

# Radiation Hazard Analysis

Operator: **SES**  
 Location Designation: **South Mountain ES**  
 County: **Ventura**  
 Town: **Somis**  
 State/Zip: **California 20136**

FCC Callsign: **KA272**  
 SES ID: **C-9**  
 STA:

Input Values	Value	Unit
D = Aperture Diameter	21.00	Meters
d = Subreflector Diameter	3.5	Meters
G = Antenna Gain	61	dBi
FCC Designation	C	Band
F = Frequency	6.000	GHz
P = Transmitter Power Watts:	1349	Watts
R <sub>ua</sub> = closest point to uncontrolled area	50	meters
Elevation angle at closest point R <sub>ua</sub>	10	Degrees
Height (AGL)	8.68	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
$\lambda$ = Wavelength	$\frac{c}{F}$	0.0500	meters
G = Antenna Gain	$10^{(G/10)}$	1258925.412	(W) linear
$\eta$ = Aperture Efficiency	$\frac{G\lambda^2/4\pi}{\pi D^2/4}$	72%	percentage
A = Area of reflector	$\pi R^2$	346.361	meters <sup>2</sup>
a = area of subreflector	$\pi r^2$	96211.275	cm <sup>2</sup>
R <sub>nf</sub> = Near-Field Region	$\frac{D^2}{4\lambda}$	2206.471	meters
		383	Meters AGL
R <sub>t</sub> = Transition Region	$>R_{nf}$	2206.471	>meters
	$<R_{ff}$	5295.530	<meters
R <sub>ff</sub> = Far Field Region	$\frac{0.6D^2}{\lambda}$	5295.530	meters
		920	Meters AGL

Radiation Analysis Zone	Formula	Level	Value	Exposure Limits		
				General Public	Occupational	
				<1mW/cm2	<5mW/cm2	
1	Power Subreflector	$\frac{4P}{a}$	56.085	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
2	Antenna Surface	$\frac{4P}{A}$	1.558	mW/cm2	>FCC MPE See Note 1	<FCC MPE
3	Main Reflector Ground	$\frac{P}{A}$	0.389	mW/cm2	<FCC MPE	<FCC MPE
4	S <sub>nf</sub> = Near-Field Power Density	$\frac{4\eta P}{A}$	1.125	mW/cm2	>FCC MPE See Note 1	<FCC MPE
5	S <sub>t</sub> = Max Transition Power Density	$\leq S_{nf}$	1.125	mW/cm2	>FCC MPE See Note 1	<FCC MPE
6	S <sub>ff</sub> = Max Far field Power Density	$\frac{PG}{4\pi R_{ff}^2}$	0.482	mW/cm2	<FCC MPE	<FCC MPE
7	Off Access Level Near Field	S <sub>nf</sub> - 20 dB	0.01125	mW/cm2	<FCC MPE	<FCC MPE

**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 8.68 meters above ground level at the minimum elevation angle which is not accessible to the general public.