

How to Select the Frequency Range for Analysis ?



Introduction

STAN tool and pole/zero identification technique is based on obtaining a frequency response that contains the stability information. Therefore, the first step of the stability analysis method is to obtain a SISO (Single-Input, Single-Output) frequency response of your circuit.

This application note provides guidelines to select the frequency analysis range to set when running the simulation in your EDA software.

Frequency Response on a DC solution (small-signal)

For the stability analysis of a DC state the small signal source frequency f_s must be swept throughout the whole desired range of frequencies for which the stability of the circuit is to be analyzed. Therefore the frequency response must be calculated for the whole range of frequencies in which the active devices display gain. Frequency sweep is defined from low-frequencies (depending on the validity domain of your models) up to your active devices Ft or Fmax.

It is recommended to do the low-frequency (LF) part separately or use a log sweep to avoid losing information at LF if the sweep covers several decades.



With AC simulation, sweep the f_s frequency from low-frequencies to the max gain of your devices

Do the LF separately or use a log sweep

This document features :

- Stability Analysis of a DC State using small signal frequency sweep
- 2. Stability Analysis under large-signal stimulus
- 3. Conclusion
- 4. Annex : Mixer-mode vs. 2-tone HB

If you want to get more details

<u>click here</u>