EXHIBIT B
HNS License Sub, LLC
Call Sign E060445
Form 312
Amendment
July 2011

Radiation Hazard Exhibits

Exhibit B (1)
HNS License Sub LLC
Call Sign E060445
Request for Modification

RADIATION CALCULATIONS FOR AvL 1.0 meter EARTH STATION			
Nomenclature	**Formula**	**Value**	**Unit**
INPUT PARAMETERS			
M = Antenna Aperture Major Axis		1.00	meters
m = Antenna Aperture Minor Axis		1.00	meters
d = Diameter of Feed Mouth		0.133	meters
f = frequency		29.75	GHz
P = Max Power into Antenna		3.3	Watts
n = Aperture Effeciency		60%	
k = Wavelength @ 29.75 GHz		0.0101	meters
CALCULATED VALUES			
A = Area of Reflector	PIxMxm/4	0.785	meters^2
l = Length of Near Field	M^2/4k	25	meters
L = Beginning of Far Field	0.6M^2/k	60	meters
G = Antenna Gain @ 29.75 GHz	n(4xPIxA)/k^2	58,315	(47.7) dBi
a = Area of Feed Mouth	PI*d^2/4	0.0139	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	0.99	< FCC MPE Limit
2 Far Field	GP/(4(PI)L^2)	0.43	< FCC MPE Limit
3 Transition	<= Nr Fld Region	0.99	< FCC MPE Limit
4 Near Reflector Surface	4P/A	1.66	> FCC MPE Limit (See Exhibit A)
5 Between Reflector & Ground	P/A	0.41	< FCC MPE Limit
6 Between Reflector and Feed	4P/a	93.6	> FCC MPE Limit (See Exhibit A)

Exhibit B (2)
HNS License Sub LLC
Call Sign E060445
Request for Modification

RADIATION CALCULATIONS FOR AvL 1.2 meter EARTH STATION			
Nomenclature	**Formula**	**Value**	**Unit**
INPUT PARAMETERS			
M = Antenna Aperture Major Axis		1.20	meters
m = Antenna Aperture Minor Axis		1.20	meters
d = Diameter of Feed Mouth		0.133	meters
f = frequency		29.75	GHz
P = Max Power into Antenna		4.6	Watts
n = Aperture Effeciency		61%	
k = Wavelength @ 29.75 GHz		0.0101	meters
CALCULATED VALUES			
A = Area of Reflector	PIxMxm/4	1.131	meters^2
l = Length of Near Field	M^2/4k	36	meters
L = Beginning of Far Field	0.6M^2/k	86	meters
G = Antenna Gain @ 29.75 GHz	n(4xPIxA)/k^2	85,374	(49.3) dBi
a = Area of Feed Mouth	PI*d^2/4	0.0139	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	0.99	< FCC MPE Limit
2 Far Field	GP/(4(PI)L^2)	0.43	< FCC MPE Limit
3 Transition	<= Nr Fld Region	0.99	< FCC MPE Limit
4 Near Reflector Surface	4P/A	1.63	> FCC MPE Limit (See Exhibit A)
5 Between Reflector & Ground	P/A	0.41	< FCC MPE Limit
6 Between Reflector and Feed	4P/a	132.4	> FCC MPE Limit (See Exhibit A)