

Windtunnel testing: external flow correlated to a perceiving position

The main issue in aerodynamic noise in wind tunnel is to find the way to measure the property of the external flow (velocity, pressure) and also correlate it with the passenger perceiving using the transmission path and some interior noise measurements techniques. When turbulent airflow is generated outside from the vehicle two types of measurement technology are available: one studying the aerodynamic noise (noise flow visualization, external noise distribution) and the other evaluating the aeroacoustic noise (in the prospective of the passenger in the vehicle).

The microflown sensor is the only sensor that can measure directly the particle velocity in 3D out from the car and inside the car. So the complete solution in term of exterior noise, path and interior noise is now available.

A test in wind tunnel Volvo was made up to 200km/h wind speed measuring the vector velocity distribution out from the car.

Also the interior noise is measured using techniques like the PNCA or the acoustic camera for leakage detection.



Application features

- ✓ Both interior and exterior wind tunnel solution
- ✓ Path measurements
- ✓ No need for anechoic room or anechoic conditions
- ✓ Direct 3D particle velocity vector and the pressure are measured in the same spot
- ✓ Broad band frequency solution up to 200Km/h
- ✓ Visualization of aerodynamic noise streamlines around the surface of the vehicle

