Murandi
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Innovative Radio Frequency Solutions

EUM3004 RF Exposure Calculations

As per OET Bulliten 65 – Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields – Edition 97-01, the maximum power density allowed for general population/uncontrolled exposure is f/1500 where f is the frequency of operation in MHz. Calculating for the lowest frequency of operation (905MHz), the maximum power density allowed is 0.603 mW/cm^2.   The power density is calculated as follows:

$$S = (P*G)/(4*pi*R^2)$$

where:
S = power density in mW/cm^2
P = power at the antenna connector in mW
G = linear system gain of the antenna
R = separation from antenna (cm)

As per the User's manual, all antennas for the EUM (indoor and outdoor) must be fix-mounted such that there is at least 20cm of separation between the antenna and a person. For an output power of 26dBm (398mW), and a separation of 20cm, the maximum allowable antenna system gain is 8.8dBi. The antenna system gain for all antenna types shown in "EUM3004 Functional Overview" are less than the limit of 8.8dBi, therefore meeting the FCC requirements for human exposure to RF radiation.