P34.33 $\lambda = \dfrac{c}{f} = 536 \text{ m}$ so $h = \dfrac{\lambda}{4} = \boxed{134 \text{ m}}$

$\lambda = \dfrac{c}{f} = 188 \text{ m}$ so $h = \dfrac{\lambda}{4} = \boxed{46.9 \text{ m}}$

P34.42 (a) $\lambda = \dfrac{c}{f} = \dfrac{3.00 \times 10^8 \text{ m/s}}{1\,150 \times 10^3 \text{ s}^{-1}} = 261 \text{ m}$ so $\dfrac{180 \text{ m}}{261 \text{ m}} = \boxed{0.690 \text{ wavelengths}}$

(b) $\lambda = \dfrac{c}{f} = \dfrac{3.00 \times 10^8 \text{ m/s}}{98.1 \times 10^6 \text{ s}^{-1}} = 3.06 \text{ m}$ so $\dfrac{180 \text{ m}}{3.06 \text{ m}} = \boxed{58.9 \text{ wavelengths}}$

P34.61 (a) $\lambda = \dfrac{c}{f} = \dfrac{3.00 \times 10^8 \text{ m/s}}{20.0 \times 10^9 \text{ s}^{-1}} = \boxed{1.50 \text{ cm}}$

(b)

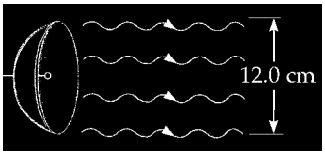

FIG. P34.61

(c) $u_{\text{av}} = \dfrac{U}{V} = \dfrac{U}{(\pi r^2)\ell} = \dfrac{U}{(\pi r^2)c(\Delta t)} = \dfrac{25.0 \times 10^{-6} \text{ J}}{\pi(0.060\,0 \text{ m})^2(3.00 \times 10^8 \text{ m/s})(1.00 \times 10^{-9} \text{ s})}$

$u_{\text{av}} = 7.37 \times 10^{-3} \text{ J/m}^3 = \boxed{7.37 \text{ mJ/m}^3}$

(d) $E_{\max} = \sqrt{\dfrac{2u_{\text{av}}}{\in_0}} = \sqrt{\dfrac{2(7.37 \times 10^{-3} \text{ J/m}^3)}{8.85 \times 10^{-12} \text{ C}^2/\text{N} \cdot \text{m}^2}} = 4.08 \times 10^4 \text{ V/m} = \boxed{40.8 \text{ kV/m}}$

$B_{\max} = \dfrac{E_{\max}}{c} = \dfrac{4.08 \times 10^4 \text{ V/m}}{3.00 \times 10^8 \text{ m/s}} = 1.36 \times 10^{-4} \text{ T} = \boxed{136\ \mu\text{T}}$

(e) $F = PA = \left(\dfrac{S}{c}\right)A = u_{\text{av}}A = (7.37 \times 10^{-3} \text{ J/m}^3)\pi(0.060\,0 \text{ m})^2 = 8.33 \times 10^{-5} \text{ N} = \boxed{83.3\ \mu\text{N}}$