



CFD Evaluation of Enclosed Track Testing for Vehicle Aerodynamics

Dr Rob Lewis

TotalSim Ltd, Top Station Road, Brackley, Northamptonshire, NN13 7UG, UK
Rob@totalsim.co.uk

Aerodynamics & CFD Consultancy

- *To determine the aerodynamic performance of a vehicle there are typically several tools available. Traditionally, physical testing through the use of an instrumented vehicle on a track, or the use of a wind tunnel were most common. In the last couple of decades the reduced costs and timescales associated with computational modelling have also made CFD a viable approach.*
- *Over the last seven years TotalSim have been the driving force behind a new UK-based aerodynamic testing facility based on an alternative concept. A disused 2.7km railway tunnel will be re-purposed into a carefully controlled environment for straight-line testing with the aim of getting more repeatable data than is generally possible from a track test. Funding for the tunnel has been secured and testing can hopefully begin in 2021.*
- *This presentation examines the relative strengths and weaknesses of the different aerodynamic testing tools based on TotalSim's experience together with a couple of case studies showing how OpenFOAM is being used to inform the design of the facility interior.*