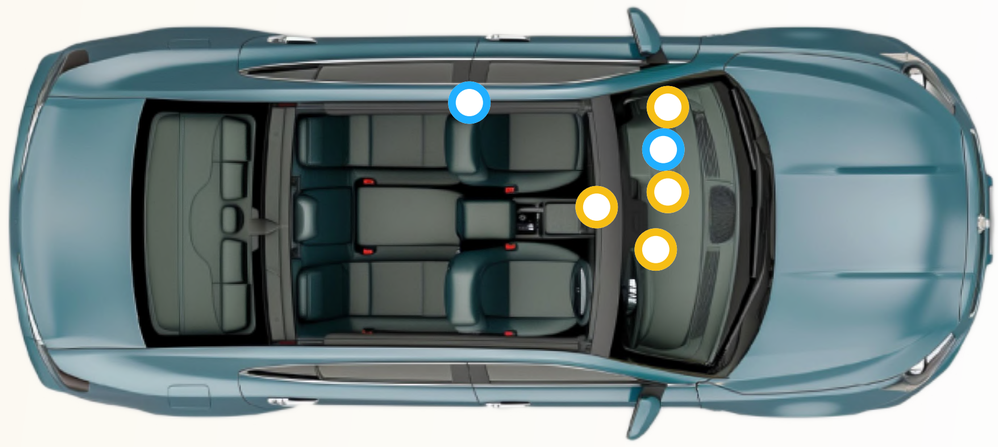
OSM Reference System

# iMotions Occupant Status Monitoring Reference System

The OSM Reference System is an advanced tool designed to evaluate the performance of Driver Monitoring Systems (DMS) against stringent safety standards such as NCAP and GSR requirements. It provides an objective, consistent, and reproducible method for assessing DMS performance, ensuring that automotive manufacturers (OEMs) and testing facilities can meet evolving safety standards and enhance in-cabin safety features.



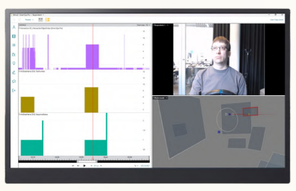
## Obtain Gold Standard Reference Data for DMS Compliance

Ensure valid vehicle responses with automated test scenario validation across multiple dimensions:

- Short Distraction
- Long Distraction
- Phone Usage
- Owl type eye movement
- Lizard type eye movement
- Vehicle response types

4x Eye Tracking Cameras with IR Illumination

2x RGB Reference Cameras



Monitor for realtime data review

Car PC

Wireless keyboard


## For OEMs

The iMotions OSM Reference System offers OEMs a cutting-edge solution for validating the effectiveness of Driver Monitoring Systems (DMS) against rigorous safety standards like Euro NCAP and GSR. By automating complex testing protocols and providing high-precision data, the system accelerates the development cycle and reduces the risk of costly recalls or regulatory non-compliance.

Its ability to adapt to future regulatory changes ensures that OEMs can consistently deliver safer, more reliable vehicles that meet both current and upcoming industry demands.

## For Testing Facilities

Testing facilities benefit from the OSM Reference System's ability to provide consistent, repeatable, and highly accurate test results. Its automated protocols reduce human error and subjective bias, ensuring reliable data that can be used to validate DMS performance under various conditions.

The system's comprehensive data recording and real-time analysis capabilities allow testing facilities to offer detailed insights and feedback to their clients, enhancing the value and credibility of their testing services while streamlining the evaluation process.

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## Execute Robust Automated Distraction Testing

The OSM Reference System offers robust automation capabilities to execute a wide range of testing protocols, ensuring compliance with Euro NCAP and European Commission GSR standards. It is designed to adapt to future regulatory changes, providing a future-proof solution for comprehensive driver monitoring system (DMS) evaluations.

### 1 Seamless System Setup and Calibration

Set up the OSM Reference System with Smart Eye Pro's multi-camera technology. Achieve quick and precise calibration to ensure accurate tracking of all driver behaviors and vehicle responses, providing a solid foundation for comprehensive testing.

### 2 Flexible Scenario Configuration

Effortlessly load and configure test scenarios from a customizable CSV file. The system adapts to various testing needs, supporting a wide range of distraction types and behavioral analyses, ensuring your products meet stringent safety standards.

### 3 Automated Distraction Testing

Execute distraction scenarios with ease as the system verbally guides participants through each test with prompts and auditory cues. Gaze switching and head turns are automatically verified, minimizing the need for manual oversight.

### 4 Comprehensive Data Recording

Benefit from real-time data recording across multiple channels, including 3D head and eye tracking, video, and audio. The iMotions platform integrates all inputs seamlessly, providing a complete dataset for robust analysis and reporting.

### 5 Effortless Data Export and Analysis

Streamline your workflow with automated data export and processing. The OSM Reference System quickly generates detailed test protocols, allowing you to focus on optimizing driver monitoring systems for peak performance.

### 6 Insightful Benchmarking and Reporting

Streamline your workflow with automated data export and processing. The OSM Reference System quickly generates detailed test protocols, allowing you to focus on optimizing driver monitoring systems for peak performance.

## Example Test Protocol from EURO NCAP

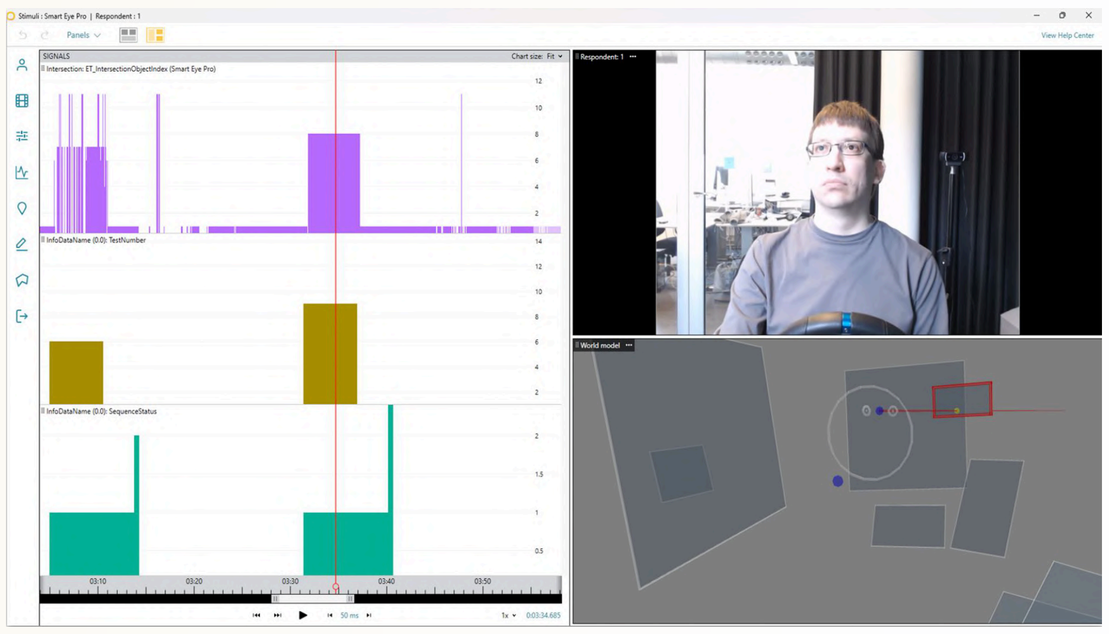
Vehicle manufacturers are required to provide documented evidence demonstrating the effectiveness of their Driver Monitoring System (DSM) in maintaining driver engagement, as validated through the following 15 point test laboratory spot check procedure.

| Driver State | | Distraction Scenario | Movement Type | Warning | Intervention | Sub Total | Total |
|---|---|---|---|---|---|---|---|
| Distraction | Long Distraction | Away from road / non driving task | Owl | 0.225 | 0.225 | 0.45 | 2.25 |
| | | | Lizard | 0.225 | 0.225 | 0.45 | |
| | | | Body Lean | 0.225 | 0.225 | 0.45 | |
| | | Driving task | Owl | 0.225 | 0.225 | 0.45 | |
| | | | Lizard | 0.225 | 0.225 | 0.45 | |
| | Short Distraction (VATS) | Away from road / non driving task | Owl | 0.225 | 0.225 | 0.45 | 2.25 |
| | | | Lizard | 0.225 | 0.225 | 0.45 | |
| | | Driving task | Owl | 0.225 | 0.225 | 0.45 | |
| | | | Lizard | 0.225 | 0.225 | 0.45 | |
| | | Away from road (multi-location) | Lizard | 0.225 | 0.225 | 0.45 | |
| | Phone Use | Phone Use Detection - Basic | Owl + Lizard | 0.375 | 0.75 | 1.125 | 2.25 |
| | | Phone Use Detection - Advanced | Lizard | 0.375 | 0.75 | 1.125 | |
| Fatigue | Drowsiness | | | 1.875 | 0.75 | 2.625 | 2.625 |
| | Microsleep | | | 1.5 | 0.75 | 2.25 | 2.25 |
| | Sleep | | | 0.375 | 1.5 | 1.875 | 1.875 |
| Unresponsive Driver | | | | | 1.5 | 1.5 | 1.5 |
| **Total** | | | | | | | **15** |

2024 Euro NCAP Assessment Protocol - SA Safe Driving - v10.2

## iMotions OSM Reference System Report

The iMotions platform generates a detailed technical report after running an OSM test protocol, compiling comprehensive data on driver behavior, system responses, and scenario outcomes. This report provides critical insights for validating the performance and compliance of Driver Monitoring Systems (DMS) with safety standards.



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