

FCC Test	Report
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ClientInformation:

Chontenentation		
Applicant:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd	
Applicant add.:	No.6, Yong An Road, Beijiao, Shunde, Foshan, China	
ProductInformation:		
EUT Name:	Microwave Oven	
Model No.:	EM044K6BB-P0HK	
Brand Name:	N/A	
FCC ID:	VG8EM044KYYBBY	
Standards:	47 CFR PART 18:2015	
Prepared By:		
	UL-CCIC Company Limited	
Add. : Electronic Building	, Parage Electronic Industrial Park, No. 8 Nanyun Er Road, Guangzh Science Park, Guangzhou, 510663 China	าอน
Date of Receipt:Jun 25	5, 2017 Date of Test: Jun 25~Jun. 30, 2017	
Date of Issue: Jul.04, 2	2017 Test Result: Pass	
This device descr the test results sh FCC requirement This report shall r UL-CCIC Compar	ibed above has been tested by BZT Testing Technology Co., Ltd, a ow that the equipment under test (EUT) is in compliance with the s. And it is applicable only to the tested sample identified in the rep not be reproduced except in full, without the written approval of my Limited.	and oort.
Reviewed by:Al Zer	- Shan dinda hi	



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1 TEST SUMMARY

Electromagnetic Interference (EMI)

Test	Test Requirement	Test Method	Class / Severity	Result	
Conducted Emission (150 kHz to 30 MHz)	47 CFR PART 18: 2015	FCC OST/ MP-5:1986	18.307(b)	PASS	
Radiated Emission (9 kHz to 30 MHz)	47 CFR PART 18: 2015	FCC OST/ MP-5:1986	18.305(b)	PASS	
Radiated Emission (30 MHz to1 GHz)	47 CFR PART 18: 2015	FCC OST/ MP-5:1986	18.305(b)	PASS	

Remark :

EUT: In this whole report EUT means Equipment Under Test. **Model named description:**

Different Buyer model	Original Model
NS-OTR16BS8-C	EM044K6BB-P0HK
NS-OTR16WH8-C	EM044K6BB-P0HK
NS-OTR16SS8-C	EM044K6BB-P0HK
NS-OTR16BS8	EM044K6BB-P0HA
NS-OTR16WH8	EM044K6BB-P0HA
NS-OTR16SS8	EM044K6BB-P0HA

According to the declaration from the applicant, model name EM044K6BB-P0H \underline{X} , where the \underline{X} is the nation area code.



2 GENERAL INFORMATION

2.1 CLIENT INFORMATION

Applicant:Guangdong Midea Kitchen Appliances Manufacturing Co.,LtdAddress of Applicant:No.6, Yong An Road, Beijiao, Shunde, Foshan, China

2.2 GENERAL DESCRIPTION OF E.U.T.

Product Description:	Microwave Oven
Model No.:	EM044K6BB-P0HK

2.3 DETAILS OF E.U.T.

Rated Supply (Voltage):AC 120V 60HzPower Cable:1.0m x 3 wires unscreened AC mains cable.

2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with water.

Load for power output measurement :1000 milliliters of water in the beaker located in the centre of the oven

Load for frequency measurement :1000 milliliters of water in the beaker located in the centre of the oven Load for conducted and radiated emission measurement :1000 milliliters of water in the beaker located in the centre of the oven

2.5 DEVIATION FROM STANDARDS

None.

2.6 GENERAL TEST CLIMATE DURING TESTING

Temperature: 15-30 °C Humidity: 30~70 %RH Atmospheric Pressure: 860-1060 mbar

2.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

2.8 TEST LOCATION

BZT Testing Technology Co., Ltd

Buliding 17, Xinghua Road Xingwei industrial Park Fuyong, Baoan District,

Shenzhen, Guangdong, China

2.9 TEST FACILITY

FCC- Registration No: 701733



3 EQUIPMENT LIST

Test Equipment	Model	Manufacturer	Seria	l No.	Cal Until	
	EMC Laboratory					
	Rad	liation Test Equipm	ent			
EMI Test Receiver	ESCI	R&S	1014	427	2017/10/22	
Bilog Antenna	CBL6111D	TESEQ	346	578	2017/11/23	
Horn Antenna	BBHA	SCHWARZBEC	9120D	-1343	2018/03/04	
	9120D(120	К				
	1)					
Low frequency	R01	N/A	N/	A	2017/10/22	
cable						
PREAMPLIFIER	8449B	Agilent	60538		2017/10/22	
Temperature &	HH660	Mieo	N/A		2017/10/22	
Humitidy						
Temperature &	HH660	Mieo	N/A		2017/10/22	
Humitidy						
Spectrum	E4407B(9K	Agilent	MY501	40340	2017/10/22	
Analyzer	-26.5G)					
Passive Loop	6512	ETS	00165355		2017/10/22	
Antenna						
MEASUREMENT		30M-200MHz			2.83	
UNCERTAINTY	20	0MHz-1000MHz			2.94	
	1GHz-6GHz 3.03			3.03		



			1		r
Test Equipment	Model	Manufacturer	Seri	al No.	Cal Until
Conduction Test equipment					
EMI Test Receiver	ESCI	R&S	10 ⁻	1427	2017/10/22
LISN	ENV216	R&S	10 ⁻	1242	2017/10/22
Absorbing clamp	MDS-21	R&S	100	0668	2017/10/22
Temperature & Humitidy	HH660	Mieo	Ν	J/A	2017/10/22
conduction Cable	C01	EM	N	I/A	2017/10/22
Clamp Cable	C02	EM	N	I/A	2017/10/22
LOOPS	ZN30401	ZNINAN	13	018	2018/10/23
MEASUREMENT	15	50KHz-30MHz			2.67
UNCERTAINTY	9	KHz-150KHz			2.88
	F	RF Test Equipment			Γ
ETSI					
EN300328.1.8.1T			STS	-E056	
EST SYSTEM					
MXA SIGNAL Analyzer	N9020A	Agilent	MY49	100060	2017/10/22
MXG Vector Signal Generator	N5182A	Agilent	MY46240556		2017/10/22
POWER SENSOR	RPR3006W	DARE	15I00041SNO 03		2017/10/22
RF Relay matrix tsj	RFM-S621	TSJ	04	261	2017/10/22
Vector signal generator	E8257D-52 1	Agilent	MY45141029		2017/10/22
programmable power supply	3642A	Agilent			
11DB ATTENUATOR	8494B	HP	DC0-	18GHz	
70DB ATTENUATOR	8495B	Agilent	DC0-18GHz		



Test Equipment	Manufacturer	Model	Serial No.	Cal Until	
		RS Tester			
vector Signal Generator	Agilent	E4438C	US44271917	2017.09.29	
Power meter	Agilent	E4419B	GB40202122	2017.09.29	
Power Sensor	Agilent	E9300A	MY41496625	2017.09.29	
Power Sensor	Agilent	E9300A	MY41496628	2017.09.29	
RF power Amplifier	OPHIR	5225R	1045	N/A	
RF power Amplifier	OPHIR	5273R	1018	N/A	
Antenna	SCHWARZBE CK	STLP9128E- special	STLP9128E s#139	N/A	
Antenna	SCHWARZBE CK	STLP 9149	STLP 9149 #456	N/A	
Auxiliary Equipment					
Power meter	EVERFINE	PF9901	G100731cj135 1244	2017.09.29	
Weight meter	bALANCE	BCS-511-60	110213	2017.09.29	
Thermometer	0-200°C	STS 001	001	2017.05.09	
Thermometer	0-200°C	STS 002	002	2017.05.09	
Beaker	1L	STS 003	003	N/A	
Beaker	1L	STS 004	004	N/A	
Beaker	Diameter 1900mm height 900mm	STS 005	005	N/A	



4 EMISSION TEST RESULTS

4.1 OPERATING FREQUENCY

Test Requirement:	47 CFR PART 18
Test Method:	FCC OST/ MP-5
Test Date:	2017-06-17
Power Supply:	AC 120V 60Hz
Frequency Range:	2400-2500 MHz
Detector:	Peak
Limit:	

ISM equipment may be operated on any frequency above 9 kHz.And the frequency band 2400-2500MHz is allocated for use by ISM equipment. (§18.301)

ISM frequency	Tolerance
6.78 MHz ±15.0 kHz 13.56 MHz ±7.0 kHz 27.12 MHz ±163.0 kHz 40.68 MHz ±20.0 kHz 915 MHz ±13.0 M 2,450 MHz ±50.0 M 5,800 MHz ±75.0 M 24,125 MHz ±125.0 N 122.50 GHz ±500.0 M 245 00 GHz ±10 GH	Hz z KHz Hz Hz Hz MHz MHz MHz

4.1.1 FREQUENCY FOR NORMAL VOLTAGE

The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1000mL water load was placed in the center of 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.

MEASUREMENT DATA

START Frequency(MHz)	STOP Frequency (MHz)
2433.8	2462.1



4.1.2 FREQUENCY FOR LINE VOLTAGE

The EUT was operated / warmed by at least 10 minutes of use with a 1000 mL water load at roomtemperature at the beginning of the test. Then the operating frequency was monitored as the input voltagewas varied between 80 and 125 percent of the nominal rating.

MEASUREMENT DATA

START Frequency (MHz)	STOP Frequency (MHz)
2430.2	2468.4



4.2 RF OUTPUT POWER MEASUREMENT

Test Requirement:	47 CFR PART 18
Test Method:	FCC OST/ MP-5
Test Date:	2017-06-07
Power Supply:	AC 120V 60Hz

4.2.1 E.U.T. OPERATION

Test the EUT in microwave mode with full power.

4.2.2 MEASUREMENT DATA

Mass of	Mass of the	Ambient	Initial	Final	Heating	Power
water(g)	container(g)	temperature(°C)	temperature(°C)	temperature(°C)	time(S)	output(watts)
1000	358	24.5	19	39.5	120	758

Formula :

 $\mathbf{P} = \frac{4.2 \times \mathbf{m}_{w}(\mathbf{T}_{2} - \mathbf{T}_{1}) + 0.9 \times \mathbf{m}_{c}(\mathbf{T}_{2} - \mathbf{T}_{0})}{\mathbf{m}_{c}(\mathbf{T}_{2} - \mathbf{T}_{0})}$

t

NOTE :

P is the microwave power output, in watts

mwis the mass of the water, in grams

 $m_{\mbox{\scriptsize c}}$ is the mass of the container, in grams

 $T_{0} \mbox{ is the ambient temperature, in degrees Celsius }$

 $T_1 \, is the initial temperature of the water, in degrees Celsius$

 $T_2 \, is$ the final temperature of the water, in degrees Celsius

t is the heating time, in seconds, excluding the magnetron filament heating-up time.



4.3 CONDUCTED EMISSIONS, 150 KHZ TO 30MHZ

Test Requirement:	47 CFR PART 18
Test Method:	FCC OST/ MP-5
Test Date:	2017-06-07
Power Supply:	AC 120V 60Hz
Frequency Range:	150 kHz to 30 MHz
Detector:	Peak for pre-scan, Quasi-Peak and Average for the final result. (9kHz Resolution Bandwidth for 150 kHz to 30 MHz)

Limit:

Frequency range MHz	AC mains terminals dB (μV)				
	Quasi-peak	Average			
0.15 to 0.5	66 to 56 [*]	56 to 46 [*]			
0.5 to 5	56	46			
5 to 30	60	50			
Note1: The limit decreases	linearly with the logarithm of the freque	ency in therange 0.05 MHz to 0.5			

Note1: The limit decreases linearly with the logarithm of the frequency in therange 0.05 MHz to 0.5 MHz.

Note2: The lower limit is applicable at the transition frequency.

4.3.1 E.U.T. OPERATION

Test the EUT in microwave mode with full power.





- 1. The mains terminal disturbance voltage test was conducted in a shielded room.
- 2. The EUT was connected to nominal power supply through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3. The tabletop EUT was placed upon a non-metallic table 1 m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.



4.3.3 MEASUREMENT DATA

Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected. Please see the attached Quasi-peak and Average test results.

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Live line:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1700	45.55	9.79	55.34	64.96	-9.62	QP
2	0.1700	20.77	9.79	30.56	54.96	-24.40	AVG
3	0.4980	25.12	10.03	35.15	56.03	-20.88	QP
4	0.4980	10.62	10.03	20.65	46.03	-25.38	AVG
5	0.8780	38.66	9.82	48.48	56.00	-7.52	QP
6	0.8780	9.67	9.82	19.49	46.00	-26.51	AVG
7	8.3020	37.09	10.02	47.11	60.00	-12.89	QP
8	8.3020	7.50	10.02	17.52	50.00	-32.48	AVG
9	15.3500	40.55	10.25	50.80	60.00	-9.20	QP
10	15.5300	12.07	10.26	22.33	50.00	-27.67	AVG
11	19.3860	24.05	10.44	34.49	60.00	-25.51	QP
12	19.3860	4.18	10.44	14.62	50.00	-35.38	AVG





Quasi-peak and Average measurement:

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2300	43.37	9.99	53.36	62.45	-9.09	QP
2	0.2300	15.18	9.99	25.17	52.45	-27.28	AVG
3	0.3420	40.44	10.18	50.62	59.15	-8.53	QP
4	0.3420	14.09	10.18	24.27	49.15	-24.88	AVG
5	1.6780	28.59	9.85	38.44	56.00	-17.56	QP
6	1.6780	9.94	9.85	19.79	46.00	-26.21	AVG
7	3.6940	22.81	9.93	32.74	56.00	-23.26	QP
8	3.6940	-0.77	9.93	9.16	46.00	-36.84	AVG
9	9.2820	23.67	9.92	33.59	60.00	-26.41	QP
10	9.2820	11.12	9.92	21.04	50.00	-28.96	AVG
11	20.3660	12.61	10.45	23.06	60.00	-36.94	QP
12	20.3660	4.32	10.45	14.77	50.00	-35.23	AVG





4.4 RADIATED EMISSIONS,9 KHZ TO 25GHZ

Test Requirement:	47 CFR PART 18						
Test Method:	FCC OST/ MP-5						
Power Supply:	AC 120V 60Hz	AC 120V 60Hz					
Test Date:	2017-06-10	2017-06-10					
Frequency Range:	9 KHz to 25GHz						
Measurement Distance:	3m						
Detector:	Peak for pre-scan, Average for the f	inal result					
	9 kHz Resolution Bandwidth for 150	kHz to 30 MHz					
	100 kHz Resolution Bandwidth for 3	0MHz to 1.000MHz					
	1 MHz Resolution Bandwidth for 1,000MHz to 25,000MHz)						
Limit:	(a) ISM equipment operation on a frequency specified in §18.301 is permitted unlimited radiated energy in the band specified for that frequency.						
(b) The field strength levels of emissions which lie outside the specified in §18.301,unless otherwise indicated, shall not exce following:							
	RF Power generated Field strength Limit(uV/m) by equipment(watts) @300m						
	Below 500	25					
	500 or more	25*SQRT(power/500)					

Power =1130W according to cluse7.2.2

Limit=20lg(25*SQRT(power/500))+20lg(300/3) @ 3m distance.

4.4.1 E.U.T. OPERATION

Test the EUT in microwave mode with full power.



4.4.2 TEST SETUP AND PROCEDURE

9 KHz to 30 MHz



- 1. The magnetic emissions test was conducted in a semi-anechoic chamber.
- 2. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane; The mains cables shall drape to the ground reference plane.
- 3. The tabletop EUT was placed upon a non-metallic table 1 m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- Before final measurements of magnetic emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum signature data plots of the EUT.

The frequencies of maximum emission were determined in the final magnetic emissions measurement, The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°, the antenna was supported in the vertical plane and be rotatable about a vertical axis. The antenna height was set at around 2 m above the ground reference plane.



30MHz to 1 GHz:



- 1. The radiated emissions test was conducted in a semi-anechoic chamber.
- 2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
- 3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal andvertical antenna polarization.



Above 1 GHz:



- 1. The radiated emissions test was conducted in a fully-anechoic chamber.
- 2. Horn antenna was used for the frequency above 1GHz
- 3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT.
- 5. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.





Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.





Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

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Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.





Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.





No.	Frequency	Results	Factor (dB)	Limit	Margin	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(0)	(cm)		
1**	2384.615	-14.22	-23.22		14.22	AV	242.80	166	Vertical	Pass
1	2384.615	16.68	-23.22	69.8	53.12	Peak	242.80	166	Vertical	Pass
2**	2506.494	0.48	-23.02		-0.48	AV	242.80	146	Vertical	N/A
2	2506.494	16.08	-23.02	69.8	53.72	Peak	242.80	146	Vertical	Pass
3**	4899.050	6.33	-14.97		-6.33	AV	70.50	196	Vertical	N/A
3	4899.050	24.43	-14.97	69.8	45.37	Peak	70.50	196	Vertical	Pass

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.





No. Frequency Results Factor (dB) Limit Margin Detector Table Height ANT Verdict (dBuV/m) (MHz) (dBuV/m) (dB) (cm) (0) 1** 2382.617 -5.41 -23.31 --5.41 AV 248.40 160 Horizon Pass tal 2382.617 16.59 -23.31 69.8 53.21 Peak 248.40 160 Horizon Pass 1 tal 2** 2778.222 7.50 -22.30 -7.50 AV 200.30 180 Horizon N/A --tal 2 2778.222 17.70 -22.30 69.8 52.10 Peak 200.30 180 Horizon Pass tal 3** 4959.020 -14.88 22.78 AV 254.20 174 Horizon -22.78 --Pass tal 3 4959.020 25.02 -14.88 69.8 44.78 Peak 254.20 174 Horizon Pass tal

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



5 PHOTOGRAPHS

5.1 CONDUCTED EMISSIONS, 150 KHZ TO 30 MHZ TEST SETUP





5.2 RADIATED EMISSIONS TEST SETUP









5.3 EUT CONSTRUCTIONAL DETAILS





































