ECE 451 Homework 5 Due Wednesday November 14, 2012

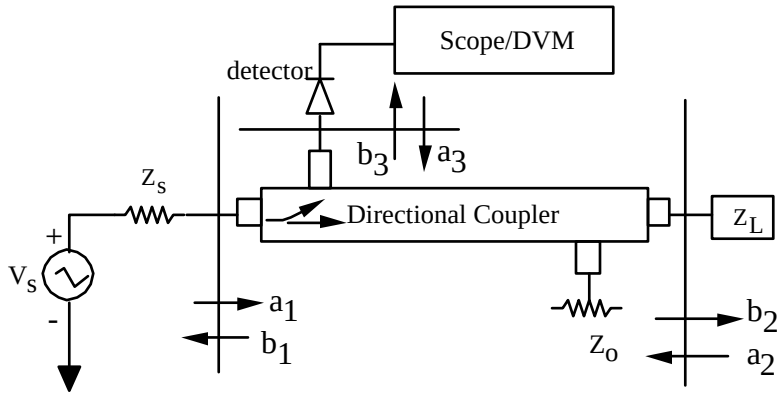

Figure 1

1. Consider the measurement set up shown in Figure 1. Choose Z_o as the reference impedance of the system.

   a) Draw the complete scattering parameter flow graph for the three-port network.

   b) Assuming $Z_L = Z_o$, find the ratio $\frac{b_3}{a_1}$ using Mason's rule.

2. Perform the one-port three-term error correction analysis (i. e. find the equations for the error terms and the relation between measured and actual S_{11}) using the following combinations of calibration standards

(a) matched termination, offset short and open

(b) matched termination, offset short and shielded open

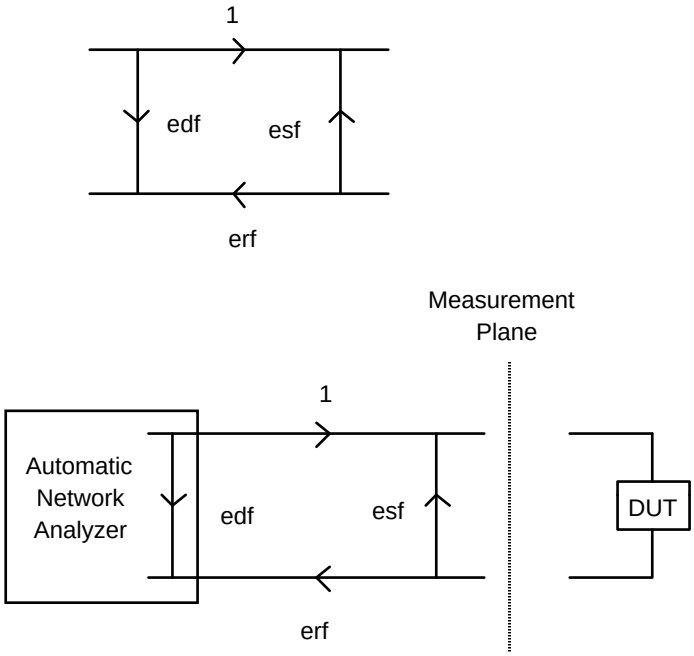

Figure 2