Mech Aero-2013
OMICS Group Conferences
Accelerating Scientific Discovery
International Conference and Exhibition on
Mechanical & Aerospace Engineering
September 30- October 2, 2013 San Antonio, Texas, USA

Measuring aerodynamic characteristics using high performance low speed wind tunnel

Alias Mohd Noor

UniversitiTeknologi Malaysia

.

Abstract

The This paper describes the capability and activities on utilising a low speed wind tunnel facility at UniversitiTeknologi Malaysia (UTM -LST) since its first operation in year 2001 till 2012. The laboratory is setup to meet the educational, research and industrial needs of Malaysia's developing aero industry. The wind tunnel has high flow quality and can deliver speed up to 288 km/hr. UTM-LST has experiences on a wide range of testing such as aircraft, automotive, civil structure and building, ship and offshore structure. The wind tunnel is primarily equipped with flow visualisation facility including particle image velocimetry (PIV), pressure measurement, force measurements and constant temperature anemometer (CTA). Most of the primary aerodynamic parameters can be measured in this facility such as measurement of aerodynamic lift and drag, static stability and control derivatives of aircraft. Measurement of automotive drag, down force and crosswind stability, and measurement of wind loads on civil structures. Correlation between wind tunnel measurements and numerical simulation using computational fluid dynamics (CFD) are becoming more demanding especially related to unsteady aerodynamics. Currently, research related to unsteady aerodynamics such as helicopter rotor wakes, automotive wake turbulence and oscillating aerofoil are more demanding and requires upgrading to the current facility.

.

Biography

He has completed his Ph.D. in Mechanical engineering in the year 1990 from University of Bath, England, United and M.Sc also in Mechanical engineering from University of Strathclyde, Scotland.