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Characterization of a Three-Dimensional Turret Wake for Active Flow Control Part II: Experimental Study PATRICK SHEA, CHRISTOPHER RUSCHER, RYAN WALLACE, MARK GLAUSER, JOHN DANNENHOFER, III, Syracuse University — Experimental measurements have been performed to characterize the wake of a three-dimensional, non-conformal turret. Experiments were performed in a low-speed wind tunnel at Syracuse University using particle image velocimetry, hotwire anemometry and dynamic and static pressure measurements. The objective of the study was to characterize the spatial and temporal nature of the wake region as well as to investigate the importance of the incoming flow field. Computational studies have been performed in conjunction with this work to help guide the experimental study and offer insight into the complex three-dimensional flow field. With a better understanding of the wake and three-dimensional characteristics of the turret flow field, closed-loop, active flow control systems will be developed to help reduce fluctuating loading and aero-optical distortions associated with the turbulent flow field.

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