ATTACHMENT A – Radiation Hazard Analysis for Gilbert

RADIATION HAZARD CALCULATIONS FOR		9.2 meter EARTH STATION	
Nomenclature	**Formula**	**Value**	**Unit**
INPUT PARAMETERS			
D = Antenna Diameter		9.20	meters
d = Diameter of Feed Mouth		0.029	meters
P = Max Power into Antenna		239	Watts
n = Apperture Effeciency		50%	
k = Wavelength @ 29.9 GHz		0.0100	meters
CALCULATED VALUES			
A = Area of Reflector	PI*D^2/4	66.476	meters^2
l = Length of Near Field	D^2/4k	2109	meters
L = Beginning of Far Field	0.6D^2/k	5062	meters
G = Antenna Gain @ 29.9 GHz	n(PI*D/k)^2	4,149,571	66.2 dBi
a = Area of Feed Mouth	PI*d^2/4	0.0007	meters^2

POWER DENSITY CALCULATIONS

Region	Maximum Power Density in Region		Hazard Assessment
	Formula	**Value (mW/cm^2)**	(FCC MPE Limit = 5 mW/cm^2)
1 Near Field	4nP/A	0.72	< FCC MPE Limit
2 Far Field	GP/(4(PI)L^2)	0.31	< FCC MPE Limit
3 Transition	<= Nr Fld Region	0.72	< FCC MPE Limit
4 Near Reflector Surface	4P/A	1.44	< FCC MPE Limit
5 Between Reflector & Ground	P/A	0.36	< FCC MPE Limit
6 Between Subreflector and Feed	4P/a	144734.5	> FCC MPE Limit (See Attachment)