RF EXPOSURE INFORMATION

RADIO FREQUENCY EXPOSURE (HAZARD) INFORMATION
Testing was performed in accordance with the requirements of FCC Part 15.247(i)

Spread spectrum transmitters operating in the 2400 - 2483.5 MHz and 5725 – 5850 MHz bands are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

The MPE calculation shown below is for the antenna with a minimum separation distance of 300cm (3m).

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm^2.

Friis transmission formula: $Pd = (P*G) / (4*\pi*r^2)$

where: Pd = power density (mW/cm^2)
P = power input to the antenna (mW)
G = antenna gain (numeric)
r = distance to the center of radiation of the antenna (cm)

Prediction frequency = 2437 MHz
Maximum peak output power = 26.46 dBm = 442.6 mW
Antenna gain (typical) = 12 dBi = 15.85 numeric
Prediction distance = 300 cm (3m)
The power density calculated = 0.0062 mW/cm^2

Prediction frequency = 5785 MHz
Maximum peak output power = 22.72 dBm = 187.1 mW
Antenna gain (typical) = 24 dBi = 251.2 numeric
Prediction distance = 300 cm (3m)
The power density calculated = 0.042 mW/cm^2

As the device can incorporate up to three radio modules, the co-located MPE is calculate by summing the worst case power density and compare to the limit (1 mW/cm^2).

Worst case power density is the 5GHz. Therefore, the total power density is 0.126 mW/cm^2

MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm^2

Results: Calculations show that the Wireless Radio device with described antennas complied with co-located Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure with a minimum separation distance of 300cm (3m).