

EM Waves

Plane Wave

$t = 0.000 T$

$\omega t = 0^\circ$

START

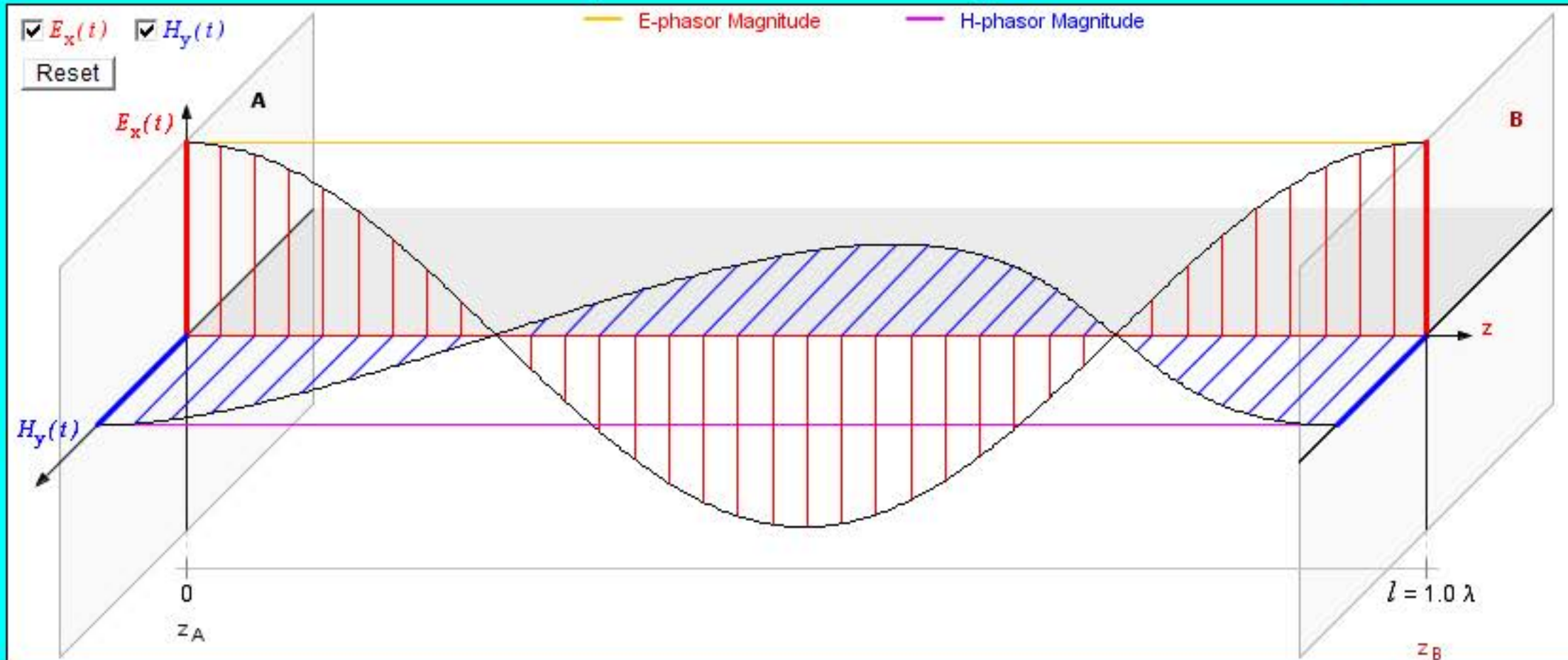
STOP

Input/Output

Phase Planes

☒ |Phasors|

Animation speed



A

B

A)  $z_A = 0.0 \lambda = 0.0 \text{ [m]}$

$|E_A| = 1.0 \text{ [V/m]}$   
 $\angle E_A = 0.0 \text{ [rad]}$   
 $|H_A| = 2.65442 \times 10^{-3} \text{ [A/m]}$   
 $\angle H_A = 0.0 \text{ [rad]}$

$f = 1.0 \text{ GHz}$   
 $l = 1.0 \lambda = 0.29979 \text{ [m]}$

Phasor fields on selected phase planes

B)  $z_B = 1.0 \lambda = 0.29979 \text{ [m]}$

$|E_B| = 1.0 \text{ [V/m]}$   
 $\angle E_B = -6.28319 \text{ [rad]}$   
 $|H_B| = 2.65442 \times 10^{-3} \text{ [A/m]}$   
 $\angle H_B = -6.28319 \text{ [rad]}$

Input

Frequency

$f = 1.0\text{E}9$

Hz

Conductivity

$\sigma = 0.0$

S/m

Relative Permittivity

$\epsilon_r = 1.0$

Relative Permeability

$\mu_r = 1.0$

E-field Amplitude ( $z=0$ )

$E_0 = 1.0$

V/m

E-field Phase ( $z=0$ )

$\varphi = 0.0$

rad

Length Displayed

$l = 1.0$

$\lambda$

[A] & [B] Windows

Area = 1.0

$\text{m}^2$

Update

Output

Wave Properties

WaveLength

$\lambda = 0.29979 \text{ [m]}$

Phase Velocity

$u_p = 2.99792 \times 10^8 \text{ [m/s]}$

Period

$T = 1.0 \times 10^{-9} \text{ [s]}$

Impedance of the Medium [ $\Omega$ ]

$\eta = 376.730313 + j 0.0$   
 $= 376.730313 \angle 0.0 \text{ rad}$   
 $= 376.730313 \angle 0.0^\circ$

Penetration (Skin) Depth

$\delta_s = \infty$

Phase and Attenuation Constants

$\beta = 20.95845 \text{ [m}^{-1}\text{]}$   
 $\alpha = 0.0 \text{ [Ne/m]}$

$\sigma / \omega \epsilon = 0.0$

The material is vacuum (perfect dielectric)

© Amanogawa, 2015 - All Rights Reserved