www.amanogawa.com/archive/PlaneWave/PlaneWave-2.html

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EM Waves   **Plane Wave**
$t = 0.000\,T$ $\omega t = \quad 0°$

START   STOP

Input/Output   Phase Planes   ☑ |Phasors|
◀ ||||| ▶
◀◀   Animation speed   ▶▶

☑ $E_x(t)$ ☑ $H_y(t)$
Reset

—— E-phasor Magnitude   —— H-phasor Magnitude

A

$E_x(t)$

B

$H_y(t)$

z

0
z_A

$l = 1.0\,\lambda$

z_B

A   ◀ ||||| ▶   A
B   ◀ ||||| ▶   B

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

$f = 1.0\ GHz$
$l = 1.0\,\lambda = 0.29979\,[\,m\,]$

Phasor fields on selected phase planes

B) $z_B = 1.0\,\lambda \quad = 0.29979\,[\,m\,]$
$|E_B| = 1.0 \quad [\,V/m\,]$
$\angle E_B \quad = -6.28319\,[\,rad\,]$
$|H_B| = 2.65442 \times 10^{-3} \quad [\,A/m\,]$
$\angle H_B \quad = -6.28319\,[\,rad\,]$

Input

Frequency	f	= 1.0E9	Hz
Conductivity	σ	= 0.0	S/m
Relative Permittivity	ε_r	= 1.0	
Relative Permeability	μ_r	= 1.0	
E-field Amplitude (z=0)	E_o	= 1.0	V/m
E-field Phase (z=0)	φ	= 0.0	rad
Length Displayed	l	= 1.0	λ
[A] & [B] Windows	$Area$	= 1.0	m²

Update

Output   Wave Properties ▼

WaveLength λ = 0.29979 [m]
Phase Velocity u_p = 2.99792 x 10⁸ [m / s]
Period T = 1.0 x 10⁻⁹ [s]
Impedance of the Medium [Ω]
η = 376.730313 + j 0.0
= 376.730313 ∟ 0.0 rad
= 376.730313 ∟ 0.0 °
Penetration (Skin) Depth
δ_S = ∞
Phase and Attenuation Constants
β = 20.95845   [m⁻¹]
α = 0.0   [Ne / m]

$\sigma / \omega\varepsilon$ = 0.0
The material is vacuum (perfect dielectric)