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Downstream Evolution of the Near Field Pressure Sources in a High Speed Jet¹ JOSEPH HALL, JEREMY PINIER, ANDRE HALL, MARK GLAUSER, SYRACUSE UNIVERSITY COLLABORATION — To better explore the noise producing features of a high speed jet, measurements of the near field pressure around the periphery of a Mach 0.85 jet are combined with simultaneous measurements of the far-field acoustic pressure to quantify the azimuthal nature of the acoustic pressure sources in jet. Results indicate that the near field pressure is low dimensional and dominated by both azimuthal modes 0 and 1. Only azimuthal mode 0, however, is well correlated with the acoustic far field suggesting that, from a time-averaged perspective, the most efficient near field pressure source is axisymmetric. Using a streamwise microphone array in conjunction with azimuthal filtering, the streamwise evolution of the axisymmetric pressure source is examined, including the convection speed and streamwise growth and decay of the sources in the jet.

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