HNS License Sub, LLC
Attachment B
Application for Modification of Experimental STA
Call Sign: WC9XET
Date: 23 September 2005

RADIATION CALCULATIONS FOR		0.60 meter EARTH STATION	
Nomenclature	Formula	Value	Unit
INPUT PARAMETERS			
M = Antenna Aperture Major Axis		0.60	meters
m = Antenna Aperture Minor Axis		0.60	meters
d = Diameter of Feed Mouth		0.029	meters
f = frequency		29.75	GHz
P = Max Power into Antenna		10.0	Watts
n = Aperture Effeciency		43%	
k = Wavelength @ 29.75 GHz		0.0101	meters
CALCULATED VALUES			
A = Area of Reflector	PIxMxm/4	0.283	meters^2
l = Length of Near Field	M^2/4k	9	meters
L = Beginning of Far Field	0.6M^2/k	21	meters
G = Antenna Gain @ 29.75 GHz	n(4xPIxA)/k^2	15,045	(41.8) 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 (FCC MPE Limit = 1 mW/cm^2)
	Formula	Value (mW/cm^2)	
1 Near Field	4nP/A	6.08	> FCC MPE Limit (See Attachment A)
2 Far Field	GP/(4(PI)L^2)	2.61	> FCC MPE Limit (See Attachment A)
3 Transition	<= Nr Fld Region	6.08	> FCC MPE Limit (See Attachment A)
4 Near Reflector Surface	4P/A	14.15	> FCC MPE Limit (See Attachment A)
5 Between Reflector & Ground	P/A	3.54	> FCC MPE Limit (See Attachment A)