8.7 What is the maximum amplitude of the total electric field in the air medium of Problem 8.6, and at what nearest distance from the boundary does it occur?

Solution: From Problem 8.6, $\Gamma = -0.71$ and $\lambda = 6$ m.

$$|\widetilde{\mathbf{E}}_1|_{\max} = (1+|\Gamma|)E_0^i = (1+0.71)\times 50 = 85.5 \text{ V/m},$$

$$l_{\max} = \frac{\theta_r \lambda_1}{4\pi} = \frac{\pi \times 6}{4\pi} = 1.5 \text{ m}.$$