

Vertical Polar Nodes

The polar node display provides the vertical polar response at frequencies that the user is free to choose. The graph on the left is updated using the frequency scroller or by manually entering a frequency. However, the program has a fixed set of frequencies used for calculating the transfer functions used throughout it. Imported measurements are interpolated to these sample points. When a frequency is entered manually, the nearest sample point frequency will be located and the curve for that frequency will be displayed. The scrolling will resume from that point.

The user can manually copy the current curve from the left graph to the right “Save” graph. The latter will show any frequency curves added during the current program session unless reset. To add a new frequency curve to the right graph, click on the “Copy to Save Graph” button. Each new curve will be displayed in a different color up to the limit of the color rotation, then will restart the rotation.

The data is generated by clicking the “Vertical Directivity” button in the section “Off-Axis Plots” on the System tab page.

If the “Frequency” textbox at the bottom of the “Frequency Selection” container is green, the vertical off-axis data is up-to-date with the current design data. If the textbox is red, then something in the design has changed and the vertical directivity should be generated again, although you can still plot the current data. If changes are minor, you likely won’t see a change in the directivity. It’s there only as a warning to the user.

Pay particular attention to the origin (0, 0, 0) setting in the System tab. All vertical (and horizontal) off-axis data is relative to the origin, so selection of the origin will have an effect on the calculated off-axis results. The tweeter does not have to be set as the origin.

An important point is that the directivity data displayed is the same data that can be exported when the directivity is generated. The user has the option to export this data to a file which is in a format directly importable by the WinSurfacePlot program. Any individual frequency curve displayed in the Polar Nodes tab is essentially a slice of the surface plot, a single frequency point within the surface plot. The user thus has three ways to display vertical directivity. First is the 2-D graph immediately displayed after generating directivity data, the second is the Polar Nodes graph and the third is the surface plot.