

Standardization for Vehicle Occupant Monitoring Systems (VOMS)

Work packages of Conceptualization phase

Sensors

- A list of sensor types (for example, RGB camera, IR camera, RADAR) that the standard will refer to as input for VOMS features.

Vehicle types

- A list of vehicle types that the standard can be applied to. This might include passenger cars, busses, trucks, heavy-duty vehicles, trains, etc.

Detection methods

- A list of existing detection methods used for VOMS and method-specific extensions of the quality assessment procedures

Distraction refined definition

- A list of distraction levels and a method to calculate distraction summarizing various causes (gaze and activities such as talking and eating).

Simulation data evaluation feasibility

- Evaluation of the robustness of evaluating correlation between real-world data and synthetic data generated by simulation.
- Decision on including methods to compare fitness of simulation data to real data when used for testing.

Features

- List of mandatory and optional features (and corresponding data) to be included in the VOMS API.
Examples are gaze tracking, fatigue detection, and health-related features.
- For all features, the document shall contain whether functional safety and/or cybersecurity compliance is to be assessed.
- For all features, it shall also define whether the feature is mandatory, optional, or to be decided in the conceptualization phase.

Timing planned for 2025

WP Id	Work package name	JAN	FEB	MAR	APR	MAI	JUN	JUL	AUG	SEP	OKT	NOV	DEC
1	Project coordination / CCB												
2	Sensor list				█								
3	List of vehicle types				█								
4	Features				█	█	█	█	█				
5	Detection methods						█	█	█				
6	Distraction refined definition				█	█	█						
7	Simulation data evaluation feasibility				█	█	█	█					
8	Documentation				█	█	█	█	█				
9	Project Group and ASAM member Public review									█			
-	Meeting				█								

Efforts planned

Work package	Effort planned (mandays)
Project coordination / CCB	10
Sensor list	10
List of vehicle types	10
Features	75
Detection methods	30
Distraction refined definition	30
Simulation data evaluation feasibility	60
Documentation	10

Sneak peek: planned work packages of the standard

Quality Assurance framework document

- A comprehensive document detailing the standardized verification procedures for VOMS. This will include testing methodologies, key performance indicators (KPIs), scientific thresholds for driver state alerts, and guidelines for reference dataset requirements across various demographics.

ODD definition

- A specification document describing how Operation Design Domain (ODD) can be defined for the features defined in the Application Interface Specification document.

Application Interface Specification Document

- A detailed specification document outlining the logical data model, API structures, supported communication formats (for example, XML, JSON, binary), and necessary components for the standardized VOMS interface.

Verification Methodology Guide

- A guide providing in-depth procedures for the verification of VOMS, with examples of how to conduct tests under different environmental conditions and across various vehicle categories.

Standardized KPIs

- A report that defines and explains the KPIs relevant to VOMS performance evaluation, including detection accuracy, response time, memory usage, and latency.

Implementation Support Package

- A set of resources to assist developers and engineers in adopting the standard, including sample data models, API documentation, code snippets, and integration guidelines.

Stakeholder Feedback and Revision Log

- A record of the feedback received from stakeholders during the review cycles and a log of revisions made to the standard. This ensures transparency and continuous improvement.

Proof of Concept (PoC)

- A working prototype demonstrating the implementation of the standardized VOMS framework, including verification procedures and the application interface. The PoC will showcase the feasibility and practical benefits of the standard.