ECMG
Electronic Technical Testing Corp.

www.ecmg-global.net

EMI TEST REPORT

On Model Name: Microwave Oven

Model Number: ZXM028EYY-X,XM031EYY-X,XM031EYY-X1

Brand Name: Midea

Prepared for Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd

FCC ID Number: VG8ZEM028EYY

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-1406-11168-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: _____ July 7th, 2014
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

Exhibit Type	***File Description***	***File Name***
Test Report	*Test Report*	*VG8ZEM028EYY _Test Report.pdf*
Operation Description	*Technical Description*	*VG8ZEM028EYY _Operation Description.pdf*
External Photos	*External Photos*	*VG8ZEM028EYY _External Photos*
Internal Photos	*Internal Photos*	*VG8ZEM028EYY _Internal Photos*
Block Diagram	*Block Diagram*	*VG8ZEM028EYY _Block Diagram.pdf*
Schematics	*Circuit Diagram*	*VG8ZEM028EYY _Schematics.pdf*
ID Label/Location	*Label and Location*	*VG8ZEM028EYY _Label & Location.pdf*
User Manual	*User Manual*	*VG8ZEM028EYY _User's Manual.pdf*
Test set-up photos	*Test set-up photos*	*VG8ZEM028EYY _Test Set-up Photos*

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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	*: ZXM028EYY-X,XM031EYY-X,XM031EYY-X1*
Model Tested	*: EM031EYY-X1*
Brand Name	*:* Midea
Receipt Date	*: June 19th, 2014*
Date Tested	*: June 25th to June 27th, 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 XM031EYY-X1 (referred to as the EUT in this report) is a Microwave Oven.

The technical specifications of EUT are as below:

Power Supply	*120V AC/60Hz*
Rated Input Power (Microwave)	*1500W*
Rated Output Power (Microwave)	*1000W*
Frequency	*2450 MHz(Class B/Group 2)*
Magnetron Model	*2M3I9J*
Magnetron Manufacturer	*WITOL*

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

EUT Model Derived

ZXM028EYY-X,XM031EYY-X,XM031EYY-X1 model designations as follows:

X= E or A ;

M: indicate microwave function;

031: "0" indicate the microwave output power is 1000W, “31” indicate cavity capacity is 31 liters;

E: indicate Design No.;

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

Model ZXM028EYY-X is identical to XM031EYY-X except for model number.

Model EM031EYY-X1 was selected for the final testing.

Test Summary

The electromagnetic compatibility requirements on model EM031EYY-X1 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 tag 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.

EUT Exercise Software

No test software support this test.

Equipment Modification

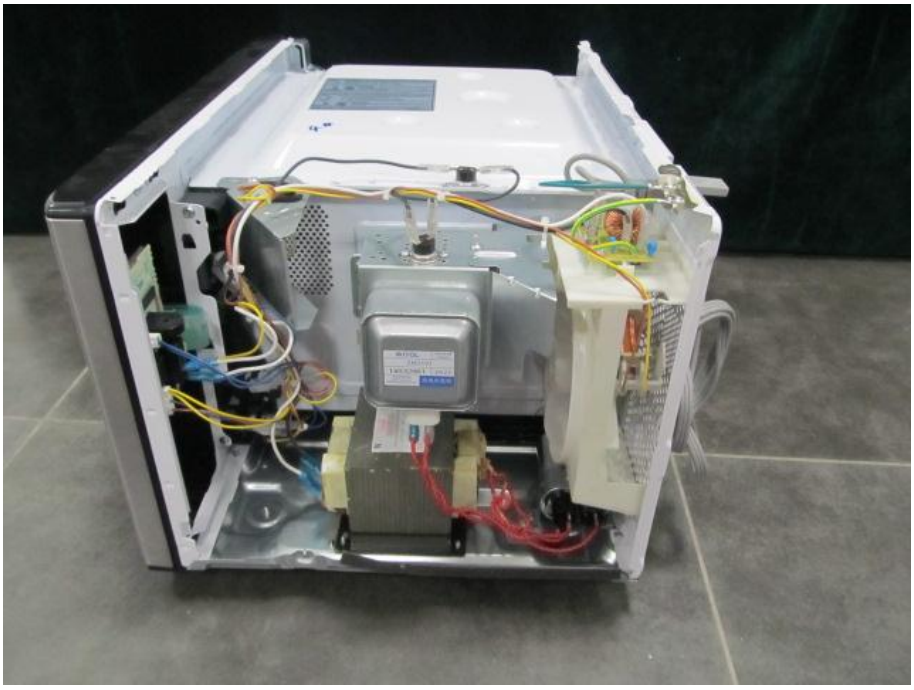
Any modifications installed previous to testing by Guangdong Midea Microwave and Electrical Appliances Manufacturing Co.,Ltd. will be incorporated in each production model sold or leased in United States. There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.

EUT Sample Photos for Model EM031EYY-X1

EUT Front View

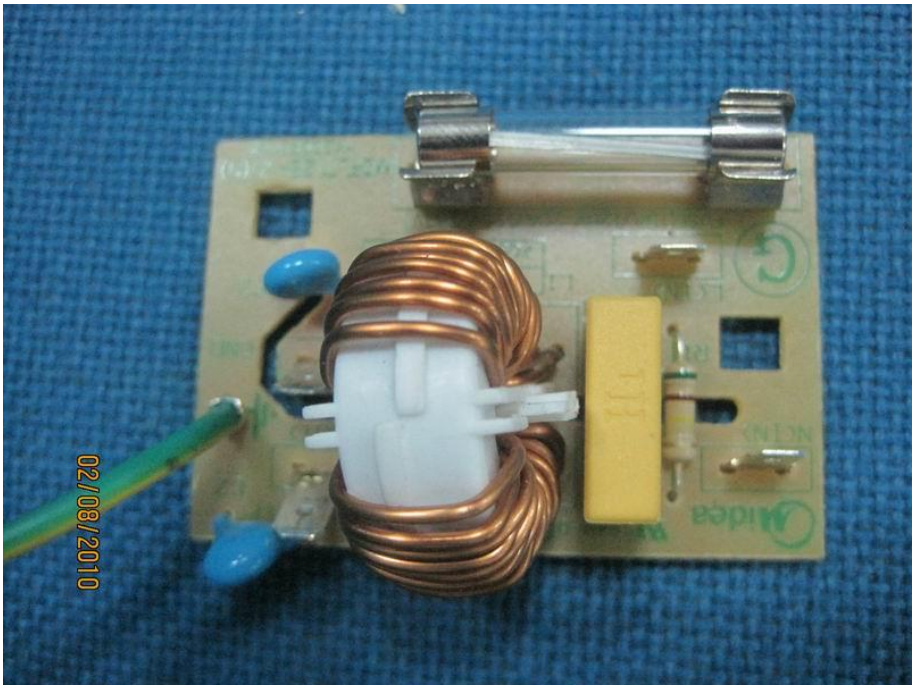
EUT Back View

Door Opend View

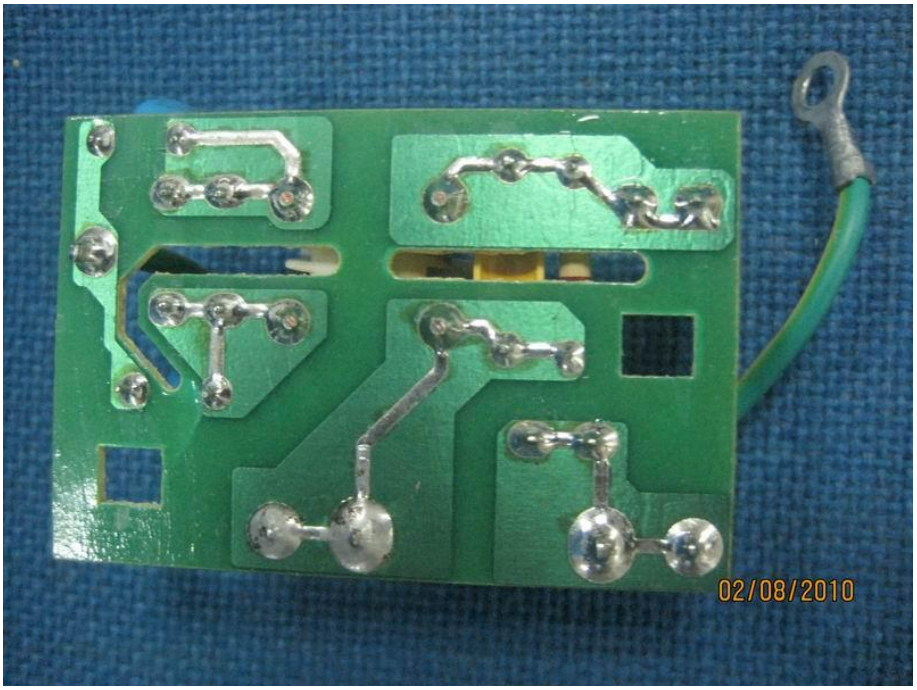


EUT Uncovered View

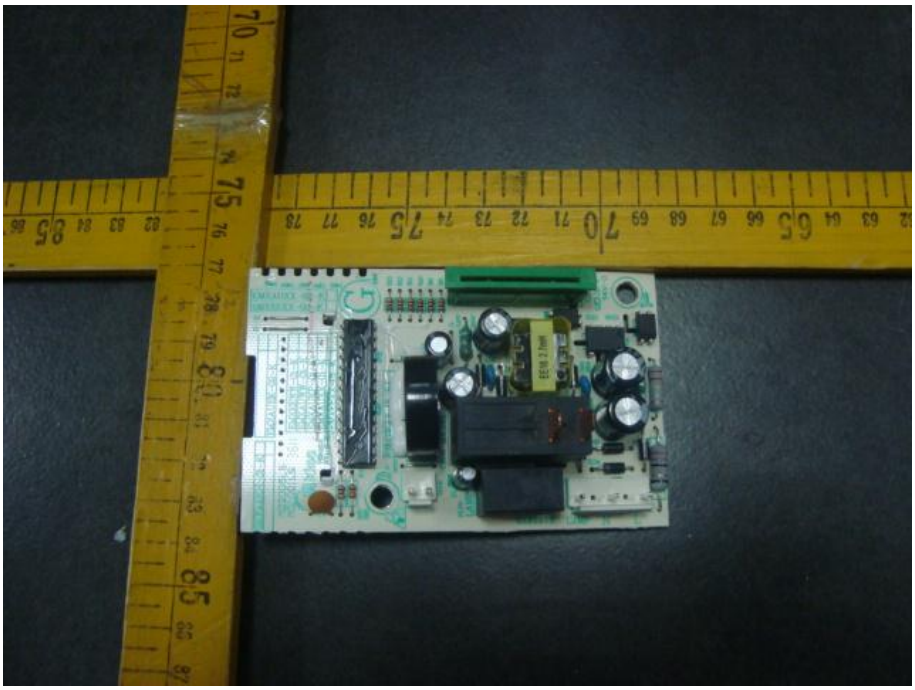
Magnetron Front View



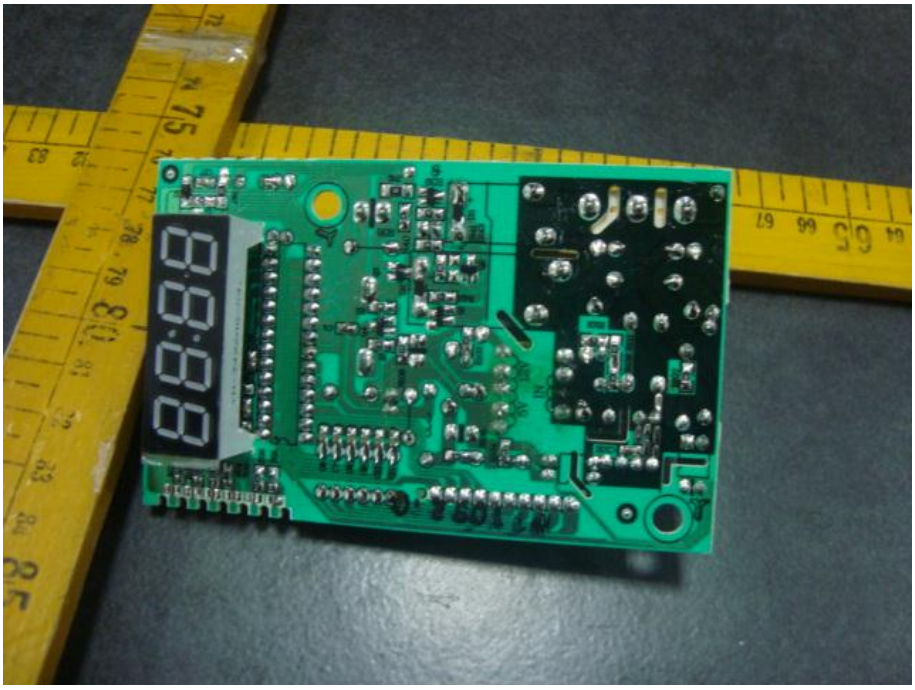
Power Filter Board Top View



Power Filter Board Bottom View



Mother board Top View



Mother board -Bottom View

Test System Details

EUT	
Model Number:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1
Model Tested:	XM031EYY-X1
Description:	Microwave Oven
Input:	AC 120V/60Hz
Manufacturer:	Guangdong Midea Microwave and Electrical Appliances Manufacturing Co., Ltd

Support Equipment			
Description	**Model Number**	**Serial Number**	**Manufacturer**
N/A			

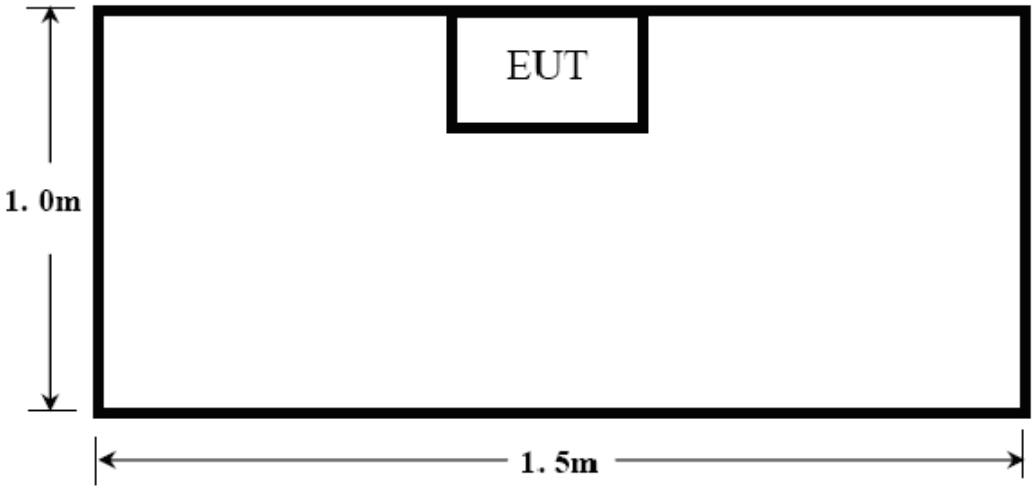
Cable Description					
Description	**From**	**To**	**Length (Meters)**	**Shielded (Y/N)**	**Ferrite (Y/N)**
Power Cable	EUT	Plug	1.2	N	N

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:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**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:**	June 25th,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 700ml 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 0.09 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*	*00122261*	*2013.10.23*	*2014.10.23*
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***

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:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	21℃	**HUMIDITY:**	69%
ATM PRESSURE:	103.1kPa	**GROUNDING:**	Through AC Power Cord
TESTED BY:	Sewen Guo	**DATE OF TEST:**	June 26th,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 700ml 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)*
120.6	*13.01*	*1466*	*1500*

Test Equipments List:

Test Equipment	*Manufacturer*	*Model*	*Serial No.*	*Last Cal.*	*Cal. Due*
Power Meter	*Ainuo*	*AN8726C*	*058704200*	*2013.10.08*	*2014.10.08*
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

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd	**TEST STANDERD:**	FCC Part 18
MODEL NUMBERS:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	22℃	**HUMIDITY:**	60%RH
ATM PRESSURE:	103kPa	**GROUNDING:**	Through AC Power Cord
TESTED BY:	Sewen Guo	**DATE OF TEST:**	June 25th,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 1000ml 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 × 1000 × (Final Temp – Initial Temp) / 120		
TESTED RANGE:	N/A		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	RF Output Power = 847.0 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℃		

Test Result:

Initial Temp (℃)	*Final Temp (℃)*	*Measured Times (s)*	*Rated input Power (W)*
20.0	*44.2*	*120*	*847.0*

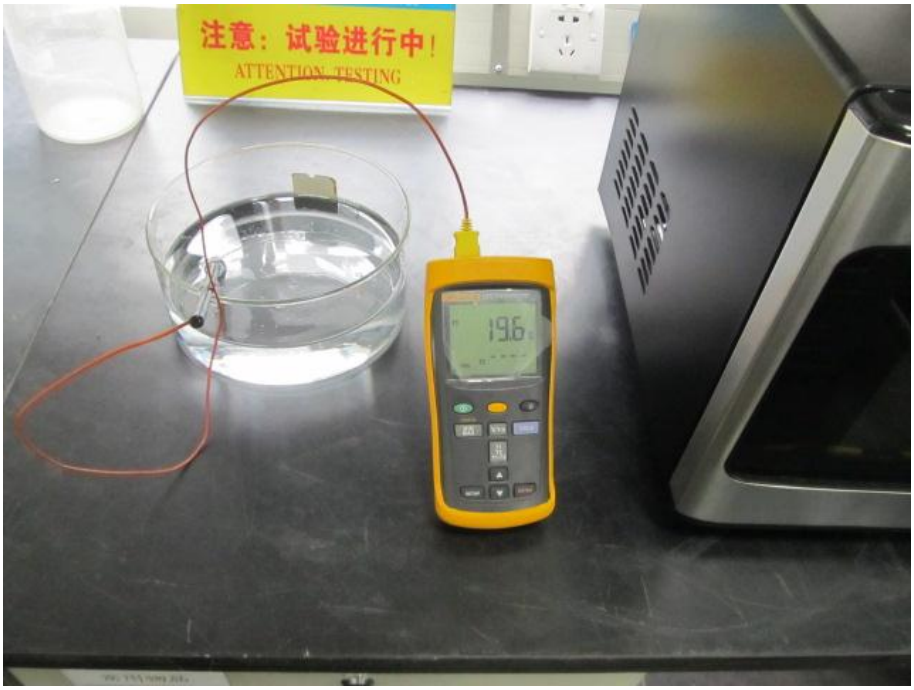
Note : RF Output Power (W) = 4.2 x 1000 x (Final Temp – Initial Temp) / 120= 847.0 watts

Test Equipments list:

Test Equipment	*Manufacturer*	*Model*	*Serial No.*	*Last Cal.*	*Cal. Due*
Digit Thermometer	*Fluke Corporation*	*Fluke 51 II*	*87500204*	*2013.5.22*	*2014.10.22*
Stopwatch	*JUNSD*	*JS-306*	*080303*	*2013.10.10*	*2014.10.10*
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:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	22℃	**HUMIDITY:**	60%RH
ATM PRESSURE:	101.1kPa	**GROUNDING:**	Through AC Power Cord
TESTED BY:	Sewen Guo	**DATE OF TEST:**	June 26th,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 1000ml 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 1000ml 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:

Minimum Frequency (MHz)	*Maximum Frequency (MHz)*
2451.2	*2452.8*

Variation in Operating Frequency with Line Voltage:

Minimum Frequency (MHz)	*Maximum Frequency (MHz)*
2450.3	*2451.4*
Note: Line voltage varied from 96Vac to 150Vac.	

Test Equipments List:

Test Equipment	*Manufacturer*	*Model*	*Serial No.*	*Last Cal.*	*Cal. Due*
EMI test receiver	*R&S*	*ESIB-26*	*100174*	*11/18/2013*	*11/17/2014*
Horn Antenna	*R&S*	*HF906*	*100311*	*11/20/2013*	*11/21/2014*
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).					

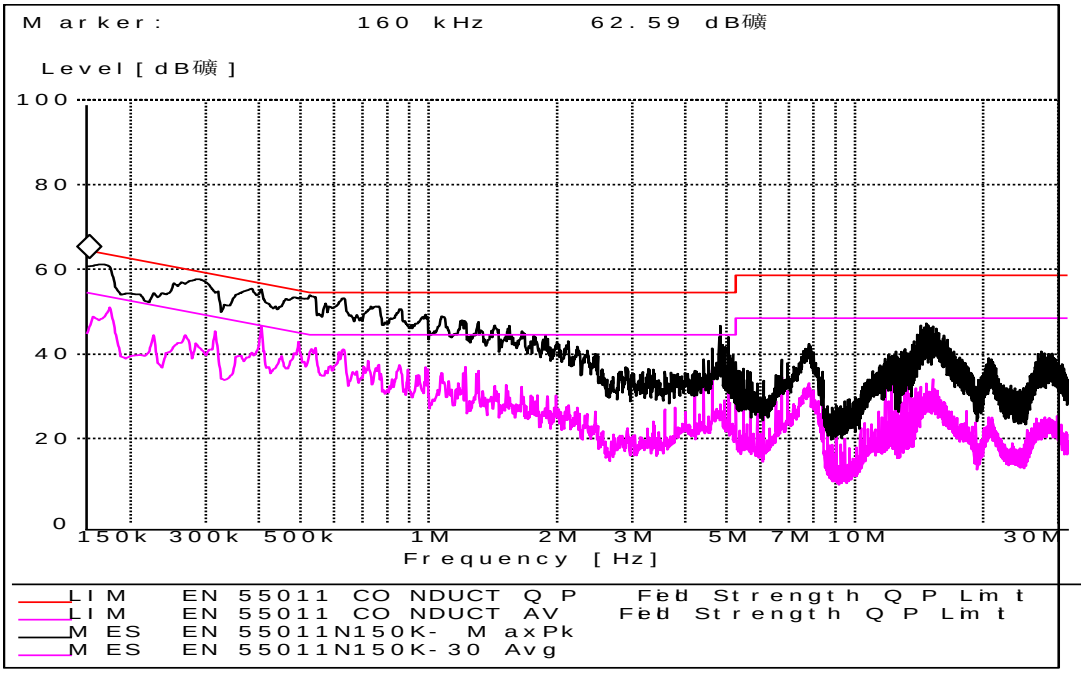
TESTED BY: ***ECMG***
ENGINEER ***COMPANY NAME***

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

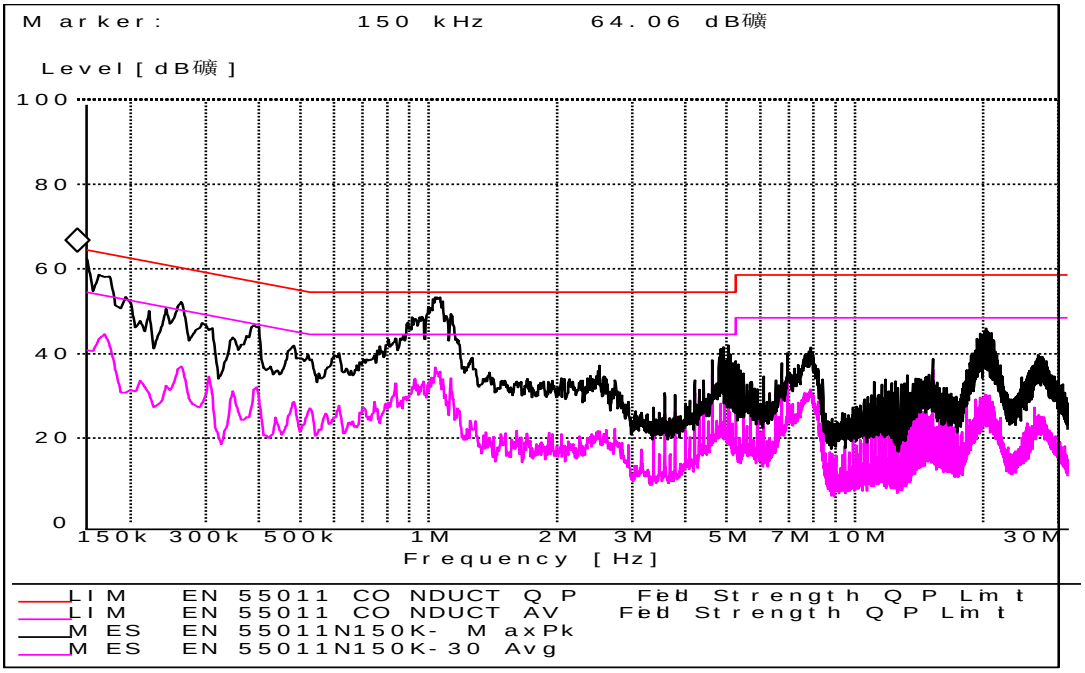
Operating Frequency Test Set-up

ATTACHMENT 5 – CONDUCTED EMISSION TEST RESULTS

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd	**TEST STANDERD:**	FCC Part 18
MODEL NUMBERS:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	22℃	**HUMIDITY:**	67%RH
ATM PRESSURE:	101.1kPa	**GROUNDING:**	Through AC Power Cord
TESTED BY:	Sewen Guo	**DATE OF TEST:**	June 27th,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-pea ked 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)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
L	0.160	52.1	65	-12.9	0.160	41.2	55	-13.8
L	0.240	47.6	62.2	-14.6	0.240	38.1	52.2	-14.1
L	0.380	42.1	58.2	-15.9	0.380	37.4	48.2	-10.8
N	0.150	52.1	65.3	-13.2	0.150	42.1	55.3	-13.2
N	0.350	45.3	59	-13.7	0.350	37.0	49	-12.0
N	0.280	47.2	60.8	-13.6	0.280	38.2	50.8	-12.6

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	04/17/2014	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: _____ **ECMG**
ENGINEER **COMPANY NAME**

REVIEWED BY: _____ **ECMG**
SENIOR ENGINEER **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:	ZXM028EYY-X,XM031EYY-X,XM031EYY-X1	**PRODUCT:**	Microwave Oven
MODEL TESTED:	EM031EYY-X1	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	22℃	**HUMIDITY:**	67%RH
ATM PRESSURE:	103.0kPa	**GROUNDING:**	Through AC Power Cord
TESTED BY:	Sewen Guo	**DATE OF TEST:**	June 27th , 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=20log [25*SQRT(Power/500)]dBuV/m*

Test Data :

30MHz – 1GHz						
Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBμV/m]	Factor (dB)	Field Strength [dBμV/m]	Delta, QP [dB]	3 Meters Limits [dBμV/m]
64.590	V	27.7	10	37.7	-32.5	70.2
652.044	V	9.9	22.5	32.4	-37.5	70.2
729.240	V	8.5	23.6	32.1	-37.8	70.2
247.715	H	14.1	13.6	27.7	-42.5	70.2
550.962	H	9.9	19.2	29.1	-41.1	70.2
549.018	H	16.6	19.2	35.8	-34.8	70.2
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.						
1GHz – 18GHz						
Frequency [GHz]	Antenna Polarization [V/H]	Corrected Reading [dBμV/m]	Factor (dB)	Field Strength [dBμV/m]	Delta, AV [dB]	3 Meters Limits [dBμV/m]
6.757	V	25.99	20.31	46.3	-23.9	70.2
8.410	V	21.38	22.42	43.5	-26.7	70.2
14.757	V	15.62	35.58	51.2	-19.0	70.2
8.320	H	20.88	22.32	43.2	-27.0	70.2
14.723	H	16.52	35.58	52.1	-18.1	70.2
17.188	H	7.24	43.56	50.8	-19.4	70.2
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:

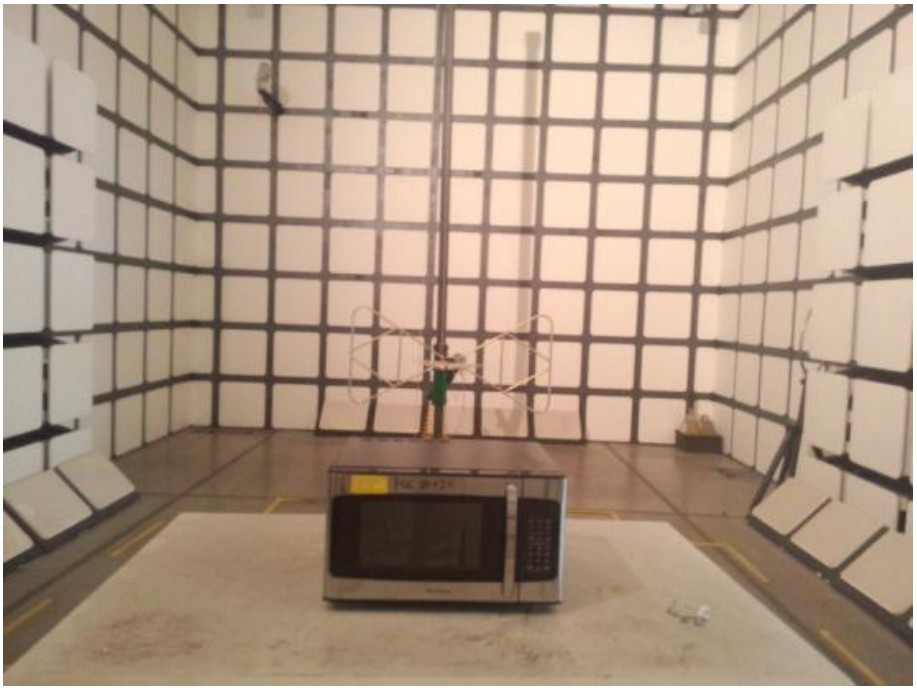
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
EMI test receiver	R&S	ESIB-26	100174	11/19/2013	11/18/2014
Horn Antenna	R&S	HF906	100311	11/21/2013	11/20/2014
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130144	11/21/2013	11/20/2014
Loop Antenna	ETS	ETS-6152	24934	11/21/2013	11/20/2014
Anechoic 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)