

RADIATION HAZARD STATEMENT for LiveTV OpenPort

The LiveTV terminal operates at a total transmitter power that is less than that of existing Iridium OpenPort Systems. The Maximum Permissible Exposure (MPE) for this mobile earth station at a distance of 0.3 meters is calculated as follows:

$$S = \text{EIRP} / 4 \pi R^2$$

Where S = Power Density (Watts / m²)
 EIRP = Radiated power (Watts)
 R = Distance from body (m)

EIRP = max transmit power x antenna gain x Duty cycle

Transmitter power = 2Watts at the antenna feed point

Antenna gain = 7.7dB maximum (5.89 times)

Duty cycle = 4 time slots * 8.28 ms per transmission / 90 ms per frame = 0.368

$$\text{EIRP} = 2 \times 5.89 \times 0.368 = 4.33 \text{ Watts}$$

$$S = 4.33 \text{ Watts} / 4 \pi (0.3)(0.3) = 3.83 \text{ Watts} / \text{m}^2$$

At 0.3m the power density is less than the 10 Watts/ m² requirement for the general population/uncontrolled exposure. The LiveTV antenna, which will be mounted on the exterior of airplanes, will be at least 0.3m from the user and the general public. The user manual for the LiveTV terminal will state that installations must comply with this separation distance.

Alternatively, the minimum distance to ensure that the power density is below the 10 Watts/ m² requirements for general population/uncontrolled exposure is calculated as follows.

$$R = \sqrt{\text{EIRP} / 4 \pi S} = \sqrt{(4.33 / 4 \pi \times 10)} = \underline{0.186 \text{ meters.}}$$