

Abstract Submitted  
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**A Large Scale Wind Tunnel for the Study of High Reynolds Number Turbulent Boundary Layer Physics**<sup>1</sup> PATHTHAGE PRIYADARSHANA, JOSEPH KLEWICKI, MARTIN WOSNIK, University of New Hampshire, CHRIS WHITE — Progress and the basic features of the University of New Hampshire's very large multi-disciplinary wind tunnel are reported. The refinement of the overall design has been greatly aided through consultations with an external advisory group. The facility test section is 73 *m* long, 6 *m* wide, and 2.5 *m* nominally high, and the maximum free stream velocity is 30 m/s. A very large tunnel with relatively low velocities makes the small scale turbulent motions resolvable by existing measurement systems. The maximum Reynolds number is estimated at  $\delta^+ = \delta u_\tau / \nu \simeq 50000$ , where  $\delta$  is the boundary layer thickness and  $u_\tau$  is the friction velocity. The effects of scale separation on the generation of the Reynolds stress gradient appearing in the mean momentum equation are briefly discussed to justify the need to attain  $\delta^+$  in excess of about 40000. Lastly, plans for future utilization of the facility as a community-wide resource are outlined. This project is supported through the NSF-EPSCoR RII Program, grant number EPS0701730.

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