

Name: _____

Date: _____

Partner: _____

Ultrasonic Interference and Diffraction

Your nicely formatted Excel worksheet should be placed in my inbox on \\files (\\files\Inbox\Physics\Pogo\OpticsLab; only one Excel document per group; it should be titled “Ultrasonic-Smith&Jones.xls”), assuming that you and your partner are named Smith and Jones, respectively. Please save as .xls format (NOT .xlsx format).

<i>Part I: As repeated in week 2</i>		
	<i>Value</i>	<i>Uncertainty</i>
frequency (kHz)		
slope of position vs. # of wavelengths graph (cm)		
measured speed of sound (m/s)		
theoretical speed of sound (m/s)		
<i>Part II: Single source diffraction</i>		
L (dist from source to bench, cm)		
a from fit (cm)		
Directly measured a (cm)		
<i>Part 3: Two source interference/diffraction</i>		
L (dist from sources to bench, cm)		
a from fit (cm)		
d from fit (cm)		
x_{0a} (cm)		
x_{0d} (cm)		
<i>Amplitude</i> (V^2)		
$I_{\text{background}}$ (V^2)		

In space below, comment on your results. How does your measured speed of sound agree with the theoretical value? For the double “slit”, how do your values of a and d compare with their directly measured values? Do you expect agreement here? Does your value of a agree with your value from the single source?