Changing the Graph Appearance in the MSA

The appearance of graphs in the MSA can be customized by selection of general Appearances, or by setting trace colors and widths. This document describes how.

Appearances

The overall appearance of the MSA can be set by selecting from a list of preset Appearances, listed in the Sweep Parameters window under Graph Appearance, as shown below.
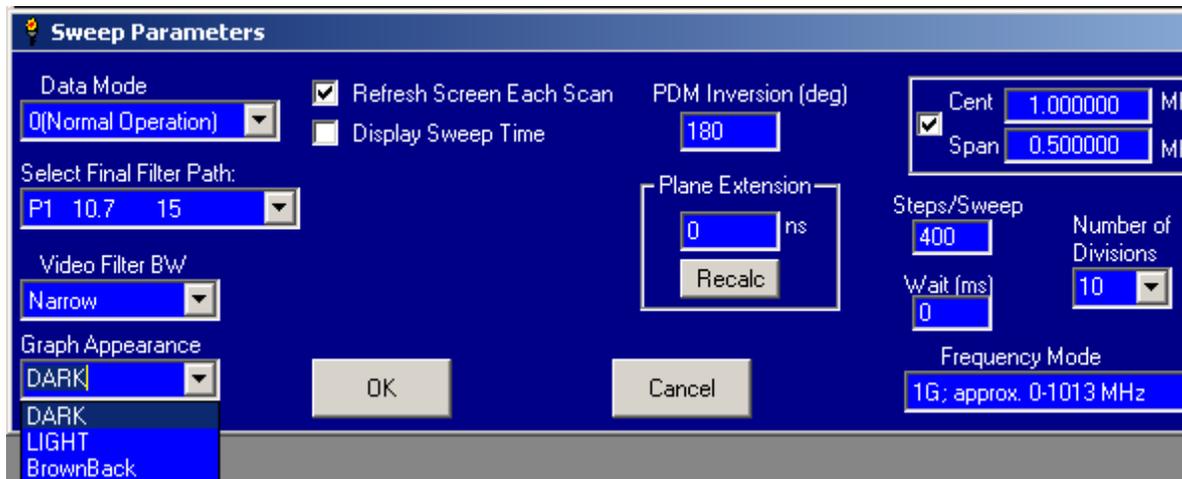

Figure 1—The Graph Appearance List
The left portion of the Sweep Parameters window is shown

The first two listed items, DARK and LIGHT, are built into the software. The third, BrownBack, was user defined, as described below.
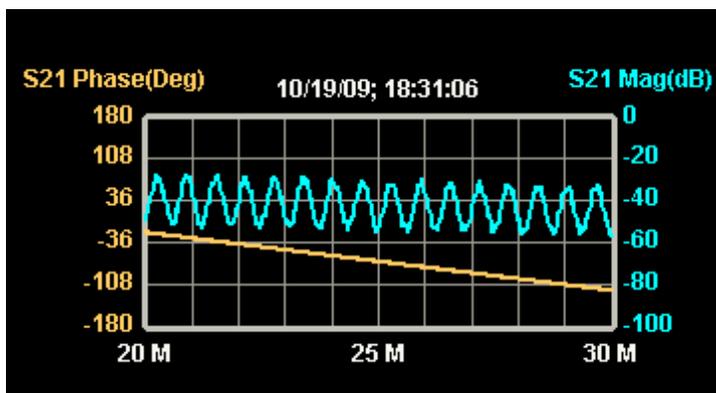

Figure 2—DARK
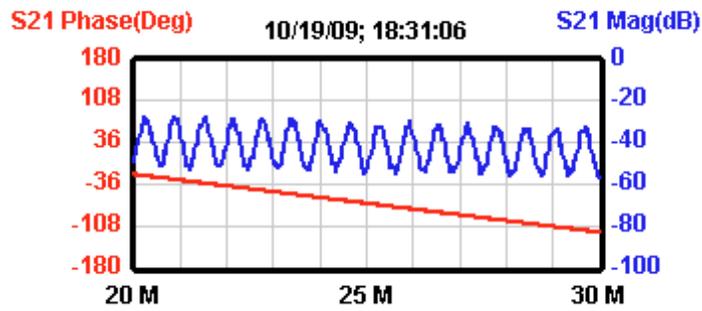Easy on the eyes on screen; uses a lot of ink to print

Figure 3—LIGHT
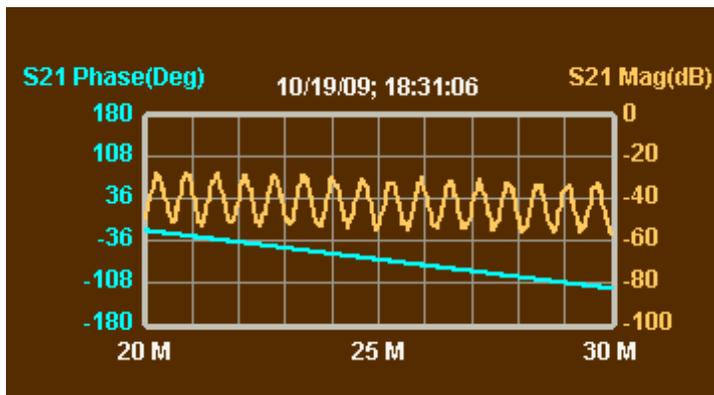Uses little ink; some prefer light background

Figure 4—BrownBack
The lower contrast with the background makes this better for jpegs.

The BrownBack Appearance was created by starting with DARK and modifying the background color. This is done through menu Options→Appearances, which brings up a dialog something like Figure 5.
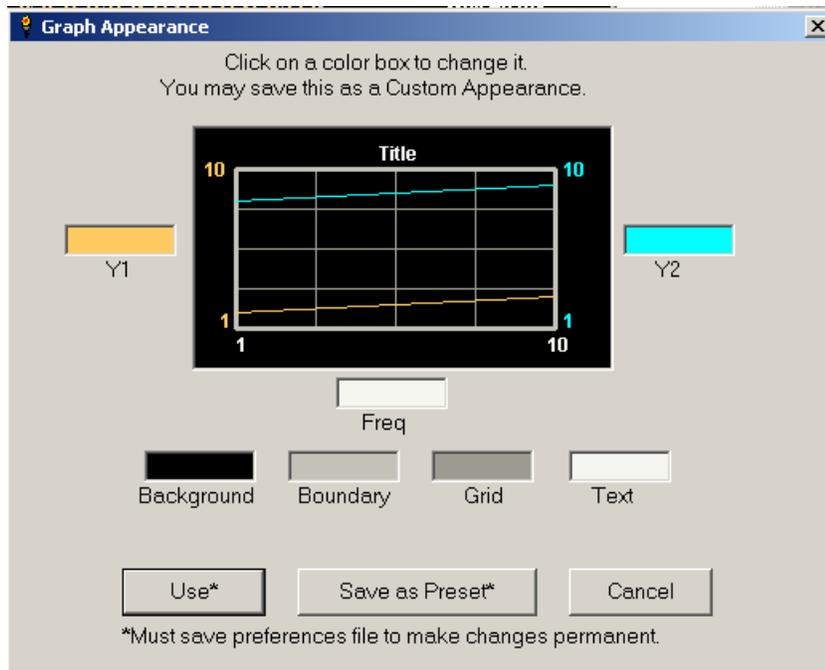
Figure 5—Dialog for customizing Appearances

The dialog in Figure 5 allows seven different colors to be specified; clicking on a color opens a Color Dialog to choose the desired color. The sample graph window will immediately display the new color. There are separate colors for the background, the grid boundary, the grid lines, and text (which includes markers). A color can be chosen for the labels on each axis; the traces will take the color of the labels of the matching axis.

When the color scheme has been customized, the new Appearance can be implemented at several levels. "Use" will immediately implement the colors, but if a new color scheme is later selected, the one just defined will vanish. Save As Preset will open a dialog that allows the user to save the new scheme as a preset Appearance, under a name chosen by the user. The BrownBack appearance in Figure 4 was saved this way. During the current session, the user can switch in and out of the newly saved preset, since the chosen name will appear in the Graph Appearance list of Figure 1. However, when the program quits, the new Appearance will vanish unless the user saves it as part of the Preferences file, under menu File→Save Prefs.

Trace Color and Width
There is another way to set the color of each Y axis and its trace, as well as the width of the trace. Figure 6 shows the Y-axis dialog that opens when the user double clicks just outside one of the Y-axes.
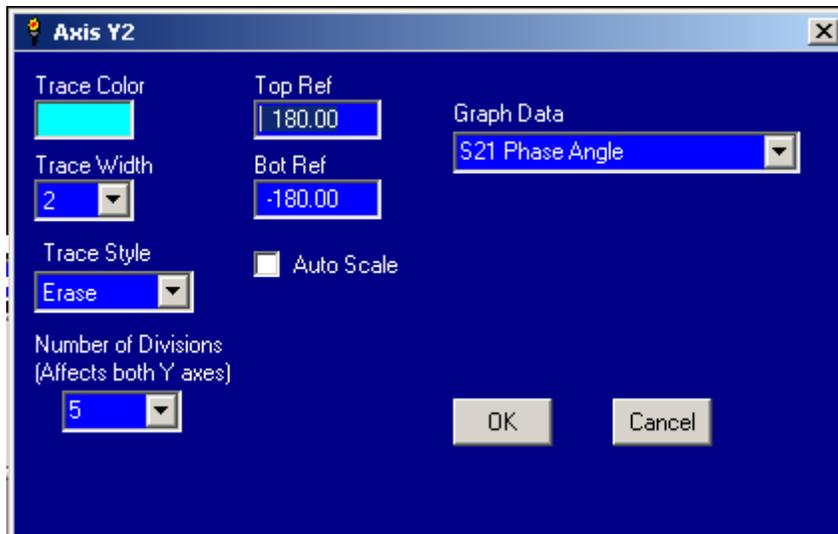
Figure 6—Dialog for Y-axis preferences

Figure 6 shows a Trace Color box and a Trace Width combobox that can be used to set the trace color (including the Y-axis label color) and width. The selected color will become effective when the dialog is closed, and will override the trace color of the current Appearance. If a new Appearance is selected, its color will override the one selected here. The trace width will also become effective when this dialog is closed, and there is nothing in the Appearances to override it, so if a new Appearance is selected, the trace width will remain as selected here.

If the user changes trace color or width, and saves the Preferences file, that color and width will be used when the Preferences file is reloaded, either by menu File→Load Prefs, or by startup of the MSA software.

The Smith Chart
The Smith chart, which is available in Reflection mode, will utilize colors from the main chart. It cannot be separately customized.

The Primary Axis
Anything that can be graphed in any mode in the MSA can be graphed on either axis. However, there is a "preferred" axis, designated the primary axis. Initially, the right axis, Y2, is the primary axis. Whenever the mode is changed, say from spectrum analyzer to Reflection mode, the graphs are set up to show some form of magnitude (dBm or dB) on one axis and phase, if applicable, on the other. Magnitude is always initially set up on the primary axis.

The primary axis can be changed through menu Setup→Primary Axis. This will also cause the current mode to be restarted, graphing magnitude and, if applicable, phase.

The primary axis interacts with Appearances in this way: The built in DARK and LIGHT Appearances define colors for the primary and secondary axes, as opposed to being for the Y1 and Y2 axes. Thus, changing the primary axis reverses the Y1 and Y2 colors. This is not true for user-defined traces. It is anticipated that each user will pick a primary axis and stick with it, depending on whether they prefer

to have magnitude default to the left or right. By the time the user defines custom colors, the primary axis should already be set.