Wireless Circuits and Systems Laboratory

Procedure #12 Schematic Capture in ADS

Schematic capture is a process by which the physical configuration of a circuit schematic may be automatically generated in the layout program. For example, if you configure a schematic comprised of microstrip lines, you can use schematic capture to create a layout file for use with the *Momentum* simulator without actually 'drawing' the circuit. Note that an element in a circuit schematic must be associated with some physical object in order for schematic capture to work, e.g. you cannot use schematic capture to generate a layout for an ideal resistor (unless the component has 'artwork' associated with it).

In this procedure we will start by defining a microstrip geometry (the same one used in Procedure #11) and proceed with the schematic capture process.

In order to keep this procedure brief, extensive references are made to Procedures #11.

Schematic Capture Process

1) Set up the circuit schematic given in Figure 1. This schematic is identical to that described at the beginning of Procedure #11, **except that the Lstub variable is equal to 6.92**. (Note: this is the "tuned" value of the stub length that created a maximum S_{11} and minimum S_{21} at 4 GHz.)

2) In the schematic window, click on Layout -> Generate/Update layout. In most cases, the parameters in the pop-up window (see Figure 2) do not have to be modified. (If you find the layout does not come out as expected, or you are combining multiple schematics, you may have to vary the default values.)

3) Click on OK in the pop-up window. You will see a status report about the items that were placed into the layout. (Note that the tee-junction has a physical shape that resembles, in this case, a rectangle.)

4) Click on OK to close the schematic capture report window.

5) At this point, the layout window should be opened (if not you can do this manually) and you should see a representation of the circuit (Figure 3).

   a) If you see large boxes with an "X" in them, these should be deleted. These boxes represent the "Term" elements that are attached to each end of the circuit schematic.

      i) To delete the Term elements, select them with the mouse and then click the Trash can symbol

      🗑 to delete.

      ii) Also select and delete any "pins" (rectangular or diamond-shaped symbols) that were associated with the Term elements but are not attached to the circuit geometry.

   b) Save the layout window. (By default, the layout will have the same name as the associated schematic.)

If you are intending to perform a Momentum simulation of the layout, you can proceed to the **Add Ports** section in Procedure #8.
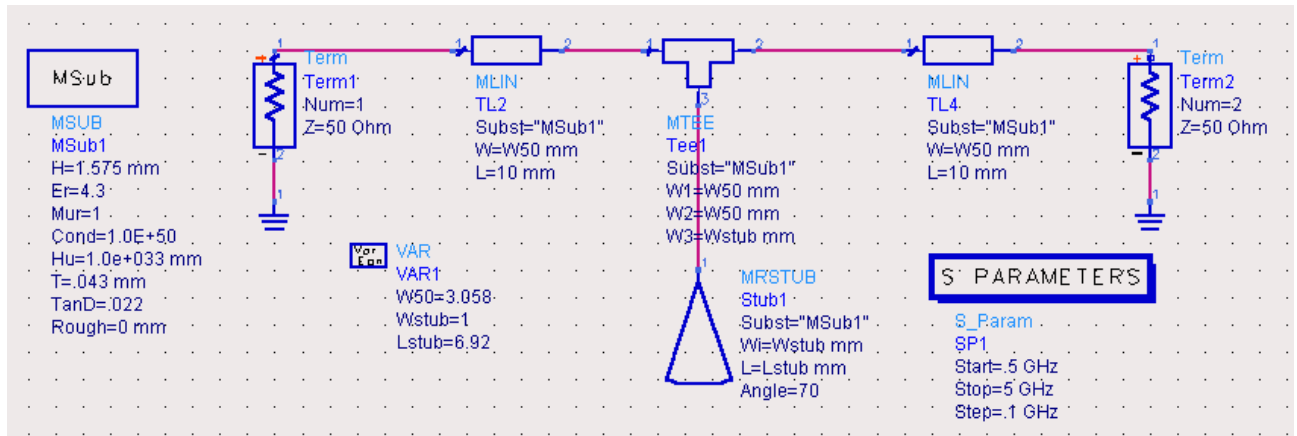
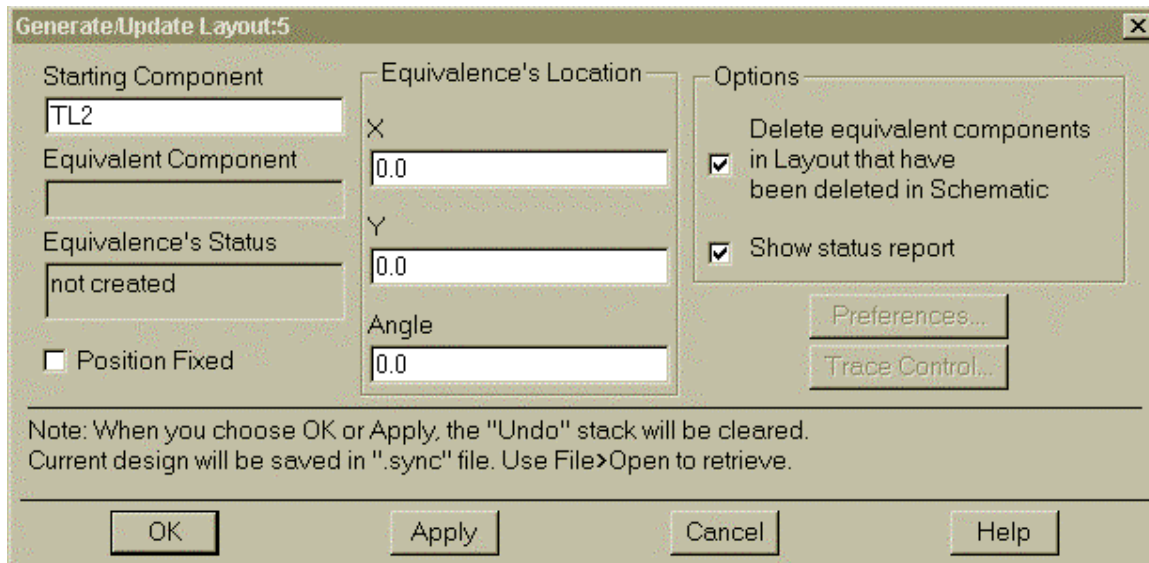*Figure 1. Initial circuit schematic.*

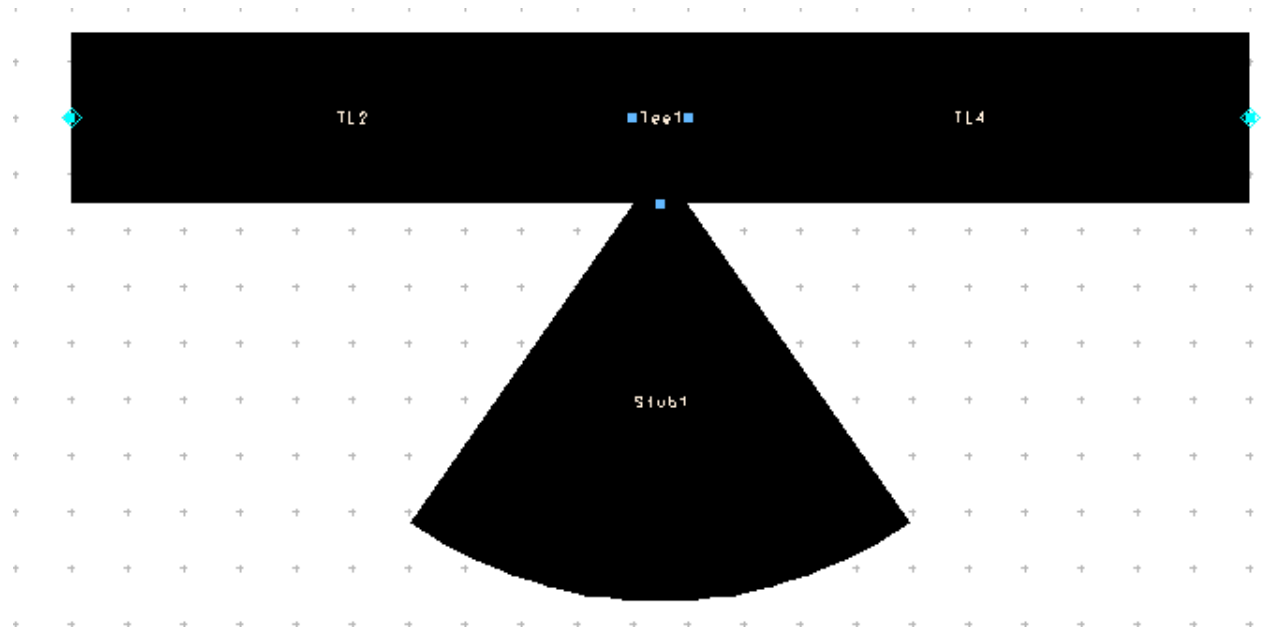*Figure 2. Pop-up window for the schematic capture process.*

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Figure 3. Layout that is automatically generated using schematic capture (after removal of the Term elements and associated pins).