OICA CLEPA
European Association of Automotive Suppliers

Difference between Advanced Driver Assistance Systems (ADAS)
and Automated Driving System (ADS)

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System Capabilities

Difference between Advanced Driver Assistance System (ADAS) and Automated Driving System (ADS)

Defined as:

ADAS - a broad range of features that support the drivers by providing information, warnings , and intervening to execute lateral and/or longitudinal control momentarily or on a sustained basis.

ADS - a vehicle system that contains both the hardware and software that are collectively capable of performing the entire DDT on a sustained basis regardless of whether it is limited to a specific operational design domain (ODD).

Aims to :

ADAS - assist the drivers who **always remain responsible** for vehicle control and shall **permanently monitor the environment and vehicle/system performance.**

ADS - perform the dynamic driving task and in this regard, **replace the driver when being engaged.**

Disengagement from the driving task :

ADAS – does not allow disengagement from the driving task by way of driver monitoring, various modes of alerts and discontinuing the assistance safely.

ADS – allows for sustained disengagement from the driving task and **re-engagement via transfer of control within a reasonable time frame,** as appropriate for the design of the ADS.

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Override and/or deactivation of the system:
ADAS – Override and/or deactivation of the system can be immediate.

ADS – Override and/or deactivation can be delayed if the system detects an unsafe situation in which this is requested.

Driver monitoring:
ADAS – Evaluates the driver's supervision of the dynamic driving task.

ADS – Evaluates the fallback user's availability to resume control when a transfer of control is requested by the system

Activities other than driving:
ADAS – System capability is not sufficient for the driver to undertake any activity other than a driver.

ADS (designed to issue transfer of control) – System capability is sufficient for the fallback user to undertake activities other than the driver.

Monitoring of the environment:
ADAS – System cannot detect all situations in the ODD.

ADS (designed to issue transfer of control) monitors the environment for operational decisions but issues a transition demand when faced with unforeseen situations.

ADS (designed without transfer of control mechanism) – monitors the environment for all decisions and situations within its ODD.

Human Capabilities *aligned with the system capabilities*

Human Roles across ADAS and ADS	System Capabilities			
	Advanced Driver Assistance Systems (ADAS)		Automated Driving System (ADS) designed to issue a Transfer of Control (TOC) within a specified ODD.	Automated Driving System (ADS) designed without the requirement of a TOC within a specified ODD
	LONGITUDINAL **OR** LATERAL CONTROL *(Operational Only)*	LONGITUDINAL **AND** LATERAL CONTROL (Operational Only)	DYNAMIC DRIVING TASK (Operational and Tactical)	
Driver	- Responsible for DDT always, including monitoring of the environment. - Can intervene or override the system at any time. - Cannot disengage with the driving task. - Cannot undertake activities other than driving.		- Is not responsible for DDT when the ADS is performing the DDT/is engaged. - Resumes responsibility for the DDT when the TOC* is successfully completed and/or the ADS is deactivated. *Transfer of control can take place during a journey within the ODD in unplanned circumstances and when exiting the ODD.*	-Is not responsible for DDT within the operational design domain in which the ADS is activated.
Fallback user	Not applicable/Not required.		-Needs to be attentive to respond to a transfer of control request by the system within a reasonable time frame. -Can engage in activities other than driving. -Fallback user can be remotely located.	- No requirement for a fallback user within operational design domain.
Remote Driver	- As an alternative to the driver in the vehicle, remote driver is a driver outside the vehicle. - Same responsibilities as the driver above.		- Not required at any time for as long as the ADS is performing the dynamic driving task.	
Remote Assistant	Not applicable/Not required.		No use cases envisaged until now due to the availability of a fallback user and the system's capability to issue a transfer of control request in the event	- Offers advice or information in the event when the ADS has encountered a situation it cannot manage.

Human Roles