

## Preparation Assignments

### **Due Wednesday, August 28**

For a lossless line, what is the inductance,  $l$ , and capacitance,  $c$ , of a  $75 \Omega$  transmission line with velocity of propagation of  $0.75c$ ?

What is the transmission delay of 100 meters of that line?

At 15 MHz, how long is the line in wavelengths,  $\lambda$ .

### **Due Thursday, August 29**

Defining the direction of propagation on a transmission line as the positive  $z$ -direction, determine the voltage and current time domain expressions of the forward propagating waves for a 10V, 10 MHz source attached to a  $0.83c$ ,  $75 \Omega$  line.

### **Due Monday, September 2**

Using classical mechanics to describe the hydrogen atom, an electron orbiting a proton nucleus, determine the magnetic radiation from a single atom. You may use any atomic distances and orbital velocities you find in the literature.

### **Due Wednesday, September 4**

Determine the phasor notations of the expressions from the 8/29 assignment.

When is the reflection coefficient negative?

Can the reflection coefficient be imaginary?

When is the reflection coefficient zero?

When is the magnitude of the reflection coefficient 1?