



Facility Factsheet

Subsonic Aerodynamic Research Laboratory (SARL)

Description: The SARL is a unique high contraction, open circuit subsonic wind tunnel providing a test velocity up to 436 mph (0.5 Mach number) and a high quality, low turbulent tunnel flow suitable for aircraft design, system integration, flow visualization and computational fluid dynamic (CFD) validation studies. The test section is 10 feet high by 7 feet wide by 15 feet long with flat cut-outs in the corners to give it an octagonal-shaped cross-section for superior test section flow characteristics and a size big enough to test large scale models. Despite its large size, the SARL is operated by only two people providing AFRL with an efficient, low-cost aerodynamic test capability that is competitive with any other research facility in the U.S.

Capabilities:

Test Conditions:

Mach Number: 0.2 – 0.5
Dynamic Pressure up to 450 psf
Atmospheric Temperature and Pressure

Test Capabilities:

Sting or pedestal mounting, internal balances
Angle-of-Attack Range ($-5^\circ < \alpha < 45^\circ$)
Roll Capability ($\pm 185^\circ$)
Secondary Air / Vacuum System
TestSlate Data Acquisition System

Flow Diagnostics :

Pressure Sensitive Paint, Oil Flows, Laser Light Sheet, Particle Imaging Velocimetry (PIV)



Examples of Current/Past Programs: Configuration and Component Research, Airframe / Propulsion & Weapons Integration, Test Technique Development

Cost/Scheduling Information: To be determined on case by case basis.

Contacts: Primarily in-house and related DoD contractor research. Other U.S. Government agency, DoD contractor and commercial customer programs upon request. Contact: 937-713-6678

