

Radiation Hazard Analysis

Operator: **RRmedia DBA MX1**
 Location Designation: **Hawley Teleport**
 County: **Wayne**
 Town: **Hawley**
 State/Zip: **Pennsylvania 18428**

FCC Callsign: _____
 SES ID: _____
 STA: _____

Input Values	Value	Unit
D = Aperture Diameter	4.50	Meters
d = Subreflector Diameter	0.056	Meters
G = Antenna Gain	47.3	dBi
FCC Designation	C	Band
F = Frequency	6.175	GHz
P = Transmitter Power Watts:	150	Watts
R _{ua} = closest point to uncontrolled area	200	meters
Elevation angle at closest point R _{ua}	10	Degrees
Height (AGL)	5.50	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	$\frac{c}{F}$	0.0486	meters
G = Antenna Gain	$10^{(G/10)}$	53703.17964	(W) linear
η = Aperture Efficiency	$\frac{G\lambda^2/4\pi}{\pi D^2/4}$	63%	percentage
A = Area of reflector	πR^2	15.904	meters ²
a = area of subreflector	πr^2	24.630	cm ²
R _{nf} = Near-Field Region	$\frac{D^2}{4\lambda}$	104.273	meters
		18	Meters AGL
R _t = Transition Region	$>R_{nf}$	104.273	>meters
	$<R_{ff}$	250.254	<meters
R _{ff} = Far Field Region	$\frac{0.6D^2}{\lambda}$	250.254	meters
		43	Meters AGL

Radiation Analysis Zone	Formula	Level	Value	Exposure Limits		
				General Public	Occupational	
				<1mW/cm2	<5mW/cm2	
1	Power Subreflector	$\frac{4P}{a}$	24360.450	mW/cm2	>FCC MPE See Note 1	>FCC MPE See Note 2
2	Antenna Surface	$\frac{4P}{A}$	3.773	mW/cm2	>FCC MPE See Note 1	<FCC MPE
3	Main Reflector Ground	$\frac{P}{A}$	0.943	mW/cm2	<FCC MPE	<FCC MPE
4	S _{nf} = Near-Field Power Density	$\frac{4\eta P}{A}$	2.389	mW/cm2	>FCC MPE See Note 1	<FCC MPE
5	S _t = Max Transition Power Density	$\leq S_{nf}$	2.389	mW/cm2	>FCC MPE See Note 1	<FCC MPE
6	S _{ff} = Max Far field Power Density	$\frac{PG}{4\pi R_{ff}^2}$	1.024	mW/cm2	>FCC MPE See Note 3	<FCC MPE
7	Off Access Level Near Field	S _{nf} - 20 dB	0.02389	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 5.5 meters above ground level at the minimum elevation angle which is not accessible to the general public.