FCC OET-65 RF Exposure Study - Satellite Uplink Facility
NBC DATABOY (has no current FCC License)

Antenna Vendor:	AVL MVS1200
Antenna Size:	1.2 m.
Amplifier Make/Model:	e2v/Stellar N6312DUBP TWT
Amplifier Max Power:	125 w.

FCC Maximum Permissible Exposure Levels	Source	Units	Notes
Public/uncontrolled area exposure limit	47CFR §1.1310	**1** mW/cm^2	
Occupational/controlled area exposure limit	47CFR §1.1310	**5** mW/cm^2	

Input Data

Antenna Diameter	datasheet	**120.0** cm	
Antenna surface area	calculated	**11310** cm^2	
Feed flange diameter	measured	**6.350** cm	WR-75
Feed flange area	calculated	**32** cm^2	
Frequency	(entry)	**14125** MHz	
Wavelength (speed of light = 299,792,458 m/s)	calculated	**2.122** cm	
Transmit power at flange	datasheet	**125000** milliwatts	
Antenna gain	datasheet	**43.5** dBi	
Antenna gain factor	calculated	**22387**	
Height of base of antenna above ground	measured	**4.145** m	
Height of center of antenna above ground	measured	**4.745** m	
Minimum Elevation Angle	(entry)	**5** degrees	
Minimum Elevation Angle	calculated	**0.08727** radians	

Results calculated using FCC Bulletin OET-65 (Edition 97-01 August 1997)	Source		FCC Maximum Permissible Exposure (MPE) Uncontrolled	Controlled
Maximum power density at antenna surface	Eq. 11 Pg 27	**44.20970641** mW/cm^2	Potential Hazard	Potential Hazard
Power density at feed flange	Eq. 11 Pg 27	**15788.20193** mW/cm^2	Potential Hazard	Potential Hazard
Extent of near-field	Eq. 12 Pg 27	**1696** cm		
Maximum new-field power density	Eq. 13 Pg 28	**31.37038771** mW/cm^2	Potential Hazard	Potential Hazard
Aperture efficiency	Eq. 14 Pg 28	**0.709581453**		
Distance to beginning of far-field	Eq. 16 Pg 29	**4070.816218** cm		
Power density at end of the transition regiion	Eq. 17 Pg 29	**13.07099488** mW/cm^2	Potential Hazard	Potential Hazard
Maximum far-field power density	Eq. 18 Pg 29	**13.438** mW/cm^2	Potential Hazard	Potential Hazard

Main Beam Far-field region safe exposure distances

Minimum distance for public/uncontrolled exposure	Eq. 18 Pg 29	**149.2279162** meters
Height at minimum antenna elevation angle	calculated	**17.75106987** meters
Horizontal distance	calculated	**148.6600589** meters
Minimum distance for occupational/controlled exposure	Eq. 18 Pg 29	**66.73675294** meters
Height at minimum antenna elevation angle	calculated	**10.56149127** meters
Horizontal distance	calculated	**66.48279944** 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

			Uncontrolled	Controlled
Maximum off-axis near field power density	Eq. 13 Pg 28	**0.3137** mW/cm^2	Below FCC MPE	Below FCC MPE
Public/uncontrolled exposure off-axis distance	Diam/or Eq 17	**1.2** meters		
Occupatonal/controlled exposure off-axis distance	Diam/or Eq 17	**1.2** 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 **	**40.70816218** 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.