

## MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT REPORT

### Product Description for Equipment under Test (EUT):

<b>Applicant:</b>	Guangdong Midea Kitchen Appliances Manufacturing Co., Ltd.
<b>FCC ID:</b>	VG8XM136AYYW-PV5
<b>Contain RF Modular FCC ID:</b>	2AC7Z-ESP32PICOZERO
<b>Product Name:</b>	Microwave Oven
<b>Model Number:</b>	EM134A2SU-PSHA0L
<b>Power Supply:</b>	120VAC/60Hz
<b>Operating Frequency for Microwave oven:</b>	2450MHz (Class B/Group 2)
<b>RF Function:</b>	Classic BT, 2.4G Wi-Fi, BLE
<b>Operating Band/Frequency:</b>	BT:2402-2480MHz, 2.4G Wi-Fi:2412-2462MHz, BLE: 2402-2480MHz
<b>Channel Number:</b>	BT:79, 2.4G Wi-Fi: 11, BLE:40
<b>Channel Separation:</b>	BT:1MHz, 2.4G Wi-Fi: 5MHz, BLE: 2MHz
<b>Modulation Type:</b>	GFSK, $\pi/4$ -DQPSK, 8-DPSK
<b>Antenna Type:</b>	BT&2.4G Wi-Fi & BLE: PCB Antenna
<b>Maximum Antenna Gain:</b>	BT&2.4G Wi-Fi & BLE: 3dBi

### Assessment Method:

According to KDB 447498 D01 General RF Exposure Guidance v06, FCC subpart §2.1091, subpart §1.1310, FCC/OST MP-5(1986) and OET Bulletin 56(1999).

### Applicable Standard:

For RF (WiFi & BT) Modular:

According to subpart §2.1091 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz; \* = Plane-wave equivalent power density; According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$  = power density (in appropriate units, e. g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e. g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

**Calculated Data for RF Modular:**

Mode	Frequency Range (MHz)	Antenna Gain		Target Output Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412~2462	3.0	2.00	24.50	281.84	20	0.1121	1.0
802.11g		3.0	2.00	24.00	251.19	20	0.0999	1.0
802.11 n-HT20		3.0	2.00	23.50	223.87	20	0.0891	1.0
802.11 n-HT40	2422~2452	3.0	2.00	22.00	158.49	20	0.0631	1.0
BLE	2402~2480	3.0	2.00	6.50	4.47	20	0.0018	1.0
BT	2402~2480	3.0	2.00	9.00	7.94	20	0.0032	1.0

- Note:**
1. The target output power was declared by the manufacturer.
  2. Wi-Fi and Bluetooth cannot transmit simultaneously.

For microwave oven:

For ISM equipment operating on higher frequencies (above 900 MHz), in particular microwave ovens and medical diathermy equipment, radiation leakage should be measured in accordance with the current Bureau of Radiological Health standard, employing an electromagnetic radiation monitor. This test is made primarily to assure that personnel will not be exposed to radiation hazard in testing the equipment. Equipment submitted to the FCC which have radiation leakage apparently in excess of BRH limit will be reported to BRH for their evaluation. See FCC Bulletin OST 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Radiation".

## Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

\*Plane-wave equivalent power density

NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

A maximum of 1.0mW/cm<sup>2</sup> is allowed in according with the applicable FCC standards.

### Calculated Data for microwave:

There was no microwave leakage exceeding a power level of 0.31mW/cm<sup>2</sup> Observed at any point 5cm or more from the external surface of the oven.

### Conclusion:

RF Exposure for the product EM134A2SU-PSHA0L:

The worst-case RF exposure is  $0.31+0.1121=0.4221$  mW/cm<sup>2</sup> (<1 mW/cm<sup>2</sup>).

The EUT meets exemption requirement- RF exposure evaluation greater than 20cm distance specified in § 2.1091.

\*\*\* End of the report \*\*\*