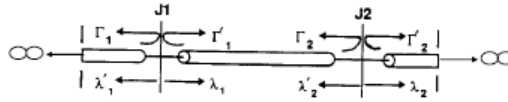


Lattice Diagram

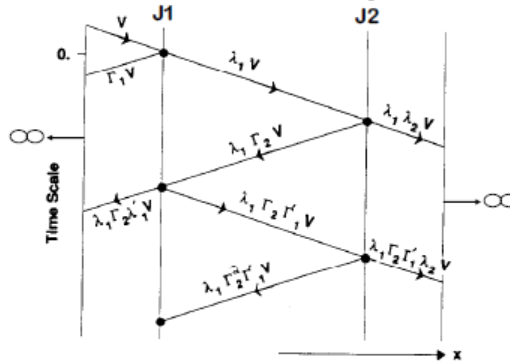


Γ : Reflection coefficient for waves approaching from the left.

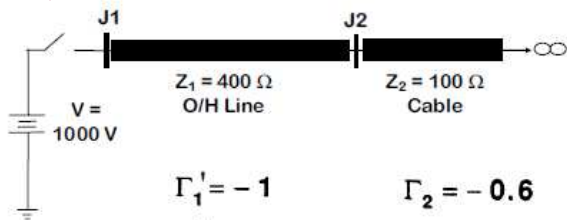
λ : Refraction coefficient for waves approaching from the left, $\lambda = 1 + \Gamma$

Γ' : Reflection coefficient for waves approaching from the right.

λ' : Refraction coefficient for waves approaching from the right, $\lambda' = 1 + \Gamma'$

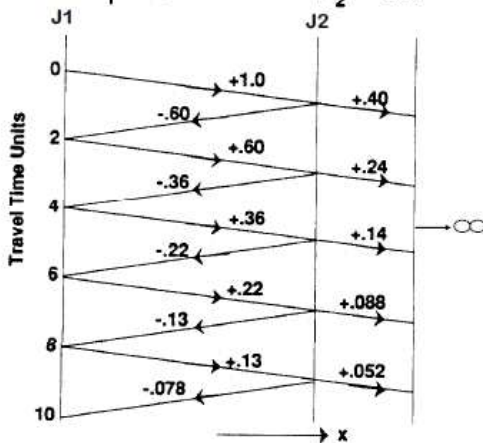


* Example:

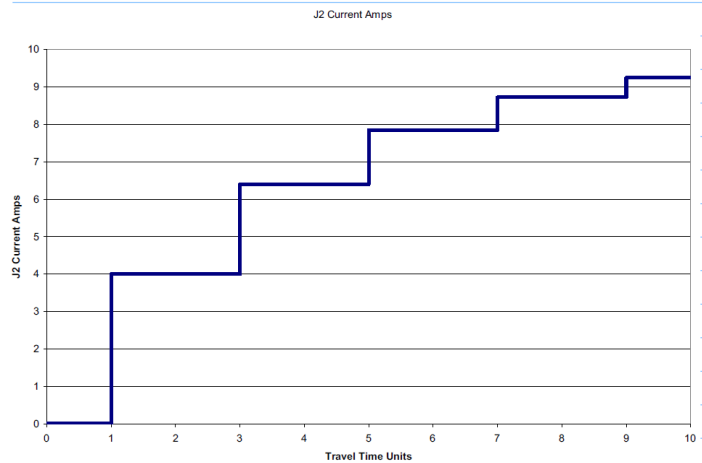


$$\Gamma_1' = -1 \quad \Gamma_2 = -0.6$$

$$\lambda_1' = 0 \quad \lambda_2 = 0.4$$

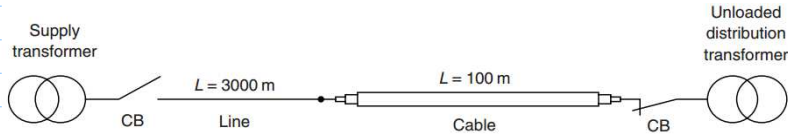


Voltage Lattice Diagram



where 1p.u. current = 1000V/400 Ω or 2.5 Amps

* Example:



Overhead line: Characteristic impedance $Z_{\text{line}} = 400 \Omega$
 Line length $L_{\text{line}} = 3000 \text{ m}$
 Propagation velocity of the electromagnetic waves
 $v_{\text{line}} = 300\,000 \text{ km/s}$
 Travel time $\tau_{\text{line}} = 10 \mu\text{s}$

Cable Characteristic impedance $Z_{\text{cable}} = 40 \Omega$
 Cable length $L_{\text{cable}} = 100 \text{ m}$
 Propagation velocity of the electromagnetic waves
 $v_{\text{cable}} = 100\,000 \text{ km/s}$
 Travel time $\tau_{\text{cable}} = 1 \mu\text{s}$

Source voltage: $v(t) = \cos(\omega t)$ per unit, frequency 50 Hz

