

Laboratory #4: Network Analysis and Design Using Agilent ADS

I. OBJECTIVES

A single-stub transmission line impedance matching network that was designed and constructed in Laboratory #4 is modeled using Agilent ADS (Advanced Design System).

II. PROCEDURE

A. *Model the Single-Stub Tuner Design of Laboratory #3*

Model the Single-Stub Impedance Tuner of Laboratory #3 using Agilent ADS. Use the tutorial created by Dr. Cynthia Furse and Kiran Sankuru of Utah State University to help you with ADS. One thing to watch is the default length unit: That is, set the default dimensional units to millimeter or mils as you prefer.

B. *Results of the Single-Stub Tuner Matching Network*

- In the OUT portion of the file, plan to plot $|S_{11}|$ on a grid and Smith charts.
- Also plan to plot $|S_{21}|$ on a grid.
- Sweep the frequency of operation across the design frequency (over about 1300 MHz $\pm 5\%$).
- Exit the editor and sweep the frequency to observe the two plots of $|S_{11}|$ and the one plot of $|S_{21}|$.

C. *Tuning the Circuit*

If the circuit does not behave as predicted, the circuit may be adjusted using the Tuner. Make several changes and observe the results.

D. *Compare your results with the experimental results found in Laboratory #4.*