

Product Synthesis

VEHICULE OCCUPANT ACCOMODATION (VOA)

CATIA V5R18





## Product Synthesis

# Vehicle Occupant Accommodation

Provide a solution for vehicle occupant packaging regulatory validation using 3D manikins.

### Product overview

Vehicle Occupant Accommodation 2 (VOA) provides engineers and ergonomics specialists with an out-of-the-box solution to set up a vehicle interior configuration, place and position manikins and eventually validate the interior layout.

### Product Highlights

- ❑ Reduce cost of occupant accommodation validation
- ❑ Effectively predict vehicle occupant posture
- ❑ Reuse and share information across multiple design disciplines

### Product Key Customers Benefits

#### Reduce cost of interior vehicle design regulatory conformance validation

Vehicle Occupant Accommodation (VOA) provides a set of tools enabling to reduce the number of physical prototypes, minimize customer focus groups and reduce the number of design iterations required to ensure an interior vehicle design that meets the occupants needs in term of comfort and accommodation.

Based on the Human Builder 2 (HBR) product, Vehicle Occupant Accommodation (VOA) allows companies to explore, compare and validate more design alternatives by

letting 3D information accessible to all stakeholders.

VOA enables organisations to :

- ❑ Automate elements of vehicle occupant packaging process
- ❑ Increase productivity of vehicle occupant packaging analysis
- ❑ The rapid preparation of review sessions in a continuous product quality assessment process
- ❑ Leverage enterprise intellectual property and proprietary knowledge

#### Effectively predict vehicle occupant posture

Vehicle Occupant Accommodation (VOA) enables users to create vehicle interior dimension packages in compliance with the SAE (Society of Automotive Engineers) standard J1100 (Sept.05). It includes, among other capabilities, to place the left foot independently from the right one based on the SAE concept of Floor Reference Point and a Floor Plan Angle, the ability to adjust the diameter of the steering wheel and, by the way, the posture of the hands grip, to define the passengers seating position in a motor vehicles.

All the packages elements are associated to a 3D geometry enabling for instance users to specify automatically the vehicle dimensions based on existing vehicle geometries and or to easily retrieve the dimensions and locations of specific

geometries (seat, steering wheel and pedal) of an existing vehicle design. Packages can be then saved in catalogs and be applied on an existing package.

Vehicle Occupant Accommodation (VOA) provides users by default with an automatic way to predict the driving posture of a specific manikin based on two methods: cascade and optimization.

- ❑ Cascade-based method is composed of formula (regression equations) representing the position coordinates of the ankle, the pelvis and the eye

- ❑ Optimization one is rather based on the flexion comfort angle of the forearm, leg and optionally trunk (thoracic and lumbar)

Automatic prediction reduces the time and increase the accuracy of placing the manikin inside a vehicle. The resulting posture is function of vehicle dimensions package (SAE J1100) and manikin anthropometry. Posture can be predicted for more than one manikin at the same time. Choice of left, right or center seat is available for the 2nd or 3rd row passenger.

Users can also create their own user-defined posture prediction method based on the two methods available.

### **Reuse and share information across multiple design disciplines**

For further exchange, users can extract data from a package or a posture prediction and present it in html or XML format. For more efficient reuse and sharing, VOA packages can be stored in ENOVIA VPLM, and retrieved in CATIA when loading a product from ENOVIA VPLM. Same capabilities are available using ENOVIA SmarTeam.

## ABOUT CATIA V5R18

CATIA is Dassault Systemes' PLM solution for digital product definition and simulation.

**[plm.3ds.com/CATIA](http://plm.3ds.com/CATIA)**

