

FCC Maximum Permissible Exposure (MPE) Report

Report Number : **64.790.22.04877.01-S1** Date of Issue: 2023-02-13

Model / HVIN : **EU-SK109, EU-OSK109, US-SK109, US-OSK109**

Product Type : Smart Kit

Applicant : GD Midea Air-Conditioning Equipment Co., Ltd.

Address : Lingang Road, Beijiao, Shunde 528311 Foshan, Guangdong, China

Manufacturer : GD Midea Air-Conditioning Equipment Co., Ltd.

Address : Lingang Road, Beijiao, Shunde 528311 Foshan, Guangdong, China

Test Result : **Positive** **Negative**

Total pages including
Appendices : 8

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Guankou Erlu, Nantou, Nanshan District,
Shenzhen, 518052 China

FCC Designation Number: CN5009

FCC Registration No.: 514049

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3 Description of the Equipment Under Test

Product:	Smart Kit
Model no.:	EU-SK109, EU-OSK109, US-SK109, US-OSK109
FCC ID:	2ADQOMDNA23
Rating:	5VDC (by USB port)
RF Transmission Frequency:	2412MHz-2462MHz for 2.4GHz WIFI 2402MHz-2480MHz for BLE
No. of Operated Channel:	11 for 2.4GHz WIFI 40 for BLE
Modulation:	802.11b: BPSK, QPSK, CCK, 802.11g/802.11n20: BPSK, QPSK, 16-QAM, 64-QAM BLE: GFSK
Antenna Type:	PCB onboard antenna
Antenna Gain:	2.7dBi max.
Description of the EUT:	The product is a smart kit with WIFI and BLE functions, which can only be used for the control function of home appliances of Midea Group. It cannot be connected to a computer for any other functions.

NOTE 1: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

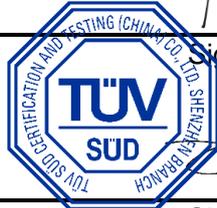
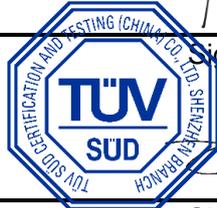
NOTE 2:

EU-SK109, EU-OSK109, US-SK109, US-OSK109 are identical except model name.

Unless otherwise specified, the model EU-SK109 was chosen as representative sample to perform fully testing, other models are deemed to fulfil relevant requirements without further testing.

4 General Information

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Prepared By Project Engineer	2023-02-13	Myron Yu	 Signature
	Date	Name	
Approved By Project Manager	2023-02-13	Jessie He	 Signature
	Date	Name	

5 RF Exposure Requirements

An estimation of MPE in this application for product is used to ensure if it complies with the rules of the standard in the regulation list above.

Maximum permissible exposure (MPE) refers to the RF energy that is acceptable for human exposure. It is broken down into two categories, Occupational/controlled and General population/uncontrolled.

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.

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 rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

6 FCC MPE Limits

According to subpart 15.247(i) and subpart §1.1307(b)(1), 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.

We analysis if it complies with the limits for General population/uncontrolled exposure. The FCC MPE limits for field strength and power density are given in 47CFR 1.1310(Table below) and KDB447498 D01 v06. These limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP), and also partly based on guidelines recommended by the American National Standards Institute (ANSI) in Section 4.1 of ANSI/IEEE C95.1.

(B) 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 ²)	Averaging Time (minute) E ² , H ² or S
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	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

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0

7 RF Exposure Evaluation (FCC)

7.1 Calculation of Power Density for Single Transmission

Mode	EIRP (dBm)	EIRP (mW)	R (cm)	S (mW/cm ²)	Limit (mW/cm ²)	MPE Ratio
BLE	8.89	7.74	20	0.0015	1.0	0.15%
2.4GHz WIFI	16.7	46.77	20	0.0093	1.0	0.93%

Remark: The product also has multiple transmitters, the simultaneous transmit function is not supported.

7.2 Conclusion

According to the table above, the calculated power density S is below the limit value of 1 mW/cm², therefore, the product complies with the requirements.