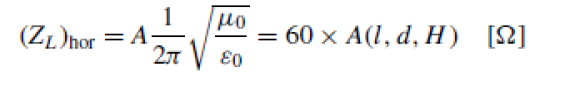
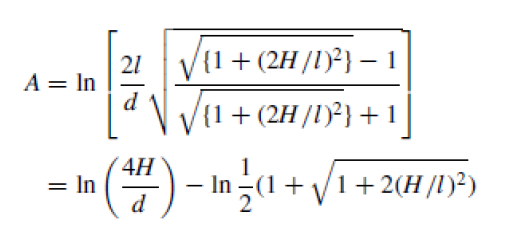
Horizontal supply conductor is a 10m long wire with a diameter of 2mm. It has an average height of 1.6m over the ground plane. Based on arrangements and dimensions of circuit, the students need to conduct following calculations:

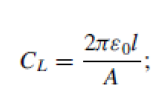
− Calculate the impedance of horizontal supply conductor;



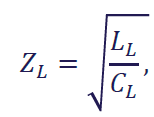


A = 7.2997 Ω

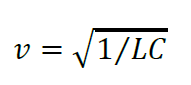
− Calculate the capacitance and inductance of the supply conductor;



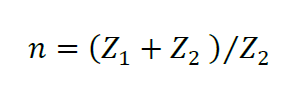
8.85 ×10−12 F⋅m−1



− Calculate the wave propagation velocity 𝑣 in the lead;



− Calculate the transfer ratio n based on values of the capacitors.



**=**

Measure 𝑢1(𝑡) and 𝑢2(𝑡) with an oscilloscope, and comment the appearance of the curves. Then import the date files to eg. MATLAB to calculate the response time T.

Short circuit 𝑅𝑑 and measure 𝑢1(𝑡) and 𝑢2(𝑡) again. Calculate the response time T in this case.

Calculate the impulse voltage peak measuring error Δ𝑉 for the linearly rising impulse voltages with different front steepness 𝑆=2𝑀V/𝜇s, 200 kV/𝜇s and 20 kV/𝜇s.

