

MPE Calculations

The device is not a portable device (i.e. intended to be worn on the body or be hand-held), so it is classified as being either a mobile device or a fixed mounted device. With the high gain antennas the module is intended for fixed-mounted operation.

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure. The power density, P_d (mW/cm^2) calculated from the maximum EIRP, P_t (mW) and the distance, d (m), between the transmitting antenna and the closest person, can be calculated using:

$$P_d = P_t / (4 \pi d^2)$$

Single module operating with highest gain antenna (31.4dBi):

The individual modules have a maximum output power of 0.995 Watts (29.98dBm)

Frequency	MPE Limit (mW/cm^2)	Output Power (mW)	Max. Antenna Gain (dBi)	EIRP (mW)	P_d at 20cm (mW/cm^2)	Distance where P_d = limit (cm)
5745 to 5825 MHz	1.00	995	31.4	1374042.0	273.3	330.6

Installation instructions for a single module include the instructions for installing antennas to ensure this minimum separation distance.

Multiple modules (maximum of 4):

When multiple modules are installed inside the same host system the total output power from all radios is set to 1 Watt / 30dBm. For example, in a host system containing two modules the output power per module is set to 500mW (refer to the professional installation instructions that are included in the operational description exhibit for more details). Taking a worst-case scenario, with each module connected to the highest gain antenna (31.4dBi) and with all antennas aligned in the same direction, the total eirp would equal 61.4dBm (1380 Watts).

The minimum separation distance (distance at which the power density is below the limit for uncontrolled exposure) and the power density at 20cm are provided in the table below.

Frequency	MPE Limit (mW/cm^2)	Output Power (mW)	Max. Antenna Gain (dBi)	EIRP (mW)	P_d at 20cm (mW/cm^2)	Distance where P_d = limit (cm)
5745 to 5825 MHz	1.00	1000	31.4	1380384.3	274.6	331.4

As shown in the calculations above, the power density 3.31m from the device is below the maximum permitted level for uncontrolled exposure. This distance is included in the installation instructions for devices containing multiple modules.