



Identification of the installation/facility:

Country France
City Modane
Name of the facility S1MA
Date of construction or of acquisition or of main refurbishment ~1950
Owner Onera/French MOD
Contact point : jean-pierre.foucault@onera.fr / stephen.wolf@onera.fr
Internet site <http://windtunnel.onera.fr>

Technical characteristics:

1 - Type of infrastructure : Wind tunnel

2 - Main technical characteristics

Mach number : 0.05 to 1.0 (continuous) ; several exchangeable test sections with area ranging from 38.5 to 47 m² : Reynolds number /m = 10 Million at M = 1.0 ; maximum power = 88 MW ; atmospheric pressure ; suitable for full and half model testing (typical full model span is 3.5 to 4.5 m) ; one test section suitable for acoustic measurement (low and high speed) ; pressurized air capabilities for TPS or air turbines (propeller testing) ; facility suitable for civil and military project, captive trajectory system available, helicopter rotor testing, propellers (isolated or installed configuration), full scale missiles, air intakes, nacelle/pylon/wing interference assessment, hybrid laminarity, facility designed for high testing productivity.....

3 - Research domains which can be addressed (refer to ACARE taxonomy <http://www.acare4europe.com/docs/ASD-Annex-final-211004-out-asd.pdf>): aircraft design, aircraft optimization, aerodynamic research

4 - Main (or specific) associated measurement techniques : steady and unsteady measurements, 6 component aerodynamic loads (balances), hinge moments, Model Deformation Measurement (MDM), Pressure sensitive paint (PSP), Infra-red, wall and sting interference effects, automated models, real time data processing, highly complex models, acoustic measurements.....

5 - Operational status - Fully operational, has been extensively used over the last decade for A400M, A380, A350 and other programs.

Financial elements:

Replacement cost (MEuros): More than 100



6 - Pictures:



S1MA Fans



S1MA Test section



AirTN
Air Transport Net



Practices concerning:

Access policy (contract, voucher, free access for research, etc...) : contractual relationships with customers based on a quotation of a test matrix

Support (regional, national, European, private, ...) : self-sustaining facility for operation purposes. Investments and upgrades partially funded by European, national and local supports.

Origin of information ('signature'): author and date: Patrick Wagner, Director Wind Tunnel Division at ONERA – March 2011