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$\vec{E} \times \vec{H} = \vec{P}$

$-\vec{a}_y \times -\vec{a}_z = \vec{a}_x$

$\vec{a}_y \times \vec{a}_z = \vec{a}_x$ ✓

$\omega = 2\pi f = 2\pi \cdot 300 \times 10^6 = 1{,}8 \times 10^9$ rad/s

$\beta = \frac{\omega}{c} = \frac{1{,}8 \times 10^9}{3 \times 10^8} = 6$ rad/m

$\beta = \frac{2\pi f}{c}\sqrt{\mu_r \varepsilon_r} = \frac{2 \cdot 3{,}14 \cdot 5 \times 10^9}{3 \times 10^8}\sqrt{1 \cdot 2{,}53} = 166{,}57$

$\eta = 377\sqrt{\frac{\mu_r}{\varepsilon_r}} = 377\sqrt{\frac{1}{2{,}53}} = 237\ \Omega$

$60\pi = 120\pi\sqrt{\frac{\mu_r}{\varepsilon_r}}$

$\frac{1}{2} = \sqrt{\frac{1}{\varepsilon_r}}$

$\varepsilon_r = 4$

$6\pi \times 10^7 = 2\pi f$

$f = 3 \times 10^7 = 30$ MHz

$v = \frac{c}{\sqrt{\mu_r \varepsilon_r}} = \frac{3 \times 10^8}{\sqrt{1 \cdot 4}} = 1{,}5 \times 10^8$

$\eta_0 = 377$

$\eta_1 = 377\sqrt{\frac{1}{4}} = 188{,}5$

$\Gamma = \frac{188{,}5 - 377}{188{,}5 + 377} = -\frac{1}{3}$

$\eta_1 = 377\sqrt{\frac{1}{9}} = 125{,}67$

$\eta_2 = 377\sqrt{\frac{1}{4}} = 188{,}5$

$\Gamma = \frac{188{,}5 - 125{,}67}{188{,}5 + 125{,}67} = 0{,}2$

$T = 1 + 0{,}2$

$= 1{,}2$

$\sigma \to \infty$

$\eta = 0$

$\Gamma = \frac{0 - 377}{0 + 377} = 1$

$T = 0$

$0{,}2 = \frac{E^-}{0{,}1}$

$E^- = 0{,}02$ V/m

$H_0 = \frac{0{,}1}{125{,}67}$

$= 7{,}9 \times 10^{-4}$

$= 0{,}79$ mA/m