

EE595S Lab1: Simple ACSL Program

Assigned: August 26, 2005
Due: September 2, 2005
Objective: For the student to gain some familiarity with ACSL.

Specifics:

Consider the following magnetically coupled circuit:

$$v_1 = r_1 i_1 + p \lambda_1$$

$$v_2 = r_2 i_2 + p \lambda_2$$

$$\lambda_1 = L_{11} i_1 + L_{12} i_2$$

$$\lambda_2 = L_{21} i_1 + L_{22} i_2$$

where

$$r_1 = 0.01 \, \Omega, r_2 = 0.04 \, \Omega, L_{11} = 1.1 \, \text{mH}, L_{12} = 4.0 \, \text{mH}, L_{21} = 4.0 \, \text{mH}, L_{22} = 16.2 \, \text{mH}$$

The primary (winding one) is fed from the following source:

$$v_1 = v_{pk} \sin(\omega_e t)$$

where $v_{pk} = 95 \, \text{V}$ and $\omega_e = 377 \, \text{rad/s}$.

The secondary is connected to a $10 \, \Omega$ resistor. Predict the response for the first 0.25 s. Plot the primary and secondary voltages, currents, and flux linkages. You should turn in a copy of the *.csl file, *.cmd file, and copies of your plots.