Exposure of humans to RF fields

Transmit Frequency 929.525 MHz

Minimum safe distances have been calculated below.

Power density, $mW/cm^2 = E^2/3770$

- Occupational / Controlled Exposure limit will be 3.10 mW/cm^2
(f/300 = 929.525 MHz/300)

- General Population / Uncontrolled exposure limit will be 0.62 mW/cm^2
(f/1500 = 929.525 MHz/1500)

The minimum distance from the antenna at which the MPE is met is calculated from the equation relating field strength in V/m, transmit power in watts, transmit antenna gain, transmitter duty cycle and separation distance in metres:

E, V/m = (√ (30 * P * G)) / d

Controlled	**Uncontrolled**
$E = 3.10\ mW/cm^2 = E^2/3770$	$E = 0.62\ mW/cm^2 = E^2/3770$
E= √3.10*3770	E= √0.62*3770
E = 108.1 V/m	E = 48.3 V/m

The rated maximum transmitter power (P) = 5 watts.

Transmitter is operated using an antenna with a gain (G) of up to 631 (+28 dBi).

The client has declared a duty cycle (DC) of 100% (1)

Controlled	**Uncontrolled**
d = √ (30 * P * G*DC) / E	
d = √ (30 * 5 * 631 *1) / 108.1	d = √ (30 * 5 * 631 *1) / 48.6
d = 2.84 metres or 284 cm	d = 6.33 metres or 633 cm

Result: Complies if the safe distances defined for each environment are applied.