

Exposure Note

A Canopy module must be installed to provide a separation distance of at least 20 cm (7.9 in) from all persons. When adding the Canopy reflector dish, the reflector dish must be installed to provide a separation distance of at least 1.5m (59.1 in) from all persons. In both configurations the maximum RMS power does not exceed 340mW.

The applicable power density exposure limit is 10 Watt/m², according to the FCC OET Bulletin 65, the ICNIRP guidelines, and the Health Canada Safety Code 6. The corresponding compliance distances referenced above have been determined by assuming worst-case scenarios. The peak power density (S) in the far-field of a radio-frequency source with rms transmit power *P* and antenna gain *G* at a distance *d* is

$$S = P \cdot G / 4\pi d^2$$

In the case of the Canopy SM *without* reflector, the gain is 8 dBi (a factor of 6.3), so the peak power density equals the exposure limit at a distance of 13 cm for 2.4 GHz product and 10 cm for 5.2 and 5.7 GHz product. A power compliance margin of over 2 is artificially introduced by setting the distance to a consistent 20 cm across all modules, giving a power compliance margin of x2.4 for 2.4 GHz modules and x4 for 5.2 and 5.7 GHz modules.

In the case of the Canopy SM *with* reflector, the gain depends on frequency and ranges from 19 dBi (a factor of 80) for 2.4 GHz modules to 26 dBi (a factor of 400) for 5.2 GHz Extended Range and 5.7 GHz modules, so the peak power density equals the exposure limit at a distance of 10 to 80 cm. A power compliance margin is artificially introduced by defining a consistent compliance distance of 1.5 m across all modules with reflectors, giving a power compliance margin of x10 for 2.4 GHz modules, x220 for 5.2 GHz Extended Range modules, and x3.5 for 5.7 GHz modules. The compliance distance is greatly overestimated in this case because the far-field equation neglects the physical dimension of the antenna, which is modeled as a point-source.