

Radiation Hazard Analysis

Operator: **SES**
 Location Designation: **Hawley**
 County: **Waynw**
 Town: **Hawley**
 State/Zip: **PA / 18428**

FCC Callsign: **E010128**
 SES ID: **HMBB**
 STA:

Input Values	Value	Unit
D = Aperture Diameter	9.00	Meters
d = Subreflector Diameter	1	Meters
G = Antenna Gain	53.7	dBi
FCC Designation	c	Band
F = Frequency	6.000	GHz
P = Transmitter Power Watts:	1500	Watts
R _{ua} = closest point to uncontrolled area	50	meters
Elevation angle at closest point R _{ua}	6.26	Degrees
Height (AGL)	10.97	meters

Band	Frequency
L	1000-2000
S	2000-4000
C	4000-8000
X	8000-12500
Ku	12500-18000
K	18000-25500
Ka	26500-40000
O	40000-50000
V	50000-75000

OET 65 Calculated Values	Formula	Value	Unit
λ = Wavelength	$\frac{c}{F}$	0.0500	meters
G = Antenna Gain	$10^{(G/10)}$	234422.8815	(W) linear
η = Apperture Efficiency	$\frac{G\lambda^2/4\pi}{\pi D^2/4}$	73%	percentage
A = Area of reflector	πR^2	63.617	meters ²
a = area of subreflector	πd^2	7853.982	cm ²
R _{nf} = Near-Field Region	$\frac{D^2}{4\lambda}$	405.270	meters
		44	Meters AGL
R _t = Transition Region	$>R_{nf}$	405.270	>meters
	$<R_{ff}$	972.648	<meters
R _{ff} = Far Field Region	$\frac{0.6D^2}{\lambda}$	972.648	meters
		106	Meters AGL

Radiation Analysis Zone	Formula	Level	Value	Exposure Limits		
				General Public	Occupational	
				<1mW/cm2	<5mW/cm2	
1	Power Subreflector	$\frac{4P}{a}$	763.944	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
2	Antenna Surface	$\frac{4P}{A}$	9.431	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
3	Main Reflector Ground	$\frac{P}{A}$	2.358	mW/cm2	>FCC MPE See Note 1	<FCC MPE
4	S _{nf} = Near-Field Power Density	$\frac{4\eta P}{A}$	6.905	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
5	S _t = Max Transition Power Density	$\leq S_{nf}$	6.905	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
6	S _{ff} = Max Far field Power Density	$\frac{PG}{4\pi R_{ff}^2}$	2.958	mW/cm2	>FCC MPE See Note 3	<FCC MPE
7	Off Access Level Near Field	S _{nf} - 20 dB	0.06905	mW/cm2	<FCC MPE	<FCC MPE

Notes

- The antenna is installed in a controlled location access is restricted to authorized personnel only. The antenna is marked with RF Radiation Hazard signage.
- Inside the controlled area, MPE levels exceed the MPE exposure for occupational levels. The levels will be reduced to safe MPE by removing power to the transmitters when work is performed on or around the antenna. This area can only be accessed by qualified personnel.
- The field develops 10.97 meters above ground level at the minimum elevation angle which is not accessible to the general public.