

Abstract Submitted
for the SES14 Meeting of
The American Physical Society

Proposal for a More Efficient Acoustic Array Design to Calculate Flow Rate Through a Cylindrical Conduit¹ KATHRYN HAM, QUINTORIOUS BIVINS, ARTHUR SHUE, Georgia College & State Univ — A new design is proposed for the existing acoustic array, a device used to measure the flow rate through a cylindrical conduit via a series of transducers. The original acoustic array consists of a 2.000 inch diameter steel pipe with 128 transducers located along the top, spaced 2.000 inches apart along the length of the pipe. The total length of the original acoustic array in this configuration is over 21 feet long (254 inches). The analog acoustic information obtained from the array is sent through an amplifier, an analog digital converter, and then to a computer to be analyzed in order to determine rate of flow. The new design proposes a 3.000 inch diameter steel pipe with 128 transducers located along the equatorial axis of the pipe, spaced 0.287 inches apart. This new design leads to a more manageable apparatus, as the pipe length needed will be decreased from over 21 feet to less than 3.5 feet in length.

¹Under the Advisement of Dr. Ken McGill

Kathryn Ham
Georgia College & State Univ

Date submitted: 03 Oct 2014

Electronic form version 1.4