MPE Calculations

Host systems that are installed with the high gain sector and panel antennas are intended to be fixed mounted device. The installation manual specifies a minimum separation distance of at least 20cm, consistent with this classification.

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:

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

Frequency	MPE Limit (mW/cm^2)	Output Power (mW)	Max. Antenna Gain (dBi)	EIRP (mW)	Pd at 20cm (mW/cm^2)	Distance where Pd = limit (cm)
Indoor Antennas The values are for the highest power density reported at 20cm in each band and are taken fro the original certification documents. The antenna gain accounts for coherent signals on each transmit chain in legacy modes (the gain per chain is provided in parentheses). Note that the operation with the sector and panel antennas does not support MIMO in legacy modes.						
2412 to 2462 MHz	1.00	595	7.8 (3.0)	3565	0.71	16.8
5180 to 5320 MHz	1.00	64.4	9.8 (5.0)	611	0.12	7.0
5500 to 5700 MHz	1.00	48.6	9.8 (5.0)	461	0.09	6.1
5745 to 5825 MHz	1.00	308	9.8 (5.0)	2924	0.58	15.3
Sector Antenna (new antenna)						
2412 to 2462 MHz	1.00	1.9	17.0	95.5	0.02	2.8
5260 to 5320 MHz	1.00	17.0	17.0	851.1	0.2	8.2
		8.3	20.0	831.8	0.2	8.1
5745 to 5825 MHz	1.00	2.7	20.0	269.2	0.05	4.6
Panel Antenna (new antenna)						
2412 to 2462 MHz	1.00	19.1	20.0	1905.5	0.4	12.3
5260 to 5320 MHz	1.00	0.9	30.0	851.1	0.2	8.2
5745 to 5825 MHz	1.00	2.7	30.0	2691.5	0.5	**14.6**
The non-highlighted rows show the calculations at the highest output power setting for use with any panel/sector antenna. And the highest eirp combination of output power and antenna gain. The shaded rows contain the calculations for the MPE with the highest gain sector/panel antenna where different from the above.						

As shown in the calculations above, the power density 20cm from the device is below the maximum permitted level for uncontrolled exposure.