1.1

$r = 100\,m$

$E_\theta = 5\ V/m$

$$U = r^2 W_{RAD}$$

$$U = \frac{r^2}{2\eta}\,|E_\theta|^2$$

$$W_{RAD} = \frac{1}{2}\left[E \times H^*\right] = \frac{|E_\theta|^2}{2\eta} = \frac{\left(5\ \frac{V}{m}\right)^2}{2 \cdot 120\pi\ \Omega} = 0.03316\,\frac{W}{m^2}$$

$$P_{RAD} = \int_0^{2\pi}\left[\int_0^{\pi} W_{RAD} \cdot r^2 \cdot \sin\theta\ d\theta\right]d\psi = W_{RAD} \cdot r^2 \int_0^{2\pi}\left[\int_0^{\pi} \sin\theta\ d\theta\right]d\psi$$

$$= 0.03316\,\frac{W}{m^2} \cdot (100\,m)^2 \cdot 4\pi = 4166.9\ W$$