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Three-Component Turbulence Measurement in Three Dimensional Wall jet[1] LHENDUP NAMGYAL, JOSEPH HALL, University of New Brunswick — The lateral width of the turbulent 3-D wall jet is 5 to 8 times larger than the vertical height and is due to strong secondary flows. This makes the wall jet very difficult to model. The source of this streamwise vorticity is as yet unclear, although it has been linked to the anisotropy in the Reynolds stresses. The goal of this investigation is to simultaneously measure all three turbulent velocity components on and off the jet centerlines, so the sources of the streamwise vorticity can be determined. Here, the flow issues from a contoured nozzle with a diameter of 1.5 inches and a jet exit Reynolds number of around 2.5 X105. The three velocity components are measured with a four-wire-hot-wire probe in the far-field region.

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