Abstract Submitted
for the 4CF14 Meeting of
The American Physical Society

A new method of estimating acoustic intensity applied to the sound field near a military jet aircraft TREVOR STOUT, KENT GEE, TRACIANNE NEILSEN, DEREK THOMAS, BENJAMIN CHRISTENSEN, Brigham Young University, MICHAEL JAMES, Blue Ridge Research and Consulting — Intensity probes are traditionally made up of closely-spaced microphones, with the finite-difference method used to approximate acoustic intensity. This approximation is not reliable approaching the Nyquist frequency limit determined by microphone spacing. However, the new phase and amplitude estimation (PAGE) method allows for accurate intensity approximation far above this limit. The PAGE method is applied to measurements from a three-dimensional intensity probe which took data to the sideline and aft of a tethered F-22A Raptor. It is shown that the PAGE method produces physically meaningful intensity approximations for frequencies up to about 6 kHz, while the finite-difference method is only reliable up to about 2 kHz. [Work supported by ONR].

Trevor Stout
Brigham Young University

Date submitted: 02 Sep 2014 Electronic form version 1.4