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PIV Seeding Techniques in Large Scale Open Loop Wind Tunnel Facilities RYAN SCHMIT, Air Force Research Laboratory, JIM CRAFTON, JORDI ESTEVADEORDAL, Innovative Scientific Solution Inc. — Seeding techniques to validate the use of Particle Image Velocimetry (PIV) in large scale wind tunnel facilities was performed at the Subsonic Aerodynamic Research Laboratory (SARL) facility at Wright-Patterson Air Force Base. The SARL facility is an open loop tunnel with a 7 by 10 foot octagonal test section that has 56% optical access and the Mach number varies from 0.2 to 0.5. Two seeding techniques were tested at Mach 0.2 and 0.3: a Rosco fogger line seeder system originally designed for flow visualization in the tunnel and a fluidized bed of aluminum oxide dispensing from a multi-port rod. Two and 3 component PIV images were taken in the streamwise plane over a semi hemispherical geometry that includes a shear layer and a 3D backward facing step. The results show the Rosco line seeder does produce excellent flow visualization images whereas the aluminum oxide seeder produces better seed dispersion resulting in excellent PIV images.

Prefer Oral Session
 Prefer Poster Session

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