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ECEN 452 Lab #3

Properties:

lref = 11 E-3 m

lthru = 22 E-3 m / lline = 28.44 E-3 m 🡺 ΔlTL = 6.44 E-3 m

thickness = 62 E-3 m

**1.** Valid Frequency Range:

@ 1.5 GHz, θ1 = -20.154594°

@ 4.5 GHz, θ2 = -62.111099°

Δθ = -41.956505°

Slope = Δθ/Δf 🡺 m = -41.956505°/3 GHz 🡺 m = -13.9855°/GHz

-160 + 62.1 = -13.9855(fmax - 4.5) 🡺 fmax = 11.5 GHz

-20 + 62.1 = -13.9855(fmin - 4.5) 🡺 fmin = 1.4897 GHz

**1.4897 GHz < f < 11.5 GHz**

**2.** Dielectric Constant:

@ 3 GHz, θ1 = -40.838772°

) 🡺 ) 🡺 **εeff = 3.103**

**3.** Propagation Velocity:

🡺 🡺 **v = 1.7 E8 m/s**

**4.** Attenuation Coefficient:

1 Np = 8.686 dB

@ 3 GHz, dB = 0.029361164

🡺 🡺 **α = 0.5249 Np/m**