**ADAS Functionality Naming Considerations**

This document is based on ADAS-06-16 (6th ADAS TF meeting minutes), ADAS-07-02 (Draft ADAS UN Regulation Master Document), ADAS-06-15 (Secretary), ADAS-06-10 (OICA-CLEPA), ADAS-06-09 (AAPC), FRAV-14-07-Rev.1.

This document aims to aid in reaching the consensus regarding naming the functionality subject to the draft UN Regulation being developed.

**Background**

At the 6th ADAS TF meeting, the majority of participants indicated the preference for the functionality name *“Dynamic Control Assistance Systems” (“DCAS”).* However, there was a proposal for the alternative name *“Continuous Driving Assistance Systems” (“CDAS”).*

Nevertheless, one should note that irrespective of the naming convention that is chosen, many of the concerns could be resolved by appropriately defining what the various terms would mean.

**Considerations**

1. ***“Dynamic Control Assistance Systems” (“DCAS”)* vs *“Continuous Driving Assistance Systems” (“CDAS”)***

The ADAS TF understanding is that the UN Regulation covers only the systems assisting a human driver on a sustained basis. This is reflected in the proposed name of the functionality: either *“DCAS”* or *“CDAS”.*

To make a meaningful decision, one may wish to understand the difference between:

* *“Dynamic”* and *“Continuous”*;
* *“Control”* and *“Driving”*.

The following are the relevant definitions from the English Dictionary provided by Oxford Languages through Google:

* *“Dynamic”*: (of a process or system) characterized by constant change, activity, or progress.
* *“Continuous”*: forming an unbroken whole; without interruption.
* *“Control”*: the power to influence or direct people’s behaviour of the course of events;
 - the ability to manage a machine, vehicle, or other moving object.
* *“Driving”*: the control and operation of a motor vehicle.

*“Continuous”* characterizes a process lasting for an extended period in the same manner that cannot be stopped, even for a short period, while *“Dynamic”* characterizes a process featuring variable and continual changes that can have interruptions or periods of inactivity.

Hence, *“Dynamic”* would characterize better the process of vehicle control or driving since, although the assistance is ready to be provided on a sustained basis, it will not always be in the process of being applied.

*“Driving”* has seemingly a wider meaning than *“Control”*, as *“Driving”* involves not only control but operation, as well. Although it is difficult to explicitly define what operation of a vehicle means over control, it does infer a responsibility for the outcome of the functioning of the vehicle.

The systems we are targeting in the UN Regulation are designated to assist a human driver in vehicle control, not in operation which should remain entirely with the human driver. Also, stakeholders indicated that the use of *“Driving”* may lead to the misinterpretation about the functions performing the whole Dynamic Driving Task (DDT) since *“Driving”* is a more extensive concept than *“Control”*.

Hence, *“Control”* would be considered more appropriate for the name of the functionality than *“Driving”*.

Therefore, *“Dynamic Control Assistance System”* seems to best capture the nature of the systems targeted by the ADAS TF.

1. ***“Dynamic Driving Task” (“DDT”)* vs *“Dynamic Control”***

Stakeholders have indicated several times that use of the term *“Dynamic Driving Task (DDT)”* may lead to confusion between ADAS and ADS. The DDT refers to all the functions (collectively) required to operate a vehicle in traffic. Either the human driver or the system (ADS) performs the DDT.

The concept is that a system (ADAS) may support the driver, but the DDT is never shared because either the human or the system (ADS) must ultimately control and be responsible for the operation of the vehicle.

According to FRAV-14-07-Rev.1, *“Dynamic driving task” (“DDT”)*, in the context of an ADS-equipped vehicle, means all of the real-time operational and tactical functions required to operate the vehicle, excluding strategic functions such as trip scheduling and selection of destinations and waypoints.
FRAV-14-07-Rev.1 lists all DDT functions.

*“Dynamic Control”* is used in WP.1 documents as an alternative term for *“DDT”* (Revised draft resolution on the deployment of highly and fully automated vehicles in road traffic - ECE/TRANS/WP.1/2018/4/Rev.2, draft resolution on activities other than driving -ECE/TRANS/WP.1/2021/2): *“Dynamic control”* refers to carrying out all the real-time operational and tactical functions required to move the vehicle. This includes controlling the vehicle’s lateral and longitudinal motion, monitoring the road environment, responding to events in the road traffic environment, and planning and signalling for manoeuvres. *“Operational and tactical functions”* include perception of the roadway.

The two terms appear almost synonymous; however, we proceed from the understanding that *“Dynamic control”* could be disaggregated whereas DDT could not, and it also sat at a level below DDT.

With that, *“Dynamic control”* offers an alternative to avoid confusion with *“DDT”* being used in the context of ADS and potentially a more relevant term.

The proposed definition of *“Dynamic Control”* could be a combination of WP.1 definition and the definition provided in ADAS-06-09:

*“Dynamic control”* means the real-time performance of the operational and tactical functions required to navigate a vehicle through prevailing traffic conditions based on perception, information processing, and decision.[[1]](#footnote-1) [This includes controlling the vehicle’s lateral and longitudinal motion, monitoring the road environment, responding to events in the road traffic environment, and planning and signalling for manoeuvres].

Thus, the use of the term *“Dynamic Control Assistance Systems” (“DCAS”)* would be aligned with WP.1 documents, would help to emphasize the role of the human driver in vehicle control and would also help to distinguish the systems under consideration of ADAS TF from ADS.

1. **Other relevant definitions**

The other relevant definitions can be based on those provided in ADAS-06-09, subject to additional considerations and alignments:

*“Driver”* means the human involved in any aspect of performing dynamic control of the vehicle.

The *“Driver”* is being defined as a human to avoid confusion between human and system operation and to avoid potential conflicts with traffic laws written under the assumption that a driver is human.

*“Driver engagement”* means the real-time driver’s involvement in the execution of the dynamic control of a vehicle in traffic and the driver’s readiness to intervene immediately, as needed.

*“Operational functions”* means the basic capabilities required to operate a vehicle such as controlling the vehicle’s lateral and longitudinal motion.[[2]](#footnote-2)

*“Tactical functions*” means the real-time planning, determination, and execution of maneuvers.[[3]](#footnote-3)

*“Prevailing traffic conditions”* mean the road conditions and traffic laws as may apply and govern the functions required to safely navigate traffic.

The definitions assume that the UN Regulation will include requirements to ensure that a qualified and fit driver is present and properly positioned in the vehicle (i.e., the “Driver” definition does not need to address driver qualifications since the system requirements would include driver monitoring provisions).

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1. Based on FRAV-09-05, FRAV-14-07/Rev.1, FRAV-16-12 per WP.1/2021/2 and Michon, J.A., 1979 (update 2008). “Dealing with Danger”, Summary Report of the Workshop on Physiological and Psychological Factors in Performance under Hazardous Conditions with Special Reference to Road Traffic Accidents, Gieten, Netherlands, May 23-25, 1978. [↑](#footnote-ref-1)
2. Michon, J.A., 1985. “A Critical View of Driver Behavior Models: What Do We Know, What Should We Do?” In L. Evans & R. C. Schwing (Eds.). Human behavior and traffic safety (pp. 485-520). New York: Plenum Press, 1985. [↑](#footnote-ref-2)
3. Ibid. [↑](#footnote-ref-3)