

# Radiation Hazard Analysis

## San Juan (ZSU)

Studies were conducted to predict radiation levels around the proposed earth station. The level of RF radiation calculated below has been compared to the maximum safe level of 5 mW/cm<sup>2</sup> as defined by OET Bulletin No.65 (August 1997).

|                              |     |   |         |        |
|------------------------------|-----|---|---------|--------|
| Antenna main beam gain       | (G) | = | 46.5    | dBi    |
| Power into feed              | (P) | = | 0.12    | Watts  |
| Antenna diameter             | (D) | = | 4.5     | meters |
| Wavelength                   | (λ) | = | 0.04853 | meters |
| Frequency                    | (f) | = | 6       | GHz    |
| Efficiency                   | (η) | = | 0.75    | %      |
| Distance of Feed from Ground | (d) | = | 4.25    | meters |

| Region                         | Radiation Level<br>(mW/cm <sup>2</sup> ) | Hazard Assessment        |
|--------------------------------|--|--------------------------|
| Far-Field                      | 0.001                                    | Complies with Guidelines |
| Near-Field                     | 0.002                                    | Complies with Guidelines |
| Transition Region              | < 0.00                                   | Complies with Guidelines |
| Between sub and Main Reflector | *  | See Note 1               |
| Reflector Surface              | 0.001                                    | Complies with Guidelines |
| Between antenna and ground     | 0.00001                                  | Complies with Guidelines |

*Note 1* . Antenna has apex feed, no sub-reflector. Feed directs RF energy at main reflector surface.

## Conclusion:

Based on the prior analysis it is concluded that all levels of radiation within the areas occupied by the public and earth station personnel are below FCC guidelines of 5 mW/cm<sup>2</sup>. To further minimize the possibility of RF exposure to the public the earth station is secured within a fenced in area that is security controlled with limited access. Additionally the transmitter will be shut down whenever maintenance personnel are within the secured area.