FCC OET-65 RF Exposure Study - Satellite Uplink Facility
WVIT Modified Uplink Facility E873926 – 1.5 meter SNG antenna w/ 80 watt antenna mounted amplifier

FCC Maximum Permissible Exposure Levels	Source	Units	Notes
Public/uncontrolled area exposure limit	47CFR §1.1310	**1** mW/cm²	
Occupational/controlled area exposure limit	47CFR §1.1310	**5** mW/cm²	

Input Data

Antenna Diameter	datasheet	**150.0** cm	
Antenna surface area	calculated	**17671** cm²	
Feed flange diameter	measured	**6.350** cm	
Feed flange area	calculated	**32** cm²	
Frequency	(entry)	**14000** MHz	
Wavelength (speed of light = 299,792,458 m/s)	calculated	**2.141** cm	
Transmit power at flange	datasheet	**80000** milliwatts	
Antenna gain	datasheet	**45.3** dBi	
Antenna gain factor	calculated	**33884**	
Height of base of antenna above ground	measured	**2.76** m	
Height of center of antenna above ground	measured	**3.51** m	
Minimum Elevation Angle	(entry)	**5** degrees	
Minimum Elevation Angle	calculated	**0.08727** radians	

			FCC Maximum Permissible Exposure (MPE)	
Results calculated using FCC Bulletin OET-65 (Edition 97-01 August 1997)			**Uncontrolled**	**Controlled**
Maximum power density at antenna surface	Eq. 11 Pg 27	**18.11** mW/cm²	Potential Hazard	Potential Hazard
Power density at feed flange	Eq. 11 Pg 27	**10104.45** mW/cm²	Potential Hazard	Potential Hazard
Extent of near-field	Eq. 12 Pg 27	**2627** cm		
Maximum new-field power density	Eq. 13 Pg 28	**12.67** mW/cm²	Potential Hazard	Potential Hazard
Aperture efficiency	Eq. 14 Pg 28	**0.7**		
Distance to beginning of far-field	Eq. 16 Pg 29	**6304.36** cm		
Power density at end of the transition regiion	Eq. 17 Pg 29	**5.28** mW/cm²	Potential Hazard	Potential Hazard
Maximum far-field power density	Eq. 18 Pg 29	**5.427** mW/cm²	Potential Hazard	Potential Hazard

Main Beam Far-field region safe exposure distances

Minimum distance for public/uncontrolled exposure	Eq. 18 Pg 29	**146.87** meters	
Height at minimum antenna elevation angle	calculated	**16.31** meters	
Horizontal distance	calculated	**146.31** meters	
Minimum distance for occupational/controlled exposure	Eq. 18 Pg 29	**65.68** meters	
Height at minimum antenna elevation angle	calculated	**9.23** meters	
Horizontal distance	calculated	**65.43** meters	

Off-Axis Near Field/Transition Region safe exposure distances from antenna

(20 dB reduction in power density at distances greater than one antenna diameter from the main beam center.)	OET-65 Pg 30			
Maximum off-axis near field power density	Eq. 13 Pg 28	**0.1267** mW/cm²	Below FCC MPE	Below FCC MPE
Public/uncontrolled exposure off-axis distance	Diam/or Eq 17	**1.5** meters		
Occupatonal/controlled exposure off-axis distance	Diam/or Eq 17	**1.5** meters		

Off-Axis Far Field safe exposure distances from the antenna

(Based on side lobe attenuation required by FCC 25.209(a)(2))			
Angle off main beam axis (1 to 48 degrees)	(entry)	**5** degree(s)	
Off-axis antenna gain factor	OET-65 Pg 30*	**28**	
Minimum distance for public/uncontrolled exposure	Eq. 18 Pg 29 **	**63.04** meters	

  * Gain converted from dBi to linear multiple

  ** If calculated distance is less than the start of the
    far field region, the distance to the start of the far
    field region is shown.