

Example 9: Another frequency response plot

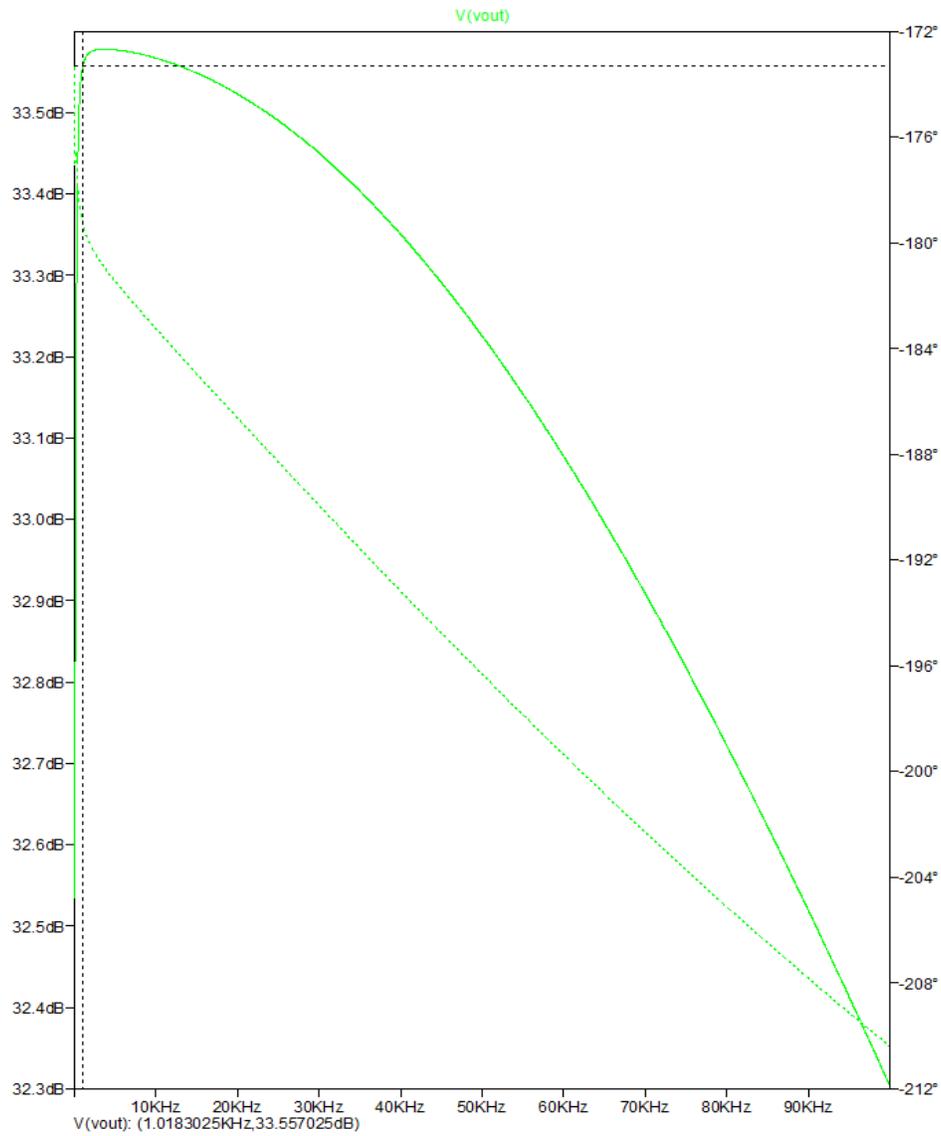


Figure 11. Class AB Amplifier at $1/10^{\text{th}}$ Power Studied Graphically - Midband Frequency.

This graph originally took up a whole page. The reason is that the student was trying to give enough resolution to the left edge near the axis, where a lot of the “interesting stuff” happens. (The original print was a bit small, but legible). The basic problem is that this is a case where a log scale should have been used for the horizontal axis.

Other problems include the lack of axis labels, absence of useful grid lines, some detritus of artifacts at the bottom, and the light green color of the graphs, which likely will not show up, or will be very faint, in monochrome. The labeling and axes seem more grey than black.

Example 10: Another Frequency Response plot

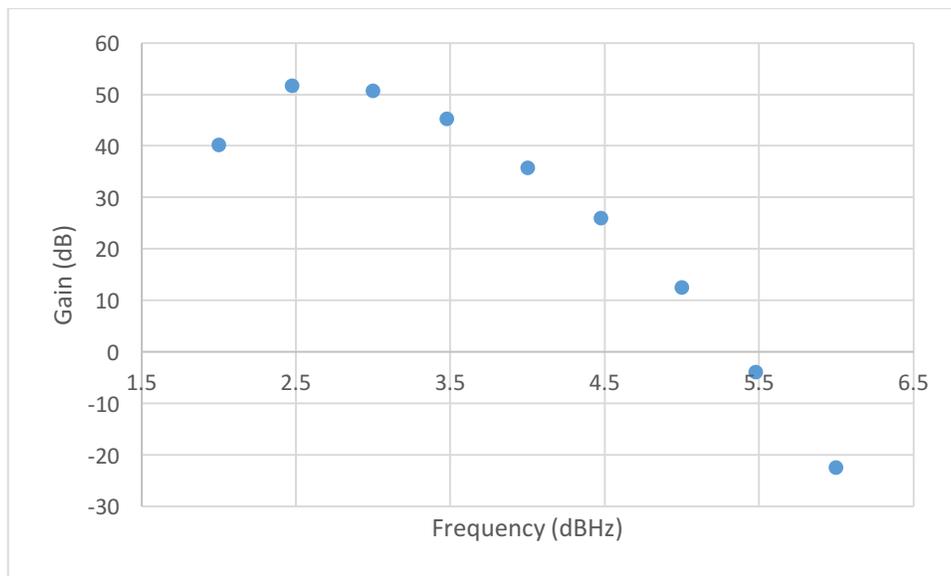


Figure 9: Frequency Response for the amplifier

This figure shares the problem of including a frame, and grey rather than black axes and labeling. The horizontal axis does not make sense. It is labeled as being in units of “dBHz”, whatever that is. It should be in units of frequency. It would seem that perhaps the label should have read “Logarithm of Frequency”. Using a log scale is much better.

Another problem is that the horizontal axis is not at the bottom. There are occasions, such as plots of sinusoids and some other waveforms, where an axis placed other than at the bottom is appropriate. Here, the writer has simply accepted the Excel default. The axis labeling needs to be moved to the bottom, in this case to “-30 dB”. There should be a compelling reason for placement other than at the bottom. For a sinusoid, the placement at zero helps define symmetry or a sense of what both the DC and AC components are. If unity gain was particularly important, such as in a feedback system, that might justify an axis at 0 dB (or better, a special annotation).

There is no good reason not to connect the dots to form a continuous graph. The reason for not doing so is if a more fully populated graph would show discontinuities, resonances, or other odd behavior. There’s no reason to believe that is the case here.