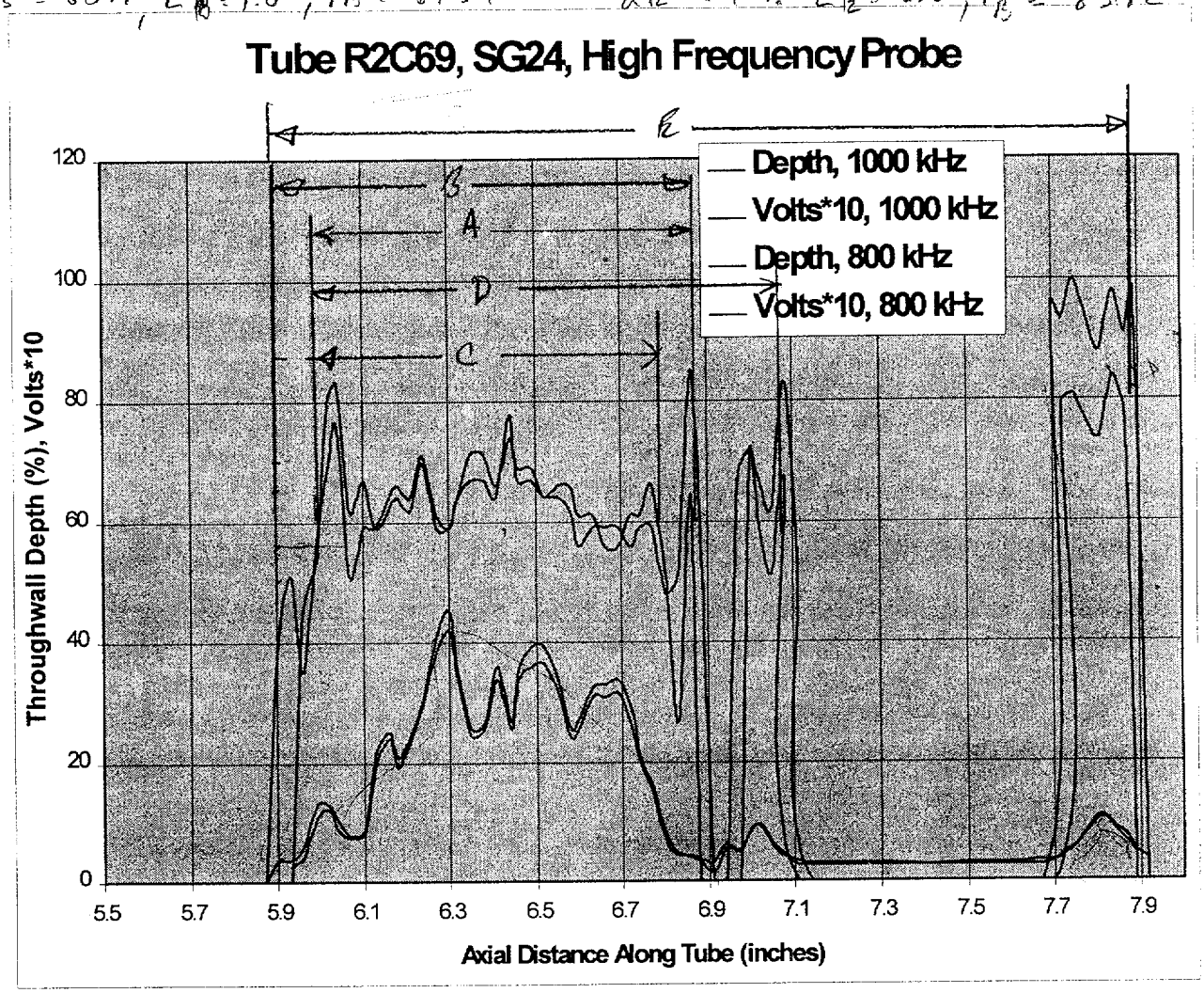


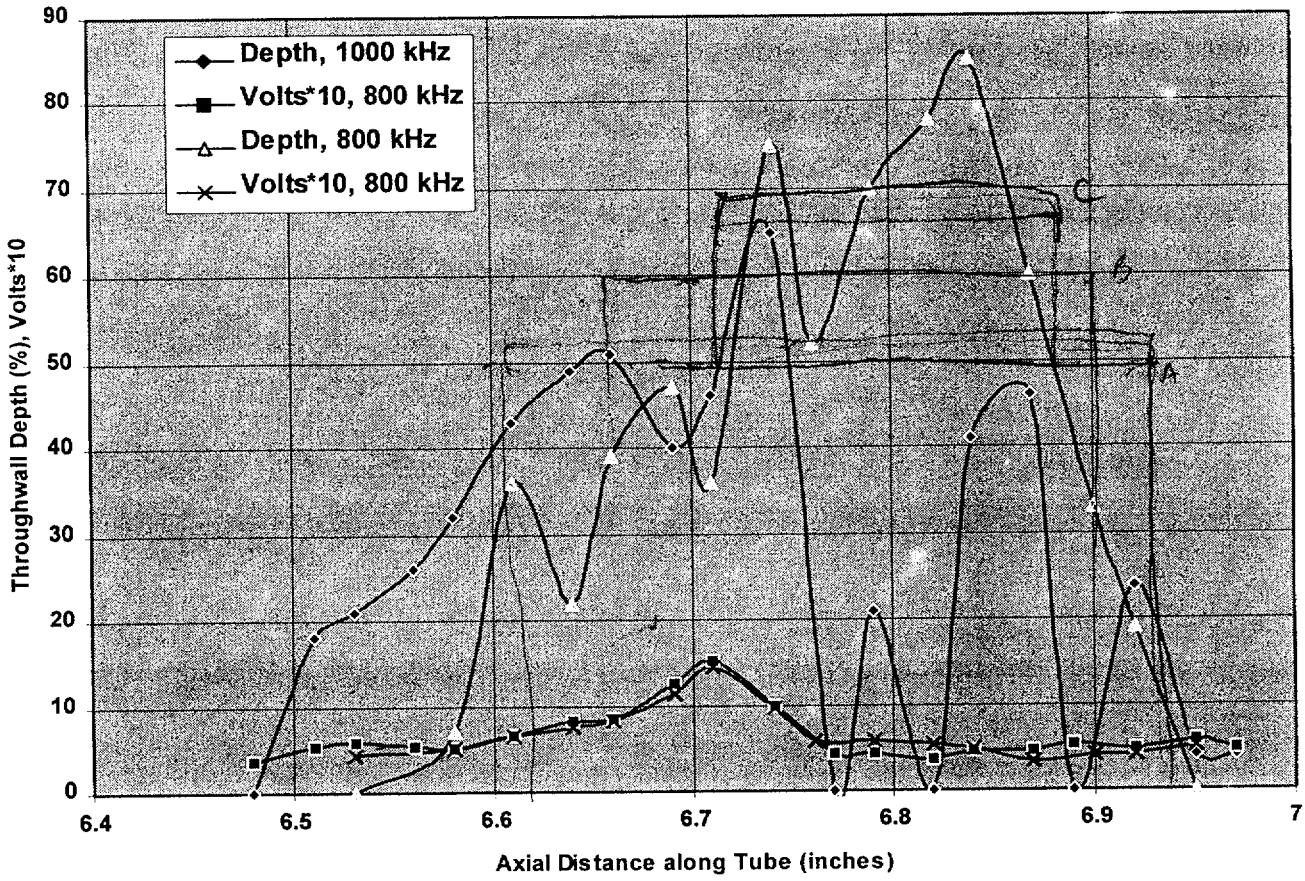
Figure 1 Profile of the defect in tube R2 C69 of steam generator 24 as measured with the high-frequency plus-point at 1000 kHz and 800 kHz.

However, this tube had very little noise even with the old mid-range plus-point probe. The indication located at about 7.8-inches has a maximum value slightly greater than a volt, and the agreement between the two frequencies is not as god in this region.

For indications on the tube id, the voltage increases as frequency increases. The opposite effect is observed for indications on the tube od. Also, for od indications, the phase rotates clockwise as the frequency decreases. For id defects, with the calibration used above, the phase stays constant with frequency. This tube leaked at 5173 psig in the utility test.

In Figure 2 we show the profile of tube R2C71 of steam generator 24. This tube had a small leakage at 2841 psig. The pressure could not be increased past 4500 psig due to the lack of capacity of the pump. Note that this tube was missed in the earlier inspection with the mid-range probe. The depth profiles at 1000 kHz and 800 kHz do not match each other as well, which is due mostly to the low voltages that are present. This tube has about the same depth measurements as tube R2 C69 in Figure 1, but the voltage values are only about half as large. Note the depth measurements do not agree well where the magnitude of the voltage is low.

Tube R2C74, SG24, High Frequency Probe

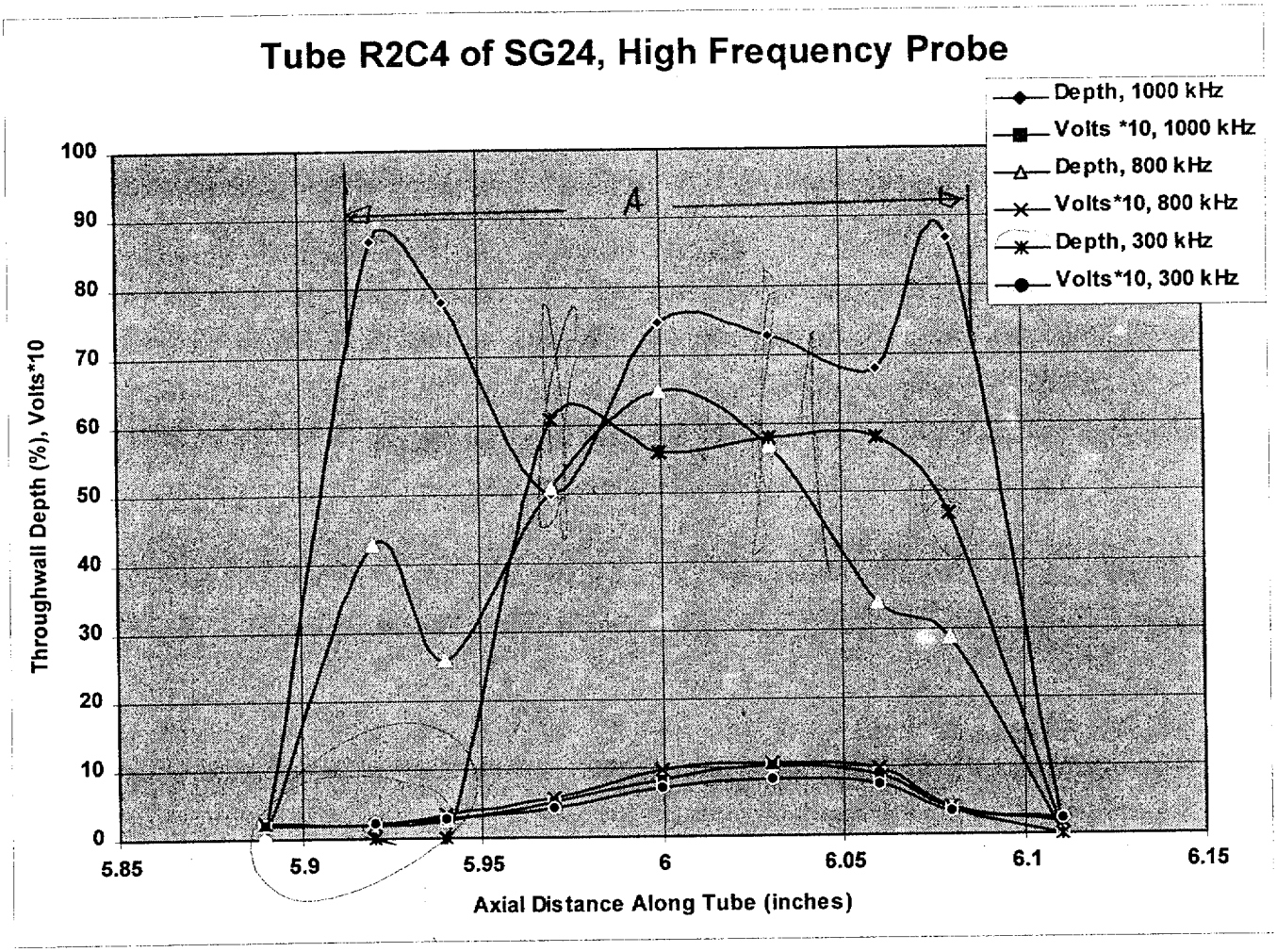


$L_{TOT} = .42 - .45$

$L_A = .35$, $d_A = 52\%$, $P_A = 7597$

$L_B = .24$, $d_B = 60\%$, $P_B = 8058$

$L_C = .16$, $d_C = 70\%$, $P_C = 9495$

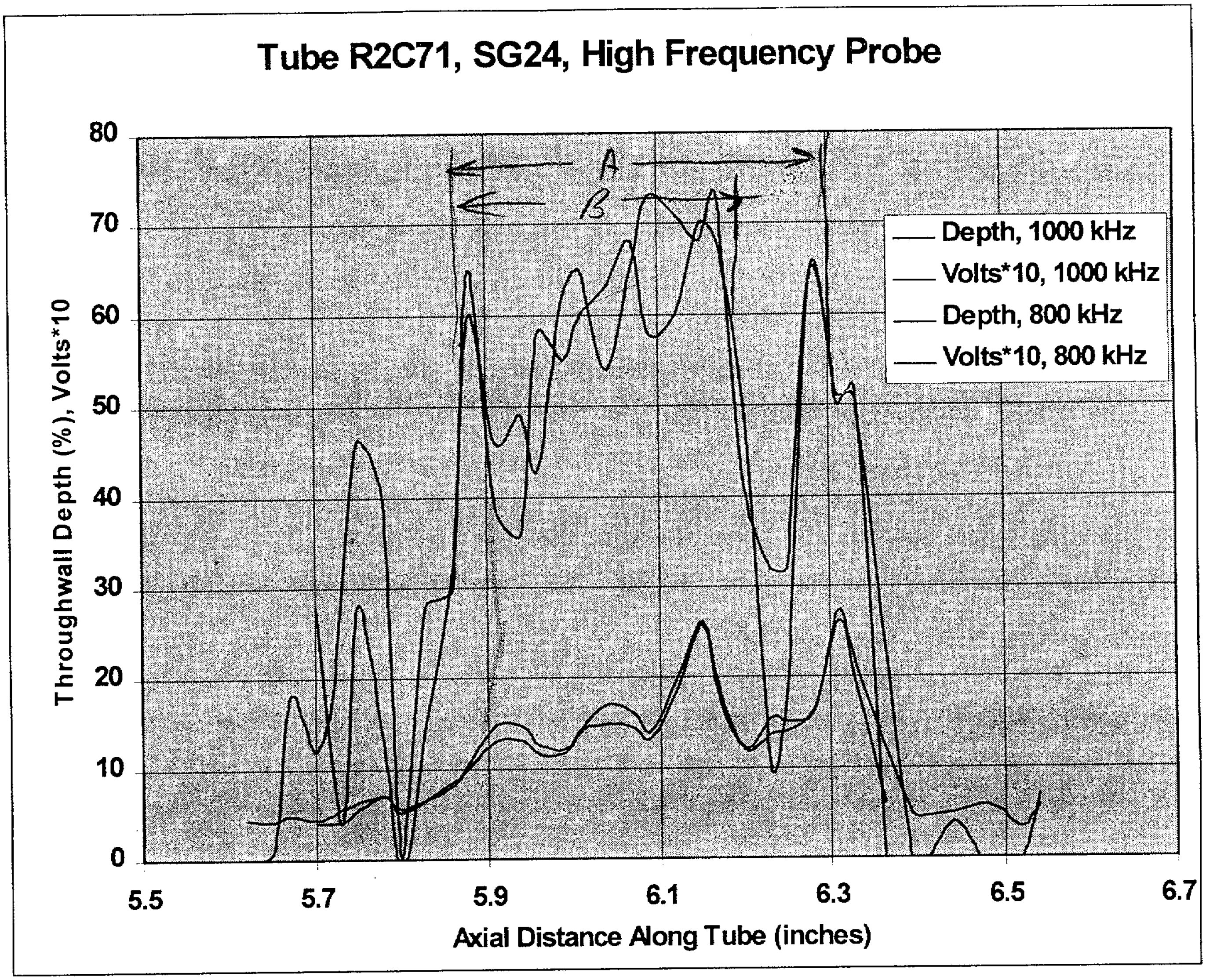


Marginally detectable
i.e. low POD for this
type of flaw

$L_{TOT} = .23"$

Noise level?

Missed with mid-range probe



Need 99% TW over all length to explain leakage at 1741 psi

Need 95% TW for over .3" leakage at 2500

What was the noise level

$L_A = .43$, $d_A = 55\%$, $P_A = 7059$ psi, no leakage at 4500 psi

$L_B = .3$, $d_B = 60\%$, $P_B = 7121$ psi, no leakage

$L_C = .25$, d_C 65, $P_C = 7892$ psi, no leak

$L_d = .10$, $d_d = 70$, $P_d = 10567$, no leak