## **Radiation Hazard Analysis**

Operator:	SES				
Location Designation:	14B		FCC Callsign:		
County:	Wayne		SES ID:		
Town:	Hawley		STA:		
State/Zip:	PA 18428				
Input Values	Value	Unit		Band	Frequency
$D = Aperture \ Diameter$	9.00	Meters		L	1000-2000
d = Subreflector Diameter	1	Meters		S	2000-4000
G = Antenna Gain	53.5	dBi		С	4000-8000
FCC Designation	С	Band		X	8000-12500
F = Frequency	6.000	GHz		Ки	12500-18000
P = Transmitter Power Watts:	1500	Watts		K	18000-25500
$R_{ua} = closest point to uncontrolled area$	50	meters		Ka	26500-40000
Elevation angle at closest point $R_{ua}$	6.26	Degrees		0	40000-50000
Height (AGL)	10.00	meters		V	50000-75000
OET 65 Calculated Values	Formula	Value	Unit		
<b>OET 65 Calculated Values</b> $\lambda = Wavelength$	Formula C F	Value 0.0500	Unit meters		
OET 65 Calculated Values λ= Wavelength G = Antenna Gain	<i>Formula</i> <u> <u> </u> </u>	Value 0.0500 223872.1139	Unit meters (W) linear		
OET 65 Calculated Values $\lambda$ = Wavelength $G$ = Antenna Gain $\eta$ = Apperture Efficiency	$     Formula                  \frac{c}{F}         10^{(G/10)}         \underline{G\lambda^2/4\pi}         \pi D^2/4         $	Value           0.0500           223872.1139           70%	Unit meters (W) linear percentage		
OET 65 Calculated Values $\lambda$ = Wavelength $G$ = Antenna Gain $\eta$ = Apperture Efficiency $A$ = Area of reflector	$     Formula          \frac{c}{F}     10^{(G/10)}     \underline{G\lambda^2/4\pi}     \pi D^2/4     \pi R^2   $	Value           0.0500           223872.1139           70%           63.617	Unit meters (W) linear percentage meters <sup>2</sup>		
OET 65 Calculated Values $\lambda$ = Wavelength $G$ = Antenna Gain $\eta$ = Apperture Efficiency $A$ = Area of reflector $a$ = area of subreflector	$Formula$ $\frac{c}{F}$ $10^{(G/10)}$ $\frac{G\lambda^2/4\pi}{\pi D^2/4}$ $\pi R^2$ $\pi r^2$	Value           0.0500           223872.1139           70%           63.617           7853.982	Unit meters (W) linear percentage meters <sup>2</sup> cm <sup>2</sup>		
OET 65 Calculated Values $\lambda = Wavelength$ $G = Antenna Gain$ $\eta = Apperture Efficiency$ $A = Area of reflector$ $a = area of subreflector$ $R = Near-Field Region$		Value           0.0500           223872.1139           70%           63.617           7853.982           405.270	Unit meters (W) linear percentage meters <sup>2</sup> cm <sup>2</sup> meters		
OET 65 Calculated Values $\lambda$ = Wavelength $G$ = Antenna Gain $\eta$ = Apperture Efficiency $A$ = Area of reflector $a$ = area of subreflector $R_{nf}$ = Near-Field Region		Value           0.0500           223872.1139           70%           63.617           7853.982           405.270           44	Unit meters (W) linear percentage meters <sup>2</sup> cm <sup>2</sup> meters Meters AGL		
OET 65 Calculated Values $\lambda = Wavelength$ $G = Antenna Gain$ $\eta = Apperture Efficiency$ $A = Area of reflector$ $a = area of subreflector$ $R_{nf} = Near-Field Region$ $R = Transition Region$		Value           0.0500           223872.1139           70%           63.617           7853.982           405.270           44           405.270	Unitmeters(W) linearpercentagemeters 2cm 2metersMeters AGL>meters		
OET 65 Calculated Values $\lambda = Wavelength$ $G = Antenna Gain$ $\eta = Apperture Efficiency$ $A = Area of reflector$ $a = area of subreflector$ $R_{nf} = Near-Field Region$ $R_{t} = Transition Region$	$\begin{tabular}{c} \hline F \\ \hline F \\ \hline 10^{(G/10)} \\ \hline \underline{G\lambda^2/4\pi} \\ \pi D^2/4 \\ \hline \pi R^2 \\ \hline \pi r^2 \\ \hline \underline{D}^2 \\ \hline 4\lambda \\ \hline R_{nf} \\ < R_{ff} \end{tabular}$	Value           0.0500           223872.1139           70%           63.617           7853.982           405.270           44           405.270           972.648	Unit         meters         (W) linear         percentage         meters <sup>2</sup> cm <sup>2</sup> meters         Meters AGL         >meters <meters< td=""> <meters< td=""></meters<></meters<>		
OET 65 Calculated Values $\lambda = Wavelength$ $G = Antenna Gain$ $\eta = Apperture Efficiency$ $A = Area of reflector$ $a = area of subreflector$ $R_{nf} = Near-Field Region$ $R_t = Transition Region$ $R_{c} = Far Field Region$	$\begin{tabular}{c} \hline F \\ \hline F \\ \hline 10 \ ^{(G/10)} \\ \hline \underline{G\lambda^2/4\pi} \\ \pi D^2/4 \\ \hline \pi R^2 \\ \hline \pi R^2 \\ \hline \pi r^2 \\ \hline \underline{D}^2 \\ \hline 4\lambda \\ \hline R_{nf} \\ \hline R_{ff} \\ \hline \underline{0.6D^2} \\ \hline \end{tabular}$	Value           0.0500           223872.1139           70%           63.617           7853.982           405.270           44           405.270           972.648           972.648	Unit         meters         (W) linear         percentage         meters <sup>2</sup> cm <sup>2</sup> meters         Meters AGL         >meters <meters< td="">         meters         meters</meters<>		

					Exposure Limits	
	Radiation Analysis Zone	Formula	Level	Value	General Public	Occupational
					<1mW/cm2	<5mW/cm2
1	Power Subreflector	<u>4P</u>	763.944	mW/cm2	>FCC MPE See	>FCC MPE See
		а			Note 1	Note 2
2	Antenna Surface	4P	9.431	mW/cm2	>FCC MPE See	>FCC MPE See
		Α			Note 1	Note 2
3	Main Reflector Ground	<u>P</u>	2.358	mW/cm2	>FCC MPE See	<fcc mpe<="" td=""></fcc>
		Α			Note 1	
4	$S_{nf}$ =Near-Field Power Density	$\frac{4\eta P}{A}$	6.594	mW/cm2	>FCC MPE See	>FCC MPE See
					Note 1	Note 2
5	$S_t = Max Transition Power Density$	<u>≺</u> S <sub>nf</sub>	6.594	mW/cm2	>FCC MPE See	>FCC MPE See
					Note 1	Note 2
6	$S_{ff} = Max Far field Power Density$	<u>PG</u>	2.825	mW/cm2	>FCC MPE See	
		$4\pi R_{\#}^{2}$			Note 3	<fcc mpe<="" td=""></fcc>
					1,070 5	
7	Off Access Level Near Field	S <sub>nf</sub> - 20 dB	0.06594	mW/cm2	<fcc mpe<="" td=""><td><fcc mpe<="" td=""></fcc></td></fcc>	<fcc mpe<="" td=""></fcc>

Notes

1. The antenna is installed in a controlled location access is restricted to authorized personnel only. The antenna is marked with RF Radiation Hazard signage.

2. 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.

3. The field develops 10 meters above ground level at the minimum elevation angle which is not accessable to the general public.