Murandi
Communications Ltd.
Innovative Radio Frequency Solutions

EUM3006 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, the EUM3006 must be fix-mounted such that there is at least 30cm of separation between the antenna and a person. For a worst case average conducted output power of 24.4dBm (275mW), and a separation of 30cm, the maximum allowable antenna system gain is 13.9dBi. The system gain for the integrated antenna is 10.2 dBi, therefore meeting the FCC requirements for human exposure to RF radiation.

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