

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant: SHENZHEN OFEIXIN TECHNOLOGY LIMITED
Address of applicant: 903, shifeng building, no.1, villa road, xinzhuang community, matan street, guangming new district, shenzhen city, guangdong province, China

Manufacturer: SHENZHEN OFEIXIN TECHNOLOGY LIMITED
Address of manufacturer: 903, shifeng building, no.1, villa road, xinzhuang community, matan street, guangming new district, shenzhen city, guangdong province, China

General Description of EUT:

Product Name: WIFI Module
Trade Name: /
Model No.: 8121N-UH
Adding Model(s): /
Rated Voltage: DC 5V
FCC ID: 2AT5W-8121N-UH
Equipment Type: Mobile or Fixed

Technical Characteristics of EUT:

Wi-Fi(5G)

Support Standards: 802.11a, 802.11n(HT20)
Frequency Range: 5150-5250MHz, 5725-5850MHz
RF Output Power: Antenna 0:15.59dBm (Conducted)
Antenna 1: 15.86dBm (Conducted)
Type of Modulation: BPSK, QPSK,16QAM,64QAM
Type of Antenna: Integral Antenna
Antenna Gain: Antenna 0: 2dBi
Antenna 1: 2dBi

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

- (a) Limits for Occupational / Controlled Exposure

| Frequency range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Times E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | / | / | F/300 | 6 |
| 1500-100000 | / | / | 5 | 6 |

(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 Times E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 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 |
| 1500-100000 | / | / | 1 | 30 |

Note: f = frequency in MHz; * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$$S = (30*P*G) / (377*R^2)$$

S = 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 (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum Tune-Up output power: 19 (dBm)

Maximum peak output power at antenna input terminal: 79.43 (mW)

Prediction distance: >20(cm)

Prediction frequency: 5240 (MHz)

Antenna gain: 2 (dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0250 (mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

Result: Pass