For RADHAZ computations Baron Services chose the use of the worst case Far Field Equation per OET Bulletin 65, page 19, “Equations for Predicting RF Fields” and in particular the last sentence of this paragraph regarding “worst case” or conservative predictions:

$$S_{ff} = \frac{PG}{4\pi R^2}$$

Where:

S_{ff} = Signal in the Far Field, in this case mW/cm^2

P = Average RF Power in milliWatts. The average power is equal to the Peak Pulse Power multiplied by the transmitter Duty Cycle (pulse width x PRF = 5% max). 10,000Watts x 5% = 500 Watts or 27dBW or 57dBm (see supplement B discussed below).

G = Gain of the Antenna, unitless

R = Range in centimeters

Please note OET Bulletin 65 page 29 with regard to Aperture Antennas, last paragraph on page 26:

1. Note that the PULSAR employs an 8ft diameter reflector with a beamwidth, pattern provided, of 1.7 degrees
2. The antenna is mounted on a tower that is above any structures in the local area in order to have line-of-sight coverage for the radar system. As a minimum the antenna height will be 40ft above ground level with no local obstructions. Antenna sidelobes are of no consideration since they are below 25dBi with respect to the main beam.
3. The radar is also equipped with a “radiation interlock” that removes triggers to the transmitter if the antenna ceases to move for a period of 30 seconds.
4. A radar site survey is performed by a qualified engineer from Baron Services before the we design the radar site, and RADHAZ calculations are performed to ensure the radar site is safe for both the radar system maintenance and operations personnel and the general public living or working in that area (controlled and uncontrolled areas).

Supplement B allows for, discusses, Time and Spatial Averaging of the transmitted signal. As an example of the 10kW peak pulse power listed above and the antenna rotation:

1. ***Transmitter Power -*** The transmitter pulses on and off at a computer controlled and interlocked period of 5% maximum. Therefore the average power is only 5% of the peak power for the purpose of calculating the RADHAZ.
2. ***Antenna Rotation -*** The RADHAZ is farther reduced by scanning the highly directional antenna. Since the antenna scans a full 360 degrees in Azimuth and the beam width is only 1.7 degrees wide, then the average power radiated at a single point (or a person) is farther reduced by a multiplication factor of 1.7/360 or 0.0047, regardless of the rotation rate, because the antenna beam is not stationary.