How To Avoid Source Stepping Errors When Performing Linear Measurements with Legacy Harmonic Balance Simulator

Problem

I get error message **Allowable reduction in source values was exceeded during source stepping** when performing a linear measurement with Legacy Harmonic Balance simulator

Solution

The first thing you should do is switch the simulator to Aplac Harmonic Balance in measurement dialog box and simulate again. If for any reason you need to use the legacy Harmonic Balance simulator, try the following suggestions.

If you are performing linear measurements on a schematic with nonlinear elements, such as a FET, the simulator must obtain a DC solution using harmonic balance before it can perform the linear measurements. In other words, the circuit needs to be linearized about an operating point and then can be analyzed by the linear simulator. It may be necessary to add a small amount of conductance across the nonlinear elements to obtain the DC solution. To do this in:

MWO V11 and earlier

Select Options > Default Circuit Options. With the Harmonic Balance tab active, select Advanced button. In the Convergence Aids section, check the box for Add conductance across nl elements. Input a very small value, such as **`1e-9`** , for both Conductance(S) and Series source res. (Ohm). Select OK to exit both dialog boxes. Now select Simulate > Analyze.

MWO V12 and later

Select Default Circuit Options. With the AWR Sim tab active, select the Show Secondary button, and scroll down to the Convergence Aids section. Check the box for Add conductance across nonlinear elements. Input a very small value, such as **`1e-9`** , for both Conductance(S) and Series source res. (Ohm). Select OK to exit both dialog boxes. Now select Simulate > Analyze.

If you continue to have source stepping errors after adding a small amount of conductance across non-linear elements, please send your project to `Getting AWR Technical Support`.