

MPE Calculation

Applicant:	Zhejiang Lingzhu Technology Co., Ltd.
Address:	Room 302, No 1 Building Huace Center, Xihu District, Hangzhou City, Zhejiang Province, China
FCC ID:	2BEWXSC155
Product:	Smart Camera
Model No.:	SC155-WQ2, SC155-WQ3, SC155-WQ2A, SC155-WQ2B, SC155-WQ2C, SC155-WQ3A, SC155-WQ3B, SC155-WQ3C, SC155-WQ4, SC155-WQ4A, SC155-WQ4B, SC155-WQ4C, SC155-WQ2D, SC155-WQ3D, SC155-WQ4D
Reference RF report #	709502408362-00B, 709502408362-00C

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.

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 ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	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:

Prediction of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

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 Wi-Fi

Maximum peak output power at antenna input terminal (dBm):	24.77
Maximum peak output power at antenna input terminal (mW):	299.91
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	0.47
Maximum Antenna Gain (numeric):	1.1143
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.0665
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1.0

The max power density $0.0665 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

Result: Compliant

Calculated Data for BLE

Maximum peak output power at antenna input terminal (dBm):	7.86
Maximum peak output power at antenna input terminal (mW):	6.1094
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	0.47
Maximum Antenna Gain (numeric):	1.1143
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.0014
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1.0

The max power density $0.0014 \text{ (mW/cm}^2\text{)} < 1 \text{ (mW/cm}^2\text{)}$

Result: Compliant

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

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