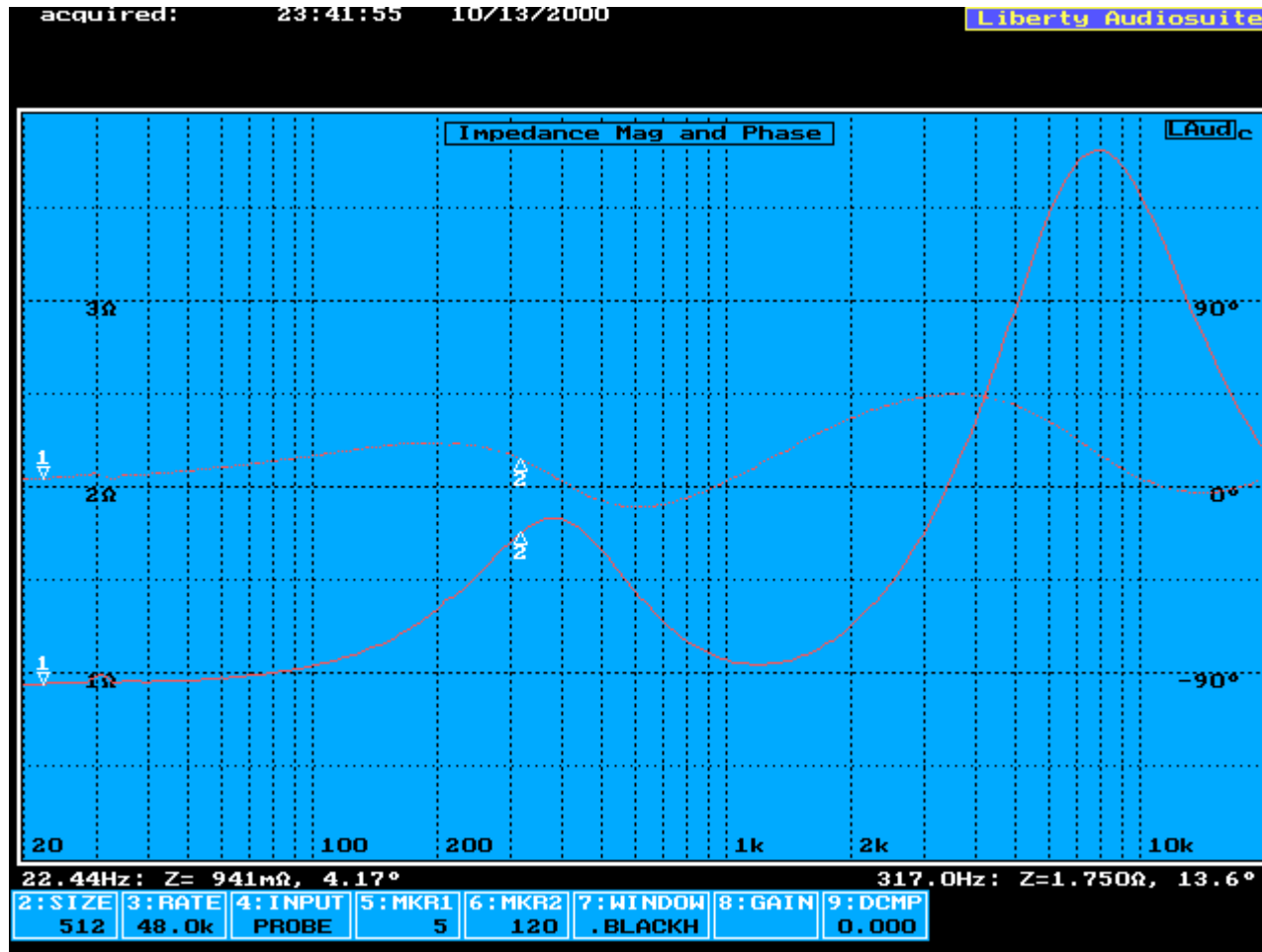
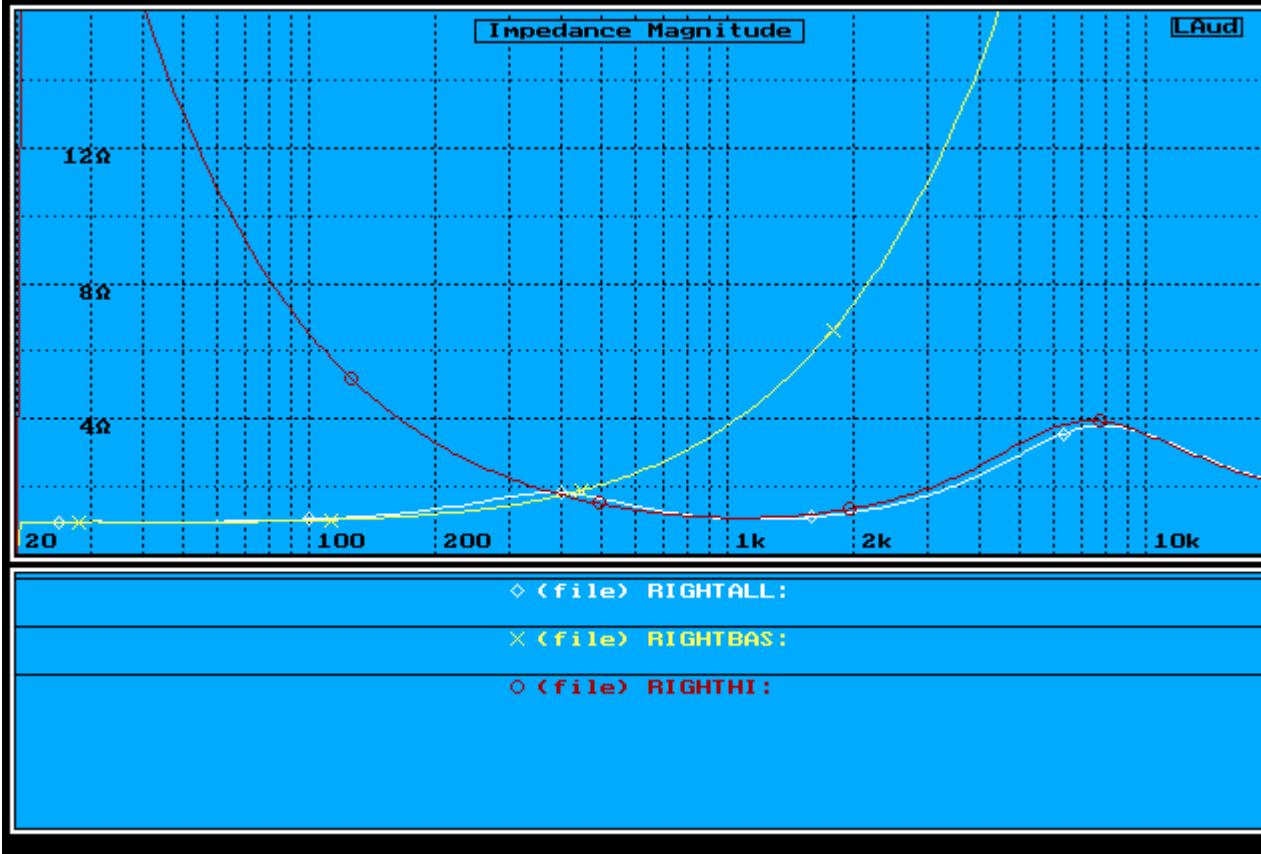


# Apogee Acoustics Scintilla Impedance Measurements

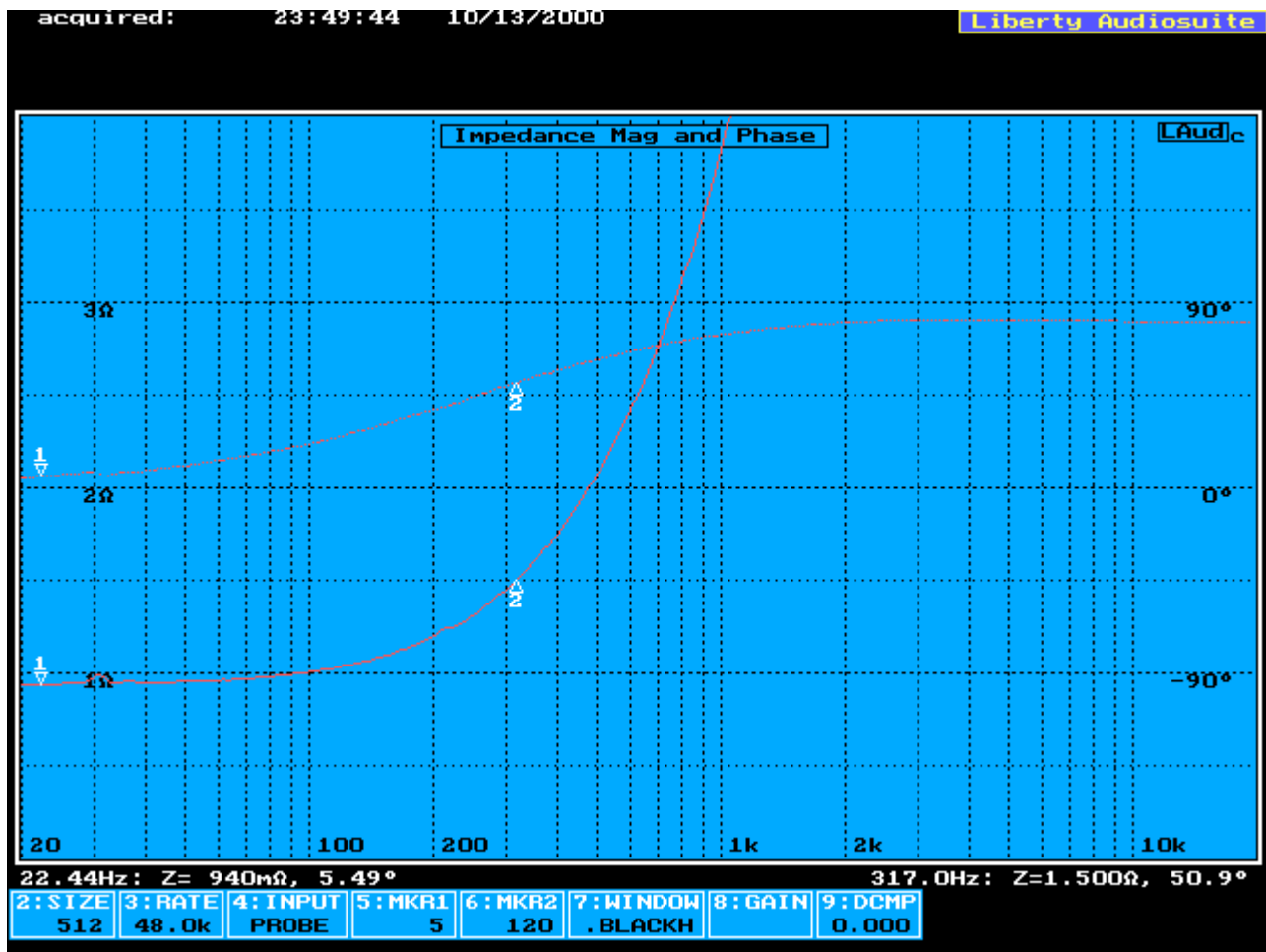
The measurement was performed with a 301 point sine wave sweep, voltage divider method (10.2 ohm). I tried a MLS measurement, but the low-frequency portion was not high enough resolution for my tastes.



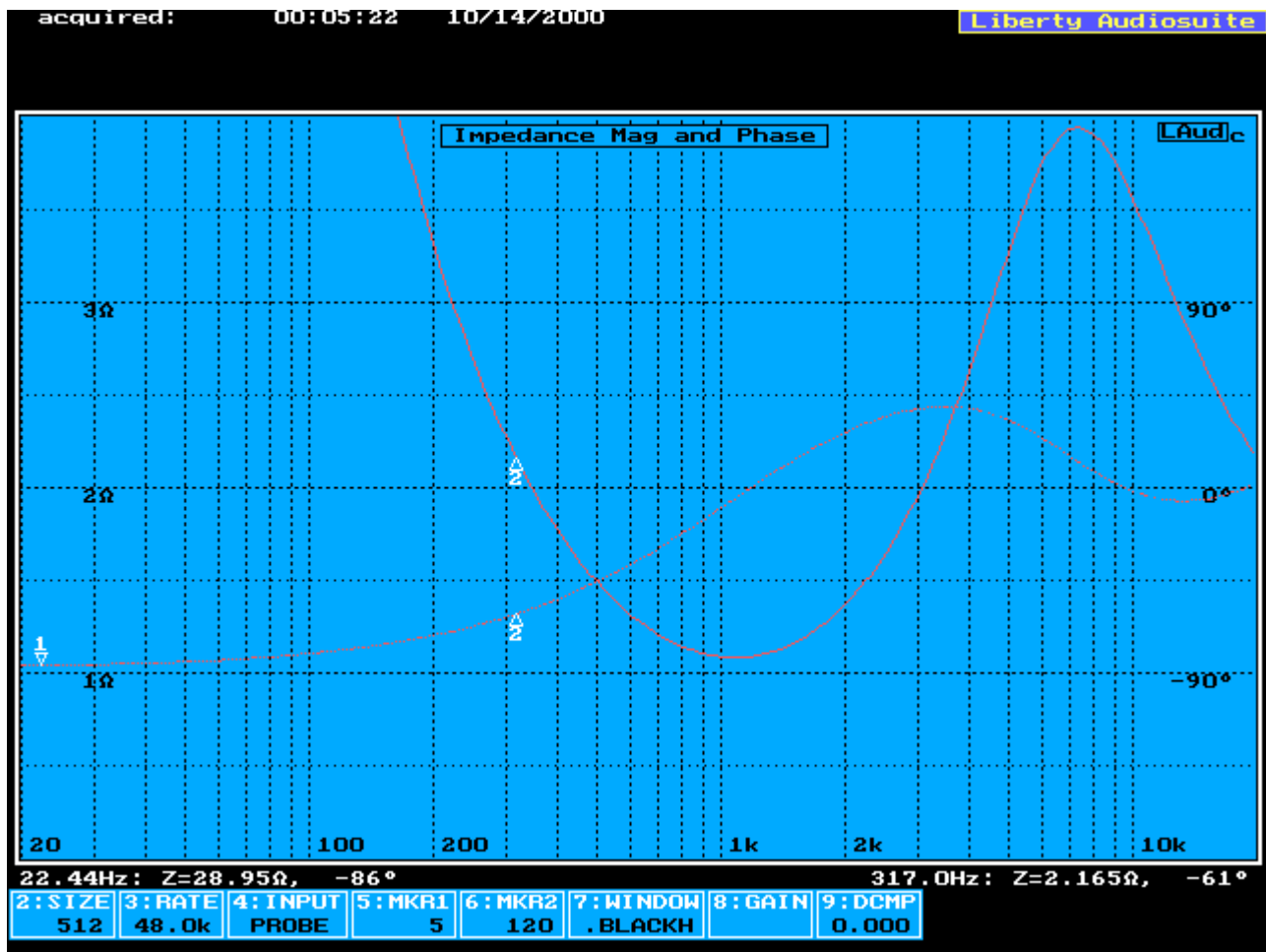
The minimum measured impedance is around 0.94 ohms at 20 Hz. My ohm meter measures 0.9. There is a little blip at 30 Hz (hard to see with the 1 ohm symbol in the way) which represents resonance.



This overlay shows that the first bump in the impedance at 400 Hz is due to the bass to mid-range electrical cross-over. Actually, it looks like the mid-range and tweeter are crossed over as a unit. The advertised frequency for the bass to mid-range x-over is 500 Hz, but chances are that is the acoustic (combination of driver and electrical) crossover point. The peak of almost 4 ohms at 7.5 kHz might be the mid-range to tweeter electrical crossover. This decision is complicated by the probability that there is an anti-resonance filter somewhere around 10 kHz.



The phase and magnitude of the bass driver and crossover by themselves. The 90 degree phase shift demonstrates the crossover is first order at 250 Hz (the 45 degree point).



The mid-range plus tweeter plus crossover impedance is harder to interpret. The electrical crossover point looks like it is at 500 Hz, and the mid-range driver impedance is 1.0 ohms. The crossover is likely first order to the whole, with that split to the mid-range and tweeter with first order crossovers. Sort of a cascade of a hi-pass into a low/hi-pass section.