

## MPE Calculation

Applicant:	70mai Co., Ltd.
Address:	Room 2220, building 2, No. 588, Zixing road, MinHang District, Shanghai, CHINA.
FCC ID:	2AOK9-M800
Product:	DASH CAM
Model No.:	M800, M800-2
Reference RF report #	709502502170-00B, 709502502170-00C, 709502502170-00D

According to 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.

Limits for Maximum Permissible Exposure (MPE) (KDB 447498 D01, §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
300–1,500	/	/	f/1500	30
1,500–100,000	/	/	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 2.4GHz Wi-Fi

Maximum peak output power at antenna input terminal (dBm):	23.63
Maximum peak output power at antenna input terminal (mW):	230.67
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	1.66
Maximum Antenna Gain (numeric):	1.47
The worst case is power density at predication frequency at 20 cm (mW/cm <sup>2</sup> ):	0.0673
MPE limit for general population exposure at prediction frequency (mW/cm <sup>2</sup> ):	1.0

The max power density  $0.0673 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

Result: Compliant

## Calculated Data for BLE

Maximum peak output power at antenna input terminal (dBm):	5.46
Maximum peak output power at antenna input terminal (mW):	3.516
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	1.66
Maximum Antenna Gain (numeric):	1.47
The worst case is power density at predication frequency at 20 cm (mW/cm <sup>2</sup> ):	0.0010
MPE limit for general population exposure at prediction frequency (mW/cm <sup>2</sup> ):	1.0

The max power density  $0.0010 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

Result: Compliant

## Calculated Data for 5GHz Wi-Fi

Maximum peak output power at antenna input terminal (dBm):	13.55
Maximum peak output power at antenna input terminal (mW):	22.646
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	0.78
Maximum Antenna Gain (numeric):	1.20
The worst case is power density at predication frequency at 20 cm (mW/cm <sup>2</sup> ):	0.0054
MPE limit for general population exposure at prediction frequency (mW/cm <sup>2</sup> ):	1.0

The max power density  $0.0054 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

Result: Compliant

## Remark:

*The device does not support simultaneous, because the Wi-Fi 2.4GHz, 2.4GHz BLE and 5GHz Wi-Fi share the same antenna and can't transmit simultaneously. There is not simultaneous transmission possibility.*



- TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:

Prepared by:

Tested by:

Jiayi Xu



Hui Tong

Chengjie GUO

Jiayi XU

Hui TONG

Chengjie GUO

Review Engineer

Project Engineer

Test Engineer

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