



MPE Calculation

Applicant:	Zhejiang Lingzhu Technology Co., Ltd.
Address:	Room 302, No 1 Building Huace Center, Xihu District, Hangzhou City, Zhejiang Province, 31000, China
Product:	Smart Camera
FCC ID:	2BEWXSC155
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, SC55-WQ3D, SC155-WQ4D
Reference RF report #	709502310205-00A Wi-Fi Test Report 709502310205-00B BLE Test Report According to the client's declaration, all models are identical except for different model name only for differentiate when sold in different regions. So model SC155-WQ3 was chosen to perform all the tests, another other models are deemed to fulfill all the requirement without further testing.

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:

Predication 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: 2.4GHz Wi-Fi FPC Antenna

Maximum peak output power at antenna input terminal (dBm):	26.88
Maximum peak output power at antenna input terminal (mW):	487.53
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	0.48
Maximum Antenna Gain (numeric):	1.1169
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.1083
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1.00

Calculated Data: BLE FPC Antenna

Maximum peak output power at antenna input terminal (dBm):	8.22
Maximum peak output power at antenna input terminal (mW):	6.64
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	0.48
Maximum Antenna Gain (numeric):	1.1169
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.0015
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1.00

The max power density 0.1083 (mW/cm²) < 1 (mW/cm²)

Result: **Compliant**

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

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