



RADIATION HAZARD STUDY FOR ANTENNA: Ku Band - Prodelin 1.8 m

This analysis predicts the radiation levels around a proposed earth station complex, comprised of one or more aperture (reflector) type antennas. This report is developed in accordance with the prediction methods contained in OET Bulletin No. 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields," Edition 97-01, pp 26-30. The maximum level of non-ionizing radiation to which employees may be exposed is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm²) averaged over any 6 minute period in a controlled environment and the maximum level of non-ionizing radiation to which the general public is exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm²) averaged over any 30 minute period in an uncontrolled environment. Note that the worse-case radiation hazards exist along the beam axis. Under normal circumstances, it is highly unlikely that the antenna axis will be aligned with any occupied area since that would represent a blockage to the desired signals, thus rendering the link unusable.

The parameters which determine the radiation levels for the proposed earth station antenna site follows:

Earth Station Technical Parameter Table:

Power Density on Axis	
Calculation method as per FCC OET Bulletin 65	
Antenna	
Antenna diameter (m)	1.8
Frequency (GHz)	14
Antenna efficiency	0.64
Source Power (W)	
Transmit Power (W)	9.53
W/G Loss from transmitter (dB)	12
Backoff (dB)	0
	1
Wavelength (m)	0.021
Antenna surface area (m ²)	2.545
Antenna isotropic gain (dBi)	46.50
Transmit power density on axis (mW/cm²)	0.959
<u>Near Field Limit (0->Rnf)</u>	
Rnf(m)	37.8
Transmit power density on axis (mW/cm ²) at Rnf	0.959
<u>Transition Region (Rnf->Rff)</u>	
Rnf(m)	90,7
Transmit power density on axis (mW/cm ²) at Rff	0.400
<u>Far-Field limit (Rff->infinity)</u>	
Transmit power density on axis (mW/cm ²) at Rff	0.412