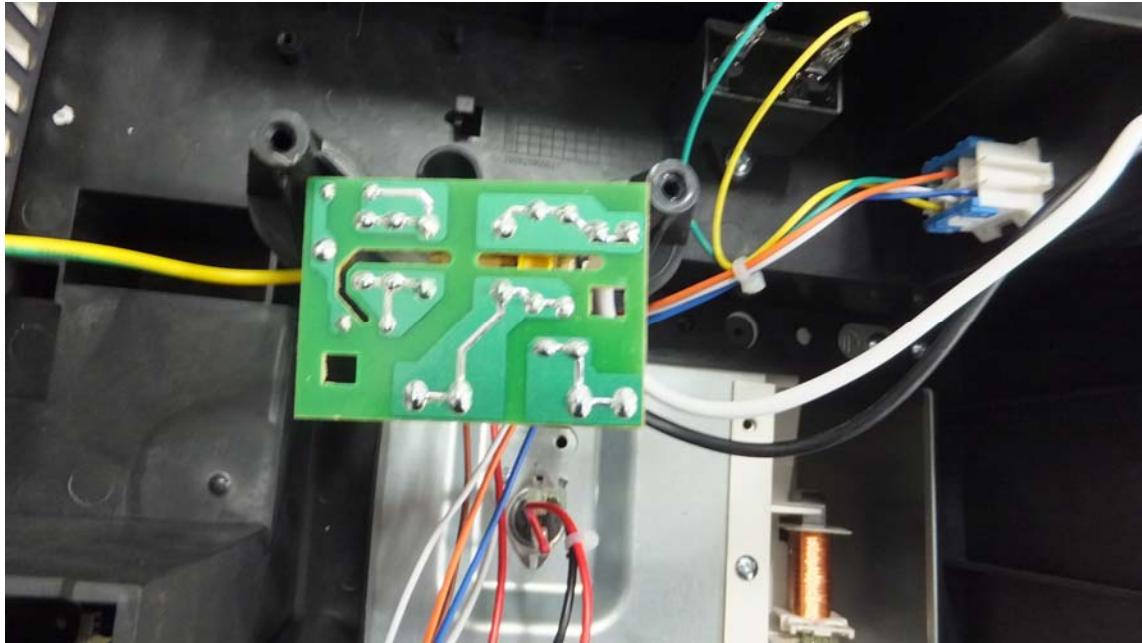
*Uncovered View*



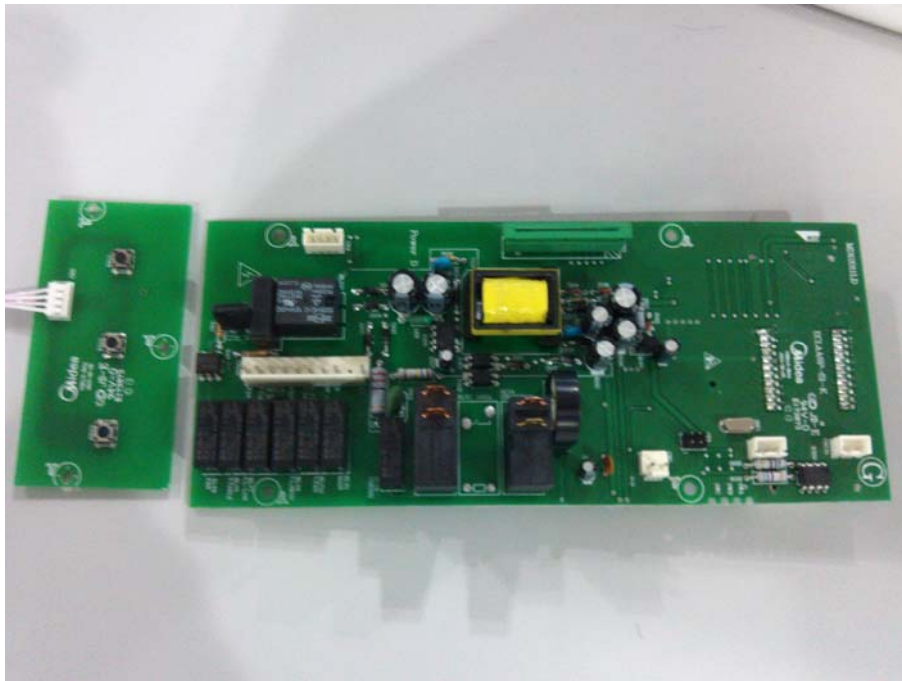
**Magnetron Front View**



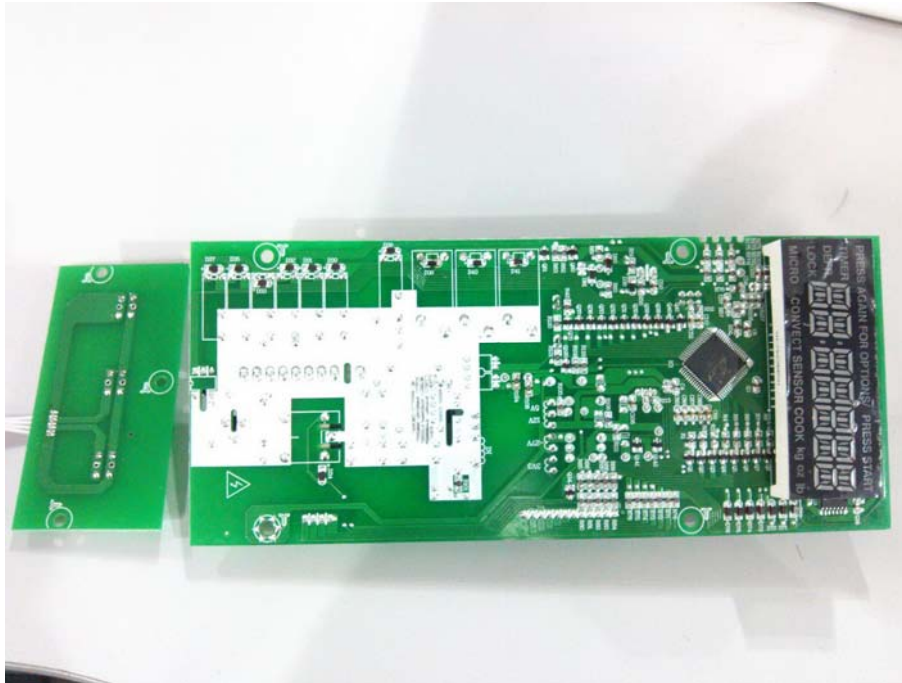
**Power Filter Board Top View**



***Power Filter Board Bottom View***



***Motherboard - Top View***



**Motherboard -Bottom View**



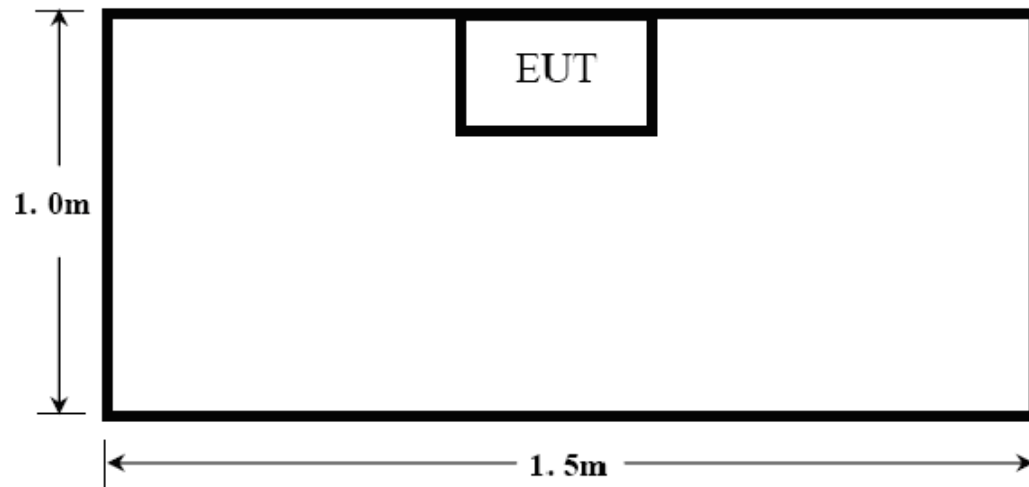
## Test System Details

<b>EUT</b>					
<b>Model Number:</b>	XM159KYY				
<b>Model Tested:</b>	EM159KII				
<b>Description:</b>	Microwave Oven				
<b>Input:</b>	AC 120V/60Hz				
<b>Manufacturer:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd				
<b>Support Equipment</b>					
<b>Description</b>	<b>Model Number</b>	<b>Serial Number</b>	<b>Manufacturer</b>		
N/A					
<b>Cable Description</b>					
<b>Description</b>	<b>From</b>	<b>To</b>	<b>Length (Meters)</b>	<b>Shielded (Y/N)</b>	<b>Ferrite (Y/N)</b>
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**

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	51%
<b>ATM PRESSURE:</b>	103kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 5 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	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 770ml 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.		
<b>TESTED RANGE:</b>	N/A		
<b>TEST VOLTAGE:</b>	AC 120V/60Hz		
<b>RESULTS:</b>	There was no microwave leakage exceeding a power level of 0.03 mW/cm <sup>2</sup> observed at any point 5cm or more from the external surface of the oven. A maximum of 1.0 mW/cm <sup>2</sup> 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.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	0.0001mW/cm <sup>2</sup>		



**ATTACHMENT 2 – INPUT POWER MEASUREMENT**

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd.	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	21°C	<b>HUMIDITY:</b>	69%
<b>ATM PRESSURE:</b>	103.1kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 4 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	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 770ml 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.		
<b>TESTED RANGE:</b>	N/A		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS :</b>	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.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY :</b>	± 5W		


**Test Data:**


<b>Input Voltage (Vac/Hz)</b>	<b>Input Current (amps)</b>	<b>Measured Input Power(watts)</b>	<b>Rated Input Power(watts)</b>
120.7	14.72	1718	1650

**Test Equipments List:**

<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Last Cal.</b>	<b>Cal. Due</b>
Power Meter	Ainuo	AN8726C	058704195	10/10/2012	10/11/2013

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



***Input Power Test Set-Up***

### ATTACHMENT 3 – RF OUTPUT POWER MEASUREMENT

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd.	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	60%RH
<b>ATM PRESSURE:</b>	103kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 4 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	<p>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 1100ml 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.</p> <p>RF Output Power  <math>= (4.2\text{joules/calorie})(\text{volume in milliliters})(\text{temperature rise}) / (\text{time in seconds})</math>  <math>= 4.2 \text{ joules/calorie} \times 1100 \times (\text{Final Temp} - \text{Initial Temp}) / 120</math></p>		
<b>TESTED RANGE:</b>	N/A		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	RF Output Power = 931.7 watts. The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	± 0.3°C		



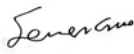
**Test Result:**


Quality of Water(ml)	Starting Temperature (°C)	Final Temperature (°C)	Elapsed Time (Seconds)	RF Output Power(watts)
1100	20.0	44.2	1205	931.7

**Test Equipments list:**

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Digit Thermometer	Fluke Corporation	Fluke 51 II	87500204	5/21/2012	5/22/2013
Stopwatch	JUNSD	JS-306	080303	8/5/2012	8/6/2013

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  
COMPANY NAME  
ENGINEER

REVIEWED BY:  ECMG  
COMPANY NAME  
SENIOR ENGINEER



***RF Output Power Test Set-Up***

## ATTACHMENT 4 - OPERATING FREQUENCY MEASUREMENT

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd.	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	60%RH
<b>ATM PRESSURE:</b>	101.1kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 4 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	<p>The EUT was set up according to the FCC MP-5 and FCC Part 18 for Operating Frequency Measurement.</p> <p>1) The variation of frequency with time. The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1100ml water load in a beaker was located in the center of the oven. Set a spectrum analyzer with antenna at 3 meters distance from 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.</p> <p>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 1100ml 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.</p>		
<b>TESTED RANGE:</b>	2450 ± 50MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	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.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. ±10kHz		

**Variation in Operating Frequency with Time:**

<i>Minimum Frequency (MHz)</i>	<i>Maximum Frequency (MHz)</i>
2460.0	2467.0

**Variation in Operating Frequency with Line Voltage:**

<i>Minimum Frequency (MHz)</i>	<i>Maximum Frequency (MHz)</i>
2444.6	2469.8
<i>Note: Line voltage varied from 96Vac to 150Vac.</i>	

**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	11/18/2012	11/17/2013
Horn Antenna	R&S	HF906	100311	11/20/2012	11/21/2013
<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).</i>					

TESTED BY: *Jeney* ECMG  
COMPANY NAME  
ENGINEER

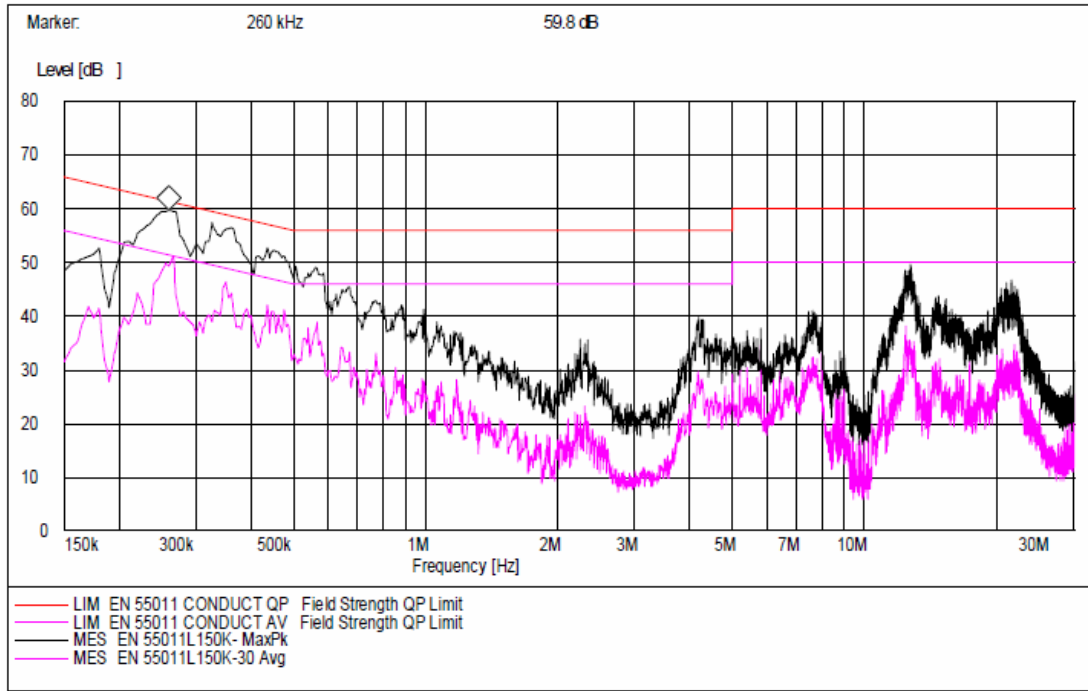
REVIEWED BY: *Janeyan* ECMG  
COMPANY NAME  
SENIOR ENGINEER



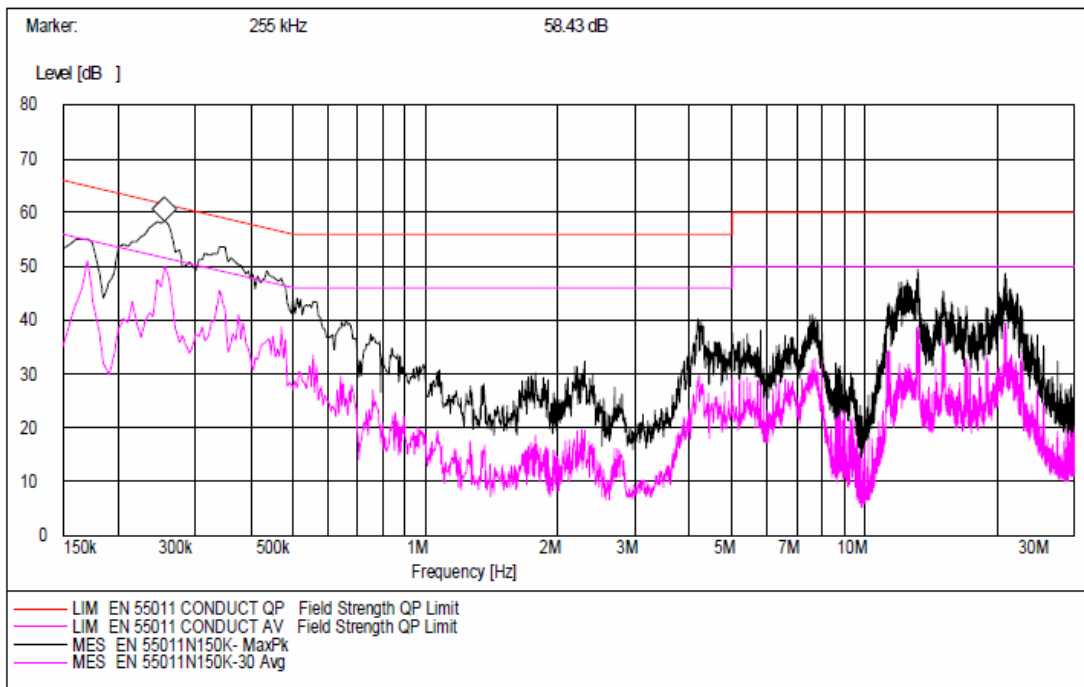
***Operating Frequency Test Set-up***

## ATTACHMENT 5 – CONDUCTED EMISSION TEST RESULTS

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd.	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	64%RH
<b>ATM PRESSURE:</b>	101.1kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 10 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	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.		
<b>TESTED RANGE:</b>	150kHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60H		
<b>RESULTS:</b>	The EUT meets the requirements of test reference for Conducted Emissions. The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	±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)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
L	0.260	51.0	61.4	-10.4	0.260	42.7	51.4	-8.7
L	0.270	53.0	61.1	-8.1	0.270	40.5	51.1	-10.6
L	0.325	53.1	59.6	-6.5	0.325	39.8	49.6	-9.8
N	0.255	53.3	61.6	-8.3	0.255	45.9	51.6	-5.7
N	0.350	52.5	59	-6.5	0.350	41.8	49	-7.2
N	0.435	46.1	57.2	-11.1	0.435	36.1	47.2	-11.1

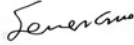
**Note :**


- 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	11/19/2012	11/18/2013
LISN	R&S	ESH2-Z5	100091	11/19/2012	11/18/2013
Transient Limiter	Agilent	11947A	3107A03648	11/19/2012	11/18/2013
Shielding Room	TDK	8m×4m×3m	N/A	04/17/2012	04/16/2013

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  
COMPANY NAME  
ENGINEER

REVIEWED BY:  ECMG  
COMPANY NAME  
SENIOR ENGINEER





***Conducted Emission Test Set-up***

## ATTACHMENT 6 - RADIATED EMISSION TEST RESULTS

<b>CLIENT:</b>	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd.	<b>TEST STANDERD:</b>	FCC Part 18
<b>MODEL NUMBERS:</b>	XM159KYY	<b>PRODUCT:</b>	Microwave Oven
<b>MODEL TESTED:</b>	EM159KII	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	63%RH
<b>ATM PRESSURE:</b>	103.0kPa	<b>GROUNDING:</b>	Through AC Power Cord
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	Feb. 10 <sup>th</sup> ,2013
<b>TEST REFERENCE:</b>	ANSI C63.4-2009, FCC/OST MP-5:1986		
<b>TEST PROCEDURE:</b>	<p>The EUT was set up according to the guidelines of ANSI C63.4-2009&amp; 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.</p> <p>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:</p> <p>FS= RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TESTED RANGE:</b>	30MHz to 24.5GHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	± 3.2 dB		

**Field strength limits for out-of-band emissions :**

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

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

**Test Data :**

<b>30MHz - 1GHz</b>						
Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Factor (dB)	Field Strength [dB $\mu$ V/m]	Delta, QP [dB]	3 Meters Limits [dB $\mu$ V/m]
315.752	H	17.9	13.5	31.4	-39.3	70.7
626.773	H	7.2	21.3	28.5	-42.2	70.7
741.463	H	8.3	23.7	32.0	-38.7	70.7
648.156	V	6.8	22.3	29.1	-41.6	70.7
716.192	V	18.5	13.0	31.5	-39.2	70.7
688.978	V	6.7	23.7	30.4	-40.3	70.7
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 = Read Level + Factor, Factor = Antenna Factor + Cable Loss - Preamp Factor.						
<b>1GHz - 25GHz</b>						
Frequency [GHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Factor (dB)	Field Strength [dB $\mu$ V/m]	Delta, AV [dB]	3 Meters Limits [dB $\mu$ V/m]
7.389	H	33.5	21.7	55.2	-15.5	70.7
14.754	H	18.9	35.8	54.7	-16.0	70.7
17.639	H	10.1	44.3	54.4	-16.3	70.7
8.351	V	23.0	22.3	45.3	-25.4	70.7
4.924	V	32.6	18.8	51.4	-19.3	70.7
14.780	V	16.2	35.1	51.3	-19.4	70.7
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 = Read Level + Factor, Factor = Antenna Factor + Cable Loss - Preamp Factor.						

**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>EMI test receiver</i>	<i>R&amp;S</i>	<i>ESIB-26</i>	<i>100174</i>	<i>11/19/2012</i>	<i>11/18/2013</i>
<i>Horn Antenna</i>	<i>R&amp;S</i>	<i>HF906</i>	<i>100311</i>	<i>11/19/2012</i>	<i>11/18/2013</i>
<i>Hybrid Log Periodic Antenna</i>	<i>TDK</i>	<i>HLP-3003C</i>	<i>130144</i>	<i>11/19/2012</i>	<i>11/18/2013</i>
<i>Loop Antenna</i>	<i>ETS</i>	<i>ETS-6152</i>	<i>24934</i>	<i>11/19/2012</i>	<i>11/18/2013</i>
<i>Anechoic Chamber</i>	<i>TDK</i>	<i>9m×6 m×5.7m</i>	<i>N/A</i>	<i>04/17/2012</i>	<i>04/16/2013</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: *Jeneran* ECMG  
ENGINEER COMPANY NAME

REVIEWED BY: *Janeryan* ECMG  
SENIOR ENGINEER COMPANY NAME



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



***Radiated Emission Test Set-up (1-25GHz)***