



Microwave Power Levels from the Essex Hand-E-Wave™

Microwave detection modules are commonly used in automatic door openers and other motion detection systems. These units are all low power devices with power levels regulated by FCC regulations.

The Essex HEW has an average power output of about 0.003 watts. Even putting a hand directly over the output lens will result in a power density of 0.0005 watts per square cm (0.5 mW/cm²). The section below lists the levels and the effects of microwave radiation. At a distance of one foot, the power density is reduced to about 0.0005mW/cm²

Microwave exposure levels

A safety factor of 10 applied to the solar radiation level has been widely adopted for RF radiation, the standard is 10 mW/cm² maximum. This standard applies to continuous exposure; you can get whacked with higher power for short time with no permanent effects.

Microwave radiation exposure is often expressed in terms of incident power density, in mW/cm². The following table shows the effects of exposure to certain power levels, *without time limit*:

Power level	Long-term effect on human body	Notes
0.0005 mW/cm ²	Nothing	Essex HEW at one foot
0.01 mW/cm ²	Nothing	
0.1 mW/cm ²	Nothing	
0.5 mW/cm ²	Nothing	Essex HEW at the front panel
1 mW/cm ²	Nothing	
5 mW/cm ²	Nothing	Accepted standard for microwave oven leakage
10 mW/cm ²	Nothing	Accepted standard for maximum continuous exposure to radiated emissions (cell phones, etc.)
30 mW/cm ²	You can feel heat	
100 mW/cm ²	Cataracts can be produced	Summer sunlight is at this level.
1000 mW/cm ²	Pain is induced	
5000 mW/cm ²	Cooking commences	Set the timer, lasagna in five minutes!

The table shows that the Essex HEW emissions are well into the harmless amount of power density. At one foot the power is almost a factor of 100,000 below the threshold of feeling the radiation. Even covering the front panel totally at the face plate gives a power density that is about a factor of 100 below the level where the power can be felt.