Environmental evaluation and exposure limit according to FCC CFR 47part 1, §1.1307, §1.1310 and ANSI/IEEE C95.1-1992

This calculation was done basis on the test performed by Hermon Laboratories.

The 130H/130W are devices that classified as mobile operating in 119000 – 122980 MHz.
The 130H/130W models include a Wi-Fi modular transmitter as approval under
FCC ID: 2AC7Z-ESPWROOM32DC .

Limit for power density for general population/uncontrolled environment is 10 mW/cm^2 for 15000 - 300000 MHz frequency range.

The power density **P (mW/cm^2) = P$_T$ / 4π r^2**, where

P$_T$ is the maximum equivalent isotropically radiated power (EIRP), measured value is 19.72 dBm, which is equal to 93.76 mW.

The power density at 20 cm calculated as follows:

   93.76 mW / 4π (20 cm)^2 ≈ 0.0186 mW/cm^2 << 10 mW/cm^2

Limit for power density for general population/uncontrolled environment for Wi-Fi module that operating in frequency range of 2412 – 2462 MHz is 1 mW/cm^2 for 1500 - 100000 MHz frequency range.

The power density **P (mW/cm^2) = P$_T$ / 4π r^2**, where

Pt is the transmitter power, which is equal to the peak transmitter output power 26.50 dBm plus maximum antenna gain 3.71 dBi, the maximum equivalent isotropically radiated power EIRP is 30.21 dBm = 1049.54 mW

The power density at 20 cm calculated as follows:

   1049.54 mW / 4π (20 cm)^2 ≈ 0.208 mW/cm^2 << 1 mW/cm^2

Summation

When all the antennas are at least 20 cm away from the user but individual antennas cannot be separated by 20 cm from each other, the following equation shall be fulfilled

$$S1/Limit + S2/Limit < 1, \text{ i.e.}$$
$$0.0186 \text{ mW/cm}^2 /10 \text{ mW/cm}^2 + 0.208 \text{ mW/cm}^2 /1 \text{ mW/cm}^2 = 0.00186 + 0.208 =$$
$$= 0.20986 < 1$$

General public cannot be exposed to dangerous RF level.