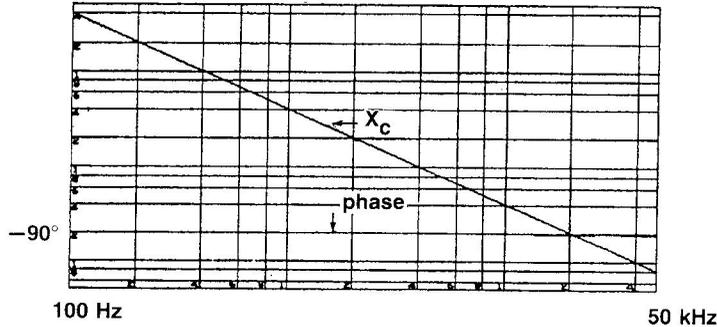


**FIGURE 2B:**

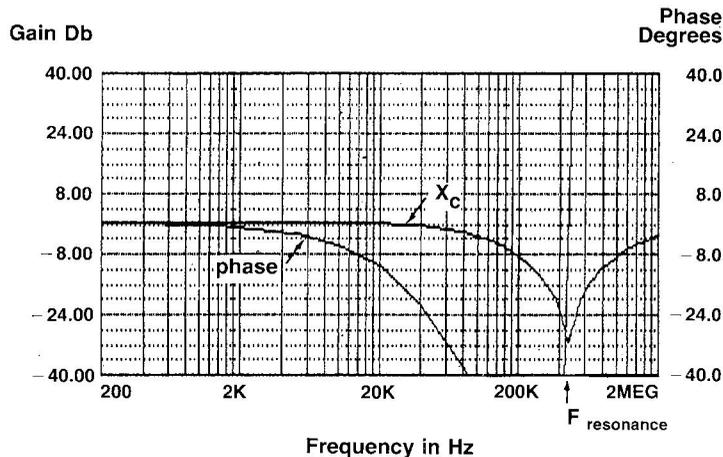
The 4.4 mfd/100v bi-polar electrolytic of Figure 2A with 12-inch lead lengths added.



**FIGURE 2C:**

A 4 mfd/100v film-and-foil MultiCap with 1-inch lead lengths.  $X_c$  appears usable over audio range (and beyond). Note that phase response is also perfect over the entire range. The result of extremely low ESR owing to the parallel design.

In Figure 3, computer modeling and curve-fitting to the measured data indicate how much better the phase response might be if the same capacitor had one-half the ESR. Notice that these curves display deviation from the ideal. The ideal in this case would be a horizontal line for both magnitude and phase. Increasing the inductance in series with the capacitor will reduce the frequency range at which the capacitor behaves as a capacitor. Increasing the ESR, on the other hand, will greatly alter the phase response of the capacitor without affecting the frequency of resonance.



**FIGURE 3A:**

Computer model of the bipolar electrolytic capacitor of Figure 2.