



Glazing Analysis

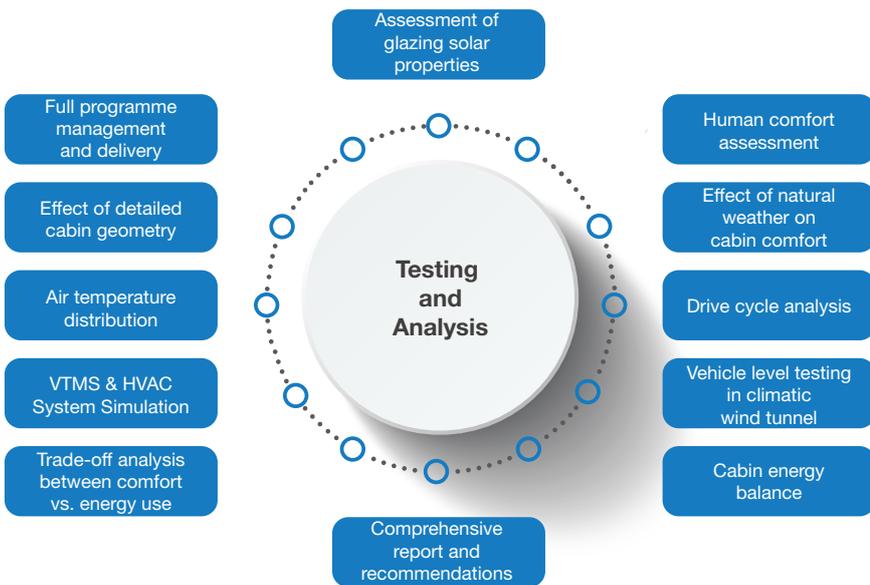
We improve vehicle range and cabin comfort by helping customers to optimise the thermal characteristics of their glazing products. Through advanced simulation and testing we help to develop glazing that minimises the thermal load from solar energy through windows while retaining heat from inside the cabin.

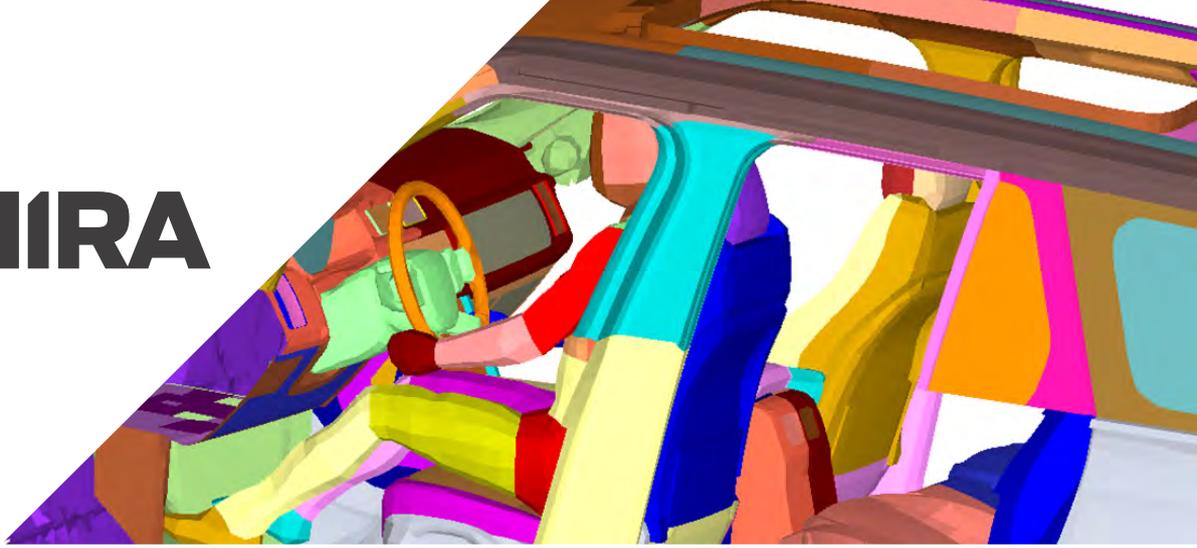
By significantly reducing the need for HVAC system use we're able to greatly improve energy efficiency and occupant comfort.

We independently assess the effect that this new technology offers and provide quantitative assessments on both the human comfort inside the cabin and the energy used by the HVAC system.

Benefits of our service

- Simulation models of the cabin at various levels of accuracy to estimate 'comfort' inside the cabin even when physical prototypes are not available
- Simple cabin models for concept work
- Advanced cabin models based on CAD geometrical representation allow for detailed development
- Quick preparation and run time
- Model correlation through physical test facilities on-site
- Holistic vehicle thermal management system (VTMS) optimisation using HORIBA MIRA powertrain and the vehicle driveline models
- VTMS models are integrated with third party tools (Fluent™, TAITherm™ and GT-SUITE™)
- Legislative or custom drive cycles in climatic facilities
- Independent and unbiased evaluations of systems and components
- Simplified models for a quick temperature assessment to detailed analysis on human comfort
- Services provided as a single study or as several smaller packages for increased flexibility





Simulation and Test Facilities

By applying simulation tools like Fluent™, TAItherm™ and GT-SUITE™, we predict the effect specific glazing has on human comfort inside the cabin and fuel consumption / electric range reduction over a prescribed drive cycle.

Simulation tools

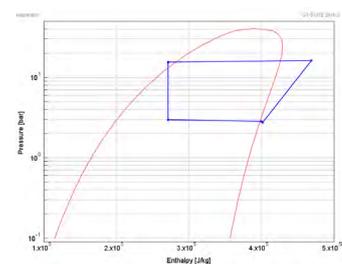
- GT-SUITE™
- Matlab Simulink™
- TAItherm™
- Fluent™
- HORIBA MIRA TEMSP (Thermal Energy Management Simulation Platform)

Climatic Wind Tunnel (CWT One)

- Passenger vehicle focus
- 4WD dynameter
- -40°C to +55°C air temperature
- 200kph wind speed
- Full SC03 compliant solar spectrum
- Humidity control
- Snow generation

Climatic Wind Tunnel (CWT Two)

- Large vehicle focus (military, double-decker buses, off-highway etc.)
- 2WD dynameter
- -30°C to +50°C air temperature
- 180kph wind speed
- Humidity control
- Rain generation



Brake-by-Wire Regen Braking Energy Optimisation

