

Plotting Waveforms Using ViVA

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Abstract

Plotting better looking waveforms for printing and publications.

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1 Introduction

The last tutorial contained simple waveforms for an inverter, however, they are not be suitable for printing, publications, or homework submission. Here we will discuss three methods to improve the output plot.

2 Vector Graphics

Cadence allows you to print images as vector graphics, there are several benefits when plotting vectors instead of bitmaps (raster graphics), the reader is encouraged to explore the difference on his own.

From the last tutorial, we plotted the AC Magnitude and Phase plots as seen in figure 1.

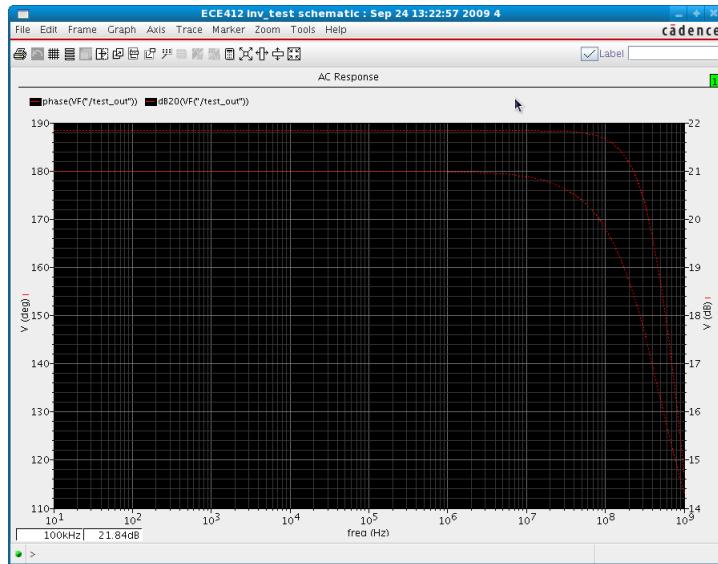


Figure 1: 20dB Magnitude and Phase

First, increase the size of the waveform line by righting on the waveform label e.g. `phase(VF("/test_out"))` then edit. The trace attribute window shown in figure 2 can be used to change the label of the waveform, color, style, and size. Change the Style to **Solid** and **Bold** then press OK. Repeat the same steps for the other waveform.

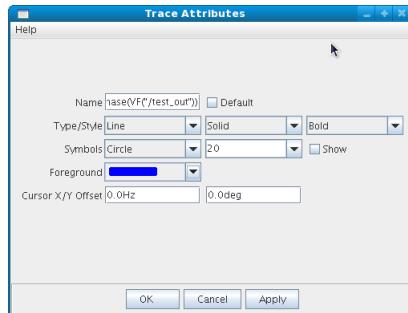


Figure 2: Waveform Trace Attribute

Second, go to **Graph⇒ Font** and select **Large**. Third, go to **File⇒ Print** Under “General” tab check the box “Print To File”. You can change the page setup if you like, for now we will leave it as is. Go to the “Appearance tab and Select Color under Color Appearance. Now press Print, a pop-up window appears type under “File Name” **print_out.eps**. It is important that you specific the extension of the file name to be EPS. Open the result file using your favorite viewer, the result should look like figure 3

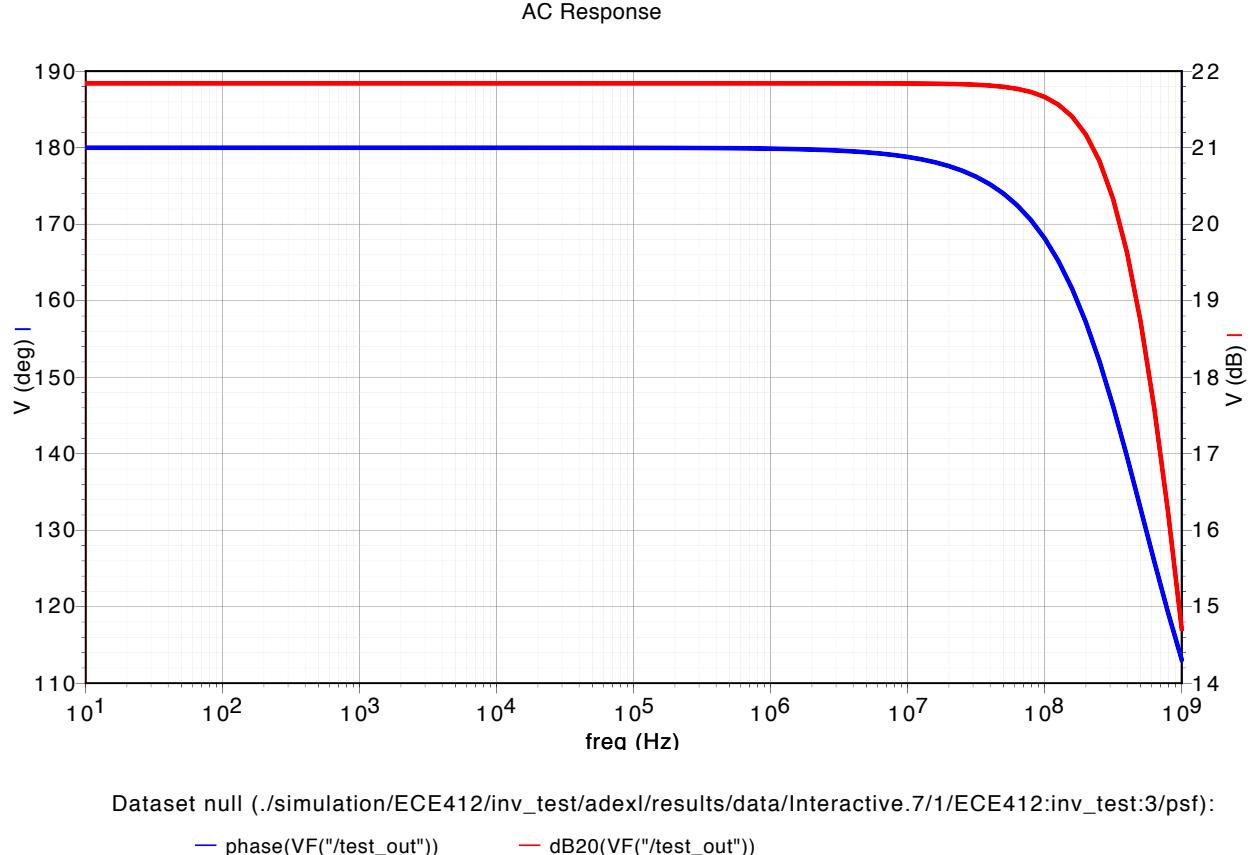


Figure 3: Vector Plot

You can also use any vector graphics editor to fix anything you do not like in the graph, try Inkscape.

3 Raster Graphics

The simplest way to save a waveform using Cadence ViVA is to go to **File**⇒ **Save as Image**. Use PNG for compression and change the background to white if needed. The result graph is shown in figure 4. Compare the output images in this section with the previous section. Try zooming in on both graphics. What do you notice?

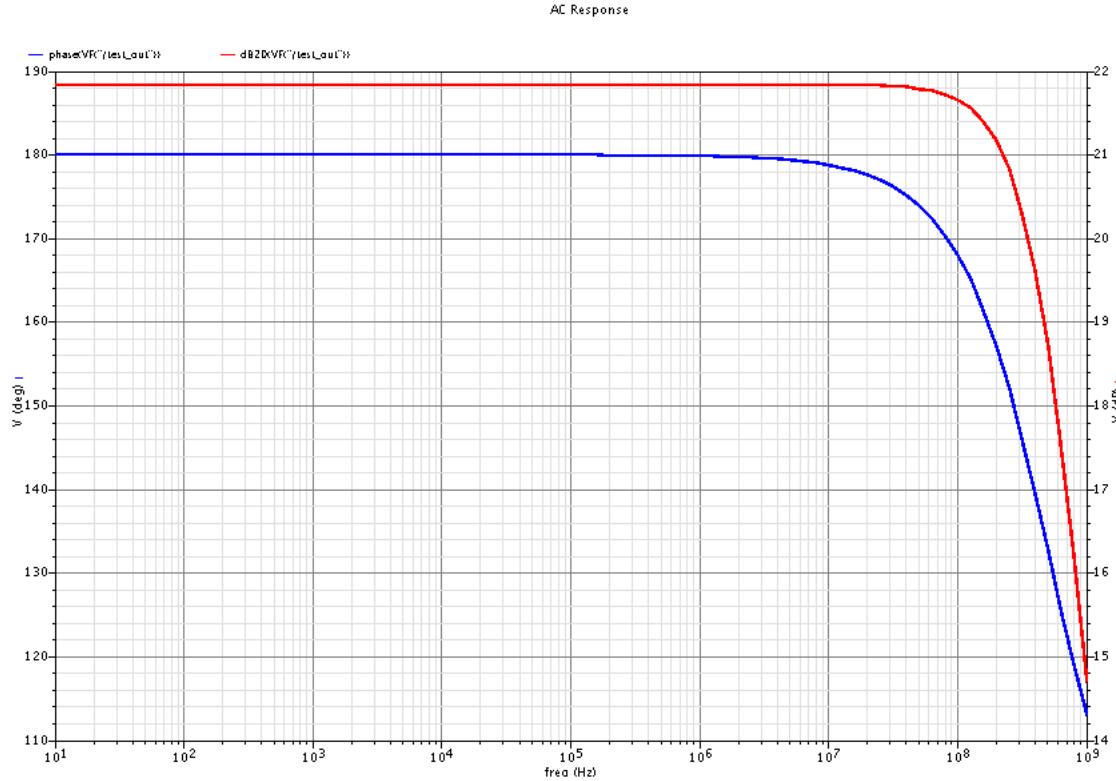


Figure 4: Raster Plot

The only problem with this method is the fact that the image is saved in raster format, thus, it cannot be enlarged for posters, will have poor zooming for PDF publications, and difficult authoring and editing. There are however some advantages of using PNG: like file size, and compatibility.

4 Tables

The last two methods rely on Cadence ViVA to do the plotting of a waveform. However, it is possible to export all data points to a table which can be later used in Matlab, Excel, or CSV. Click on the waveform you want to export to a table then go to **Tools**⇒ **Table Select Data**: Value then click OK then table Window should appear go to **File**⇒ **Save as CSV**. The output CSV file can be then imported to any analysis tool desired.