Radiation Hazard Study

All of the Equations below use the following units!
Antenna Gain 52.7dbi = 186208.71 @ 14.0GHz
Power to feed max +25.56DBW / 360 watts
Antenna diameter 3.7 meters
Distance to satellite 39,000 KM or 39,000,000 meters
λ = wavelength @ 14.0GHz **(.0214285714)** in meters

Equations from OET Bulletin #65, oet65.pdf

Page # 27 equation #11 Power density @ antenna surface MAX
P = Power to feed in **Watts (360)**
A = Antenna diameter in **Meters (3.7)**
S (surface) = 389.18

Page # 27 equation #12 Extent of Near field in **Meters**
D = Antenna diameter in **Meters (3.7)**
λ = Wavelength in **Meters** using frequency of 14.0GHz **(.0214285714)**
Rnf = 159.71

Page # 28 equation #13 & 14 Max near field power density & Aperture efficiency
P = Power to feed in **Watts (360)**
D = antenna diameter in **Meters (3.7)**
λ = Wavelength in **Meters** using frequency of 14.0GHz **(.0214285714)**
Snf = 286.47
Aperture efficiency = .632824

Page # 29 Equation #16 Distance to beginning of far field in **Meters**
D = Antenna diameter in **Meters (3.7)**
λ = Wavelength in **Meters** using frequency of 14.0GHz **(.0214285714)**
Rff = 383.320

Page # 29 Equation #17 Transition region
distance in **Meters** from antenna Rnf - Rff
159.71 - 383.32

Page # 29 Equation # 18 Power density @ satellite
S = Power density at a distance of (39,000 KM)
P = Power to feed in **Watts (360)**
R = Distance in **Meters** to Satellite **(39,000,000)**
Sff = 3.50722340 –9 Watts or -84.55 dbw/m squared

Arizona State University E871193
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