

NANENG 430

Assignment #2

Given an air-filled rectangular waveguide with $a = 3$ cm and $b = 2$ cm.

- (a) Considering TM modes. What is the cutoff frequency of the waveguide?
- (b) Plot the phase constant and effective refractive index for the first order mode from DC up to 15 GHz.
- (c) Plot the velocity of the modes as a function of frequency.
- (d) Are these modes travelling faster than the speed of light?