

ADS IWG Working Document
Change Proposal Form
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Document Reference

ADS-08-16/Rev.1

Date

9 April 2025

Agenda item

Item number 10 on
purpose, scope and
definitions from ADS-
08-05

Experts from EC/JRC and France

Proposal for a new single definition under the term ADS user to address the “remote” topic, as follows:
• **3.5.3. remote user means a user located outside the ADS vehicle who can ~~provide inputs to support the ADS, which is performing the entire DDT~~**

Proposal not to define “remote driving” in the regulation.

Subsequent proposal to supplement the footnote in the definition of ADS user to clarify the wide range of possible users and explicitly include passengers:

• 3.5. “ADS user” means a human user of an ADS vehicle⁶

⁶ All the variations on “user” roles have been group under the “ADS user” definition (*e.g. driver, remote user, passengers*). This might prove beneficial in the future development of ADS requirements (i.e., introduction of new “user” definitions).

This change proposal is accompanied by three annexes and one appendix.

Rationale (detailed in annex):

- The draft regulation refers to several related terms without defining them (see table in annex below).
- Having an objective term, in the sense that is independent from existing references (standards, regs), is a prerequisite to the discussion in order to avoid terminology and taxonomy issues.
- Defining precise terms and concepts will lead to clarify their scope and boundaries, including the roles of the “remote operator”, which shall remain open.
- The consolidated draft does not include any requirement on remote operations. The management of some aspects of the remote operations goes beyond the mandate of the ADS IWG and it is under the responsibility of regional / national / local regulations
- Introducing too precise definition will lead to consider requirements applicable to “remote” interactions, especially on digital parts.
- Remote driving is only considered by opposition to other remote concepts: the ADS shall remain responsible for the entire DDT at any time.

Location 1 6.3.1.1.2.

The outline shall include how the following elements are addressed:

[...]

(c) Remote supervision and remote monitoring by a remote supervision centre (if applicable).

[...]

The outline shall include how the following elements are addressed:

(a) Perception and objects detection including mapping and positioning

(b) Characterisation of decision – making

(c) Interactions with remote users (if applicable)

(d) Information display/user interface

(e) The data storage system (e.g., DSSAD)

(f) Redundancies of components and/or connections

Location 2 6.3.1.20.

The manufacturer shall identify the ADS users, including remote users with whom it is designed to interact and describe the nature of their interaction with the ADS, distinguishing those who provide remote assistance from those, if any, who perform remote driving.

The manufacturer shall identify the ADS users, including remote users with whom it is designed to interact and describe the nature of their interaction with the ADS.

Location 3 6.3.1.21.

The manufacturer shall describe the methods of activating, overriding, or deactivating the ADS feature by any or all of: the ADS user (where relevant), the remote assistant or operator (where relevant), passengers (where relevant) or other road users (where relevant).

The manufacturer shall describe the methods of activating, overriding, or deactivating the ADS feature by any or all of possible ADS users (where relevant) including remote users (where relevant), passengers (where relevant) or other road users (where relevant).

Location 3 6.3.1.25.

If a partial performance mode of operation is used under certain fault conditions (e.g. in case of severe failures), The manufacture shall describe:

- (a) the conditions for activation of that mode (e.g. type of failure),
- (b) the resulting ADS feature behaviour and capabilities (e.g. achievement of a minimal risk condition immediately), and
- (c) the warning strategy to the driver/remote supervision centre (if applicable).

If a partial performance mode of operation is used under certain fault conditions (e.g. in case of severe failures), The manufacture shall describe:

- (a) the conditions for activation of that mode (e.g. type of failure),
- (b) the resulting ADS feature behaviour and capabilities (e.g. achievement of a minimal risk condition immediately), and
- (c) the warning strategy to the driver/remote user relevant users including remote users(if applicable).

Location 4 6.4.9.

The following table provides the list of occurrences to be reported by the manufacturer. For each occurrence and its relevance to the notification/short-term and/or periodic reporting has been flagged.

[...]

Events where an activated ADS feature required interaction with a remote assistant to navigate a driving situation (if applicable)³

[...]

³ This event does not cover remote driving, but rather events in which the ADS will require remote assistance to cope with very specific situations.

The following table provides the list of occurrences to be reported by the manufacturer. For each occurrence and its relevance to the notification/short-term and/or periodic reporting has been flagged.

[...]

Events where an activated ADS feature required interaction with a remote user to navigate a driving situation (if applicable)³

[...]

³ ~~In the frame of this regulation, the remote user is intended to be only a support at “tactical level”, while the ADS continues to perform the entire dynamic driving task, taking into consideration the input provided by the remote user. In other words, any “tactical” input to the system does not directly trigger an operational action from it. The ADS decides if, when and how to use this input to perform the DDT.~~

This occurrence is targeting only a support at “tactical level”, while the ADS continues to perform the entire dynamic driving task, taking into consideration the input provided by the remote user

Table p60:
Occurrences where an activated ADS feature required interaction with a remote assistant to navigate a driving situation (if applicable)

Occurrences where an activated ADS feature required interaction with a remote user to navigate a driving situation (if applicable)

Annex: detailed rationale

A. Context

The draft regulation (ADS-08-04/rev1) introduces the concept of “remote termination”, which is the only related term to “remote” defined as follows:

- *“Remote termination” means the act of remotely disabling one or more ADS features of one or more vehicles.*

The draft regulation refers to other related concepts to “remote operations” without defining them. The table in annex refers terms used and related requirements.

Moreover, the draft regulation refers to “remote driving” (two times).

There is a need to clarify the approach around remote operations, which may support the ADS-equipped vehicle while performing the dynamic driving task.

A starting point of this concept note is that there are numerous initiatives, some are presented in annex, around remote operations in support to automation. These include regulatory framework, standardization documents, as well as research projects.

The following concept note is two-fold. It first proposes to clarify the scope of remote operations within the context of a vehicle type-approval regulation. Secondly, it establishes a view on the specific topic of remote driving.

B. Remote support issues

By introducing various concepts around remote operations, the draft regulation raises questions, which need to be dealt with to provide clear requirements attached to type-approval procedures for ADS-equipped vehicles. From the table in annex, it is foreseen that references to remote operations, be it monitoring, assistance, supervision, are made to consider interfaces with the ADS-equipped vehicle, regardless of the specific tasks performed (leaving aside the concept of remote driving, cf. below).

As part of the discussion, the need for new definitions in the regulation might bring some clarity at some point. Especially, the point was raised that remote support provided to ADS-equipped vehicles shall be clearly distinguished from remote driving. A precise definition of a concept will need, according to numerous initiatives already existing, large discussions to align on different taxonomies, which might be a major task in a limited amount of time.

Another aspect to consider is that defining new terms will lead to refer to their scope, including their boundaries and frontiers between related concepts, and as per definition what is part of it and what isn't. In that perspective, a definition would create a debate on specific tasks that would fall into the term. Nevertheless, and as pointed out in annex, the management of some aspects of the remote operations goes beyond the mandate of the ADS IWG and it is under the responsibility of regional / national / local regulations. The specific topic of remote operation has the virtue to make the link between the ADS-equipped vehicle and the final use, possibly in a transport system, which belongs to regional / national / local regulations. Defining terms that are submitted to lower regulations will lead to increase complexity and will not bring any added-value to a vehicle regulation.

Taking into account the existing definition of ADS user (a human user of an ADS vehicle), which has been identified to be modified to better reflect the diversity of possible users, including remote operators in the sense of previous paragraphs.

From all above, we can infer that a possible way forward would be to define a related definition to ADS user as follows:

- **3.5.3. *remote user means a user located outside the ADS vehicle who can provide inputs to support the ADS, which is performing the entire DDT***

C. Remote driving

Remote driving is not the scope of the regulation.

Moreover, remote driving is only defined as opposed to other remote operations, on which the ADS vehicle is still performing the dynamic driving task. Any definition of a completely out of scope concept would not bring any valuable insight in the regulation, but confusion.

More generally definition shall aim at understanding applicable requirements to the manufacturer and to the independent assessment authority.

Annex: table of iterations of “remote terms”

This table lists terms that are related to remote concepts, excluding the defined term “remote termination” (used eight times in the draft regulation).

Terms	Requirement number	Description
Remote supervision (x3) [centre (x2)]	6.3.1.1.2. [manufacturer]	Safety concept shall include an outline schematic (equipment distribution and interconnections among components and systems), which includes how remote supervision, remote monitoring by a remote supervision centre is addressed
	6.3.1.25. [manufacturer]	In the case of a partial performance mode under fault conditions, reference to warning strategy to the driver / remote supervision centre
Remote monitoring (x1)	6.3.1.1.2. [manufacturer]	Cf. above
Remote assistance (x2)	6.3.1.20. [manufacturer]	Distinguishing actions between remote assistance and remote driving
	6.4.9. (footnote)	Cf. below
Remote assistant (x3) [or operator]	6.3.1.21. [manufacturer]	As part of the safety case, a description of methods of activating, or deactivating the ADS feature, including by the ADS user, the remote assistant or operator, passengers or other road users shall be given
	6.4.9.	Table providing the list of occurrences: – Events where an activated ADS feature required interaction with a remote assistant
	Annex [in-service reporting]	Cf. above
Remote users (x1)	6.3.1.20 [manufacturer]	Identification of ADS users, including remote users with whom it is designed to interact and describe its nature
Remote visual check (x2)	Annex [critical occurrences]	Proposed approach to fulfill criteria both for injury level and physical damage thresholds: – ADS strategies to control ADS status via remote visual check (if applicable)
Remote driving (x2)	6.3.1.20.	As opposed to remote assistance
	6.4.9. (footnote)	As opposed to remote assistance’s task “to navigate a driving situation” (cf. above)

Annex: references and state-of-the-art

Remote operations for automated vehicles are diverse in nature and purpose and have become an increasingly important operational component of highly automated vehicles with significant safety implications. Several current and developing standards intend to cover the diversity of remote tasks via common taxonomies, and regulatory efforts are underway around the world.

The following section gives references to various initiatives around remote concepts' taxonomies taken from regulatory basis, standardization bodies and research perspective.

- (EU) 2022/1426 related to type-approval procedures for vehicles equipped with ADS (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1426>)

Definitions from the regulation:

- 'remote intervention operator' means, where applicable to the ADS safety concept, person(s) located outside the fully automated vehicle who may remotely achieve the tasks of the on-board operator provided it is safe to do so; the remote intervention operator shall not drive the fully automated vehicle and the ADS shall continue to perform the DDT
- 'remote capabilities' mean capabilities specifically designed to support remote intervention

Requirements that apply to the remote operator include specific safety actions performed by the remote agent according to the ADS safety concept.

In 2025, JRC published an interpretation document, which contains an annex on remote management operations (<https://publications.jrc.ec.europa.eu/repository/handle/JRC140978>). This document clarifies the scope of remote intervention as mentioned in the regulation, gives considerations on specific actions (or tasks) that fall under remote intervention, and makes the link with related concepts.

In particular, it defines what remote intervention is:

- remote intervention means where applicable to the ADS safety concept, an action by a person located outside the fully automated vehicle who may:
 - (a) activate, re-initialise, deactivate the ADS,
 - (b) request the ADS to start an MRM,
 - (c) confirm a manoeuvre proposed by the ADS while the vehicle is at standstill,
 - (d) after an MRM, while the fully automated vehicle is at standstill, request the ADS to perform safely a low speed manoeuvre limited to 6 km/h with the remaining performance to evacuate the fully automated vehicle to a nearby preferable location,
 - (e) select or modify the planning of an itinerary or stopping points for the users; or
 - (f) provides assistance in duly identified situations to the passengers of the fully automated vehicle.In the above situations, the ADS of the fully automated vehicle shall continue to perform the DDT.

The interpretation document intends to clarify the grey area between the requirement following which "the ADS shall be capable of performing the entire DDT" and safety related tasks that are left under a remote operation in some cases (possibly for resuming normal operation while a minimum risk manoeuvre has been reached).

As performing safety related tasks in support to the ADS, still performing the entire dynamic driving task, the remote intervention operator has a clear and distinct role compared to other related remote operations, which are sometimes touch upon, such as:

- vicinity manual driving (also referred to in the regulation), which refer to an operational degraded mode (low speed and vicinity of the vehicle);
- remote supervision (not necessary while the ADS is performing the DDT), which may refer to the oversight of vehicle operation beyond line of sight including on the ADS behaviors / performances, the status of the vehicle, the driving environment, the inner vehicle environment;
- remote fleet management and service, which refers to tasks supporting the management of a fleet of ADS-equipped vehicles in driverless operations, which may include, but not limited to ensuring operational readiness, dispatching vehicles in driverless operation, authorizing each trip, ...;
- remote driving (clearly pointed out as out of the scope), which means real-time performance of the DDT (including real-time braking, steering, and acceleration) by a driver from out of its direct line of sight.

The interpretation document provides an articulation table between all concepts and related tasks: functions related to the DDT, vehicle's non-driving functions, users related functions, service-related functions. Some examples are detailed.

- *Other national regulations on remote concepts are given in appendix*

Various regulatory initiatives at national level are established, the following table tries to clarify terms used.

- *BSI Group standards on Human factors for remote operation of vehicles (Flex 1887 – 2024)* (<https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/bsi-flex-1887-human-factors-for-remote-operation-of-vehicles-guide-v1-0/>)
and remote operation of vehicles (Flex 1886 – 2023) (<https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/bsi-flex-1886-system-aspects-for-remote-operation-of-vehicles-guide/>)

BSI Flex 1886 standard focuses on remote operation system aspects including different types of remote operations, remote operators' tasks and other related parameters (cyber, updates, data). The focus is on remote systems operating in public roads and spaces. Training, roles and responsibilities are not addressed through the document.

Among terms defined:

- Remote assistance: class of remote operation involving provision of information, advice or guidance to a vehicle from beyond line-of-sight to support the safe continuation of a journey, including revised goals, paths or routing for a self-driving vehicle which then makes its own decisions about the safe path ahead and performs the entire DDT.

BSI Flex 1887 gives guidance on the human factors for organizations and operators developing and managing remote operation systems for connected and automated vehicles. As part of human factors figure roles and training of remote operators, skills and competence update.

Remote assistance is defined, among other related concepts as well:

- Remote assistance: class (of remote operation) involving the provision of information, advice or guidance to either a connected and automated vehicle, its occupants, other road users and other external agencies interacting, or needing to interact, with the vehicle;

- Remote monitoring: class (of remote operation) involving oversight of one or more connected and automated vehicles, their behavior and performance, progress on a journey, safety and security of passengers, and any cargo/load;
 - Remote operations: practical activities in which the remote operator interacts with one or more connected and automated vehicles and other remote operators using remote technology;
 - Remote operations organization: group that is responsible for administering, managing, implementing and controlling remote operations, including operational safety, security, training, dispatching, monitoring, assisting and driving activities;
 - Remote operator: human that occupies the role (of remote operator) and has some responsibilities for providing a remote support service for, or to, a connected and automated vehicle.
- *SAE AVSC Best practice for ADS remote assistance use case (2023)*
(<https://www.sae.org/standards/content/avsc-i-04-2023/>)

The best practice is based on the consultation published by FMCSA (cf. appendix below) and takes as its starting point the definitions as per the proposed rulemaking of remote assistant: is a human who provides remote information or advice to an ADS-equipped vehicle in driverless operation to facilitate trip continuation when the ADS encounters a situation it cannot manage.

The best practice shares the need for establishing clear boundaries around remote operations, which includes proper definitions in relation to the tasks supporting ADS-equipped vehicles.

Among terms defined:

- Remote assistance: event-driven provision, by a remotely located human, of information or advice to an ADS-equipped vehicle in driverless operation to facilitate trip continuation when the ADS encounters a situation it cannot manage.
- Remote assistant: a human(s) who provides remote assistance to an ADS-equipped vehicle in driverless operation.

The best practice also defines related concepts, in the sense of a transport service / operation, such as:

- Fleet operations: the activities that support the management of a fleet of ADS-equipped vehicles in driverless operation, which may include, without limitation:
 - Ensuring operational readiness,
 - Dispatching ADS-equipped vehicles in driverless operation (i.e., engaging the ADSs prior to placing the vehicles in service on public roads),
 - Authorizing each trip (e.g., payment, trip route selection),
 - Providing fleet asset management services to vehicles while in use (e.g., managing emergencies, summoning, or providing remote assistance as needed, responding to customer requests and breakdowns),
 - Serving as the responsible agent vis-à-vis law enforcement, emergency responders, and other authorities for vehicles while in use,
 - Disengaging the ADS at the end of service,
 - Performing vehicle repair and maintenance as needed.
- ADS customer support: customer support function entails delivering assistance, guidance, and solutions to customers prior to, during, and after their interaction with an ADS-equipped vehicle. Its objective is to handle inquiries, troubleshoot problems, and cultivate a favorable customer experience throughout the utilization of ADS technology. A customer may be an individual vehicle

purchaser, a rider in a passenger fleet service, a purchaser of goods, a trucking fleet operator, etc., or a customer in the context of any other ADS use case.

- Dispatch: to place an ADS-equipped vehicle into service in driverless operation by engaging the ADS.
- Monitoring: continual oversight of vehicle operation from beyond line of sight.
- Remote operator: a human(s) who provides guidance and assistance to the ADS, passengers, and law enforcement.
- Remote operations: monitoring, assistance, and/or driving of vehicles using remote technology.

According to previous definitions, the document then proposes to dig into functions and purposes of remote assistance as a support to the Ads-equipped vehicle while performing the DDT. This includes detailing specific tasks and examples related to remote assistance, especially the clear distinction with remote driving.

Finally, the notion of qualified person to remote assistance is precised, especially when it comes to the interactions with the interfaced systems.

Appendix on national and local regulations on remote operations

Country / state	Terminology	References
France	Remote intervention	<ul style="list-style-type: none"> - Ordinance no. 2021-443 <p>Liability regime for the driving of vehicles equipped with an automated driving system, including remote intervention's responsibilities for its actions or not on the vehicle and its obligation to be a qualified person, who has a driving license corresponding to the vehicle category on which intervention is performed.</p> <ul style="list-style-type: none"> - Decree no. 2021-873 <p>Remote intervention: action performed by a qualified person outside the vehicle for the purpose of an automated road transport system, responsible for:</p> <ul style="list-style-type: none"> a) activating or deactivating the system, giving instructions to perform, modify, interrupt a maneuver, or acknowledging maneuvers proposed by the system; b) instructing the navigation system operating on the system to choose or modifying the planning of a route or stopping points for users; <ul style="list-style-type: none"> - Methodological document () <p>Published 2024 on first thoughts on remote functions tasks, before taking into account remote intervention in the scenario-based approach.</p> <p>The document aims at differentiating remote concepts related to the operation of automated vehicles in transport systems, from a technical point of view.</p>
Germany	Technical supervision	<ul style="list-style-type: none"> - Road Traffic Act (StVG) section 1f (2021) (https://www.gesetze-im-internet.de/stvg/) <p>Technical supervision of a motor vehicle with autonomous driving functions is obliged to:</p> <ul style="list-style-type: none"> • evaluate an alternative driving manoeuvre¹ and to enable the motor vehicle for this purpose as soon as such a manoeuvre is indicated to the driver, • deactivate the autonomous driving function immediately as soon as this is indicated visually, acoustically or otherwise perceptibly by the vehicle system, • evaluate signals from the technical equipment regarding its own functional status and, if necessary, to initiate necessary measures for traffic safety, and • immediately establish contact with the occupants of the motor vehicle and to initiate the measures necessary to ensure road safety when the motor vehicle is brought into a state that minimizes risk. <ul style="list-style-type: none"> - Autonomous Vehicles Approval and Operation Ordinance (AFGBV) (2022)

¹ if the automated vehicle has to reach a state that minimizes the risk, it shall provide the technical supervision with possible driving manoeuvres and provide data to assess the situation to decide whether to authorize the proposed manoeuvres; in case of impairments which result in the technical equipment not being able to handle the driving task independently, it is sufficient if the technical supervision can specify an alternative manoeuvre realized by the technical equipment, the technical supervision is not driving the vehicle or permanently monitoring the vehicle, and the technical equipment is still capable of visually, acoustically or otherwise perceptibly prompting the technical supervision to specify a manoeuvre.

		<p>https://www.gesetze-im-internet.de/afgbv/AFGBV.pdf)</p> <p>Requirements are provided for technical supervision as follows in section 14:</p> <p>(1) The natural person appointed as technical supervisor must be suitable for carrying out his or her duties (cf. Road Traffic Act).</p> <p>The term suitable refers to the fact to be in the field, to have completed an appropriate training in relation to the motor vehicle with autonomous driving function from the manufacturer of that motor vehicle, to hold a valid driver's license corresponding to the class of the vehicle with autonomous driving function, and to be reliable (certificate of good conduct submitted to an authority) with regard to the performance of the tasks entrusted in accordance with the road traffic act.</p> <p>(2) The natural person may use other suitable natural persons who have at least three years of professional experience in the field of transport or motor vehicle engineering to fulfil their duties. The same training apply to the other natural persons and the technical supervisor has to document the successful completion of the training.</p> <p>(3) If the motor vehicle with autonomous driving function is in the minimum-risk state, the technical supervisor must carry out an investigation into the triggering and necessity of the minimum-risk state before arranging for its termination.</p> <p>If the minimum-risk state was triggered by a defect in the motor vehicle, once the minimum-risk state has been reached, the driving task must be taken over manually by the natural person appointed as technical supervisor.</p> <p>If the minimum-risk state endangers the safety and smoothness of traffic, the motor vehicle with autonomous driving function must be removed from the road immediately.</p> <p>NB: Manual control is defined (annex) as: in manual driving mode, a person driving the vehicle carries out the driving task. The motor vehicle with an autonomous driving function must be equipped with devices that enable the person driving the vehicle to carry out the driving task. If the control in manual driving mode is limited to speeds not higher than walking speed, it is not necessary for the person driving the vehicle to be inside the motor vehicle with autonomous driving function. In this case, the control can be carried out via a remote control located in the near field of the motor vehicle. The maximum distance over which remote control is possible is 6 meters, measured in a straight connection. Compliance with the maximum distance must be ensured by the manufacturer using suitable technical means. If the motor vehicle with autonomous driving function is to be controlled in manual driving mode at speeds higher than walking speed, it must be equipped with a seat for the person driving the vehicle. The seating area must be designed in accordance with the applicable regulations.</p>
United Kingdom	Licensing of operators for vehicle use without user-in-charge	<ul style="list-style-type: none"> - Automated vehicle bill (2024) <p>https://www.legislation.gov.uk/ukpga/2024/10/contents?view=plain)</p>

		<p>Among this act, chapter 2 is dedicated to the licensing of operators for vehicle use without user-in-charge.</p> <p>A coming “operator licensing regulation” may make provisions:</p> <ul style="list-style-type: none"> • for the licensing of persons as no-user-in-charge operators; • imposing requirements on those persons in connection with no-user-in-charge journeys or the vehicles that undertake them • for the keeping of a public register of those persons (and associated information). <p>A “no-user-in-charge journey” is defined as follows: a journey by a vehicle with an authorized no-user-in-charge feature during which (a) that feature is engaged, or (b) there is no individual in the vehicle who is exercising control of it. A no-user-in-charge journey may be “overseen” by a licensed no-user-in-charge operator, who satisfies regulatory requirements to be developed.</p> <p>The objectives of any requirements regulating operator licensing are to establish general responsibility of the no-user-in-charge operator for the detection of, and response to, problems arising during a no-user-in-charge journey overseen by the operator, providing that the licensed operator is of good repute, of good financial standing and competent.</p> <p>In particular, the regulation may make provision for and about the grant, retention, variation, renewal, expiry, suspension or withdrawal of licenses; including provision about the form and content of applications for licenses, fees, reviews of decisions. The regulation may impose on a licensed no-user-in-charge operator a requirement to comply with any conditions that are attached to an individual license.</p>
Japan	Remote monitoring	<ul style="list-style-type: none"> - Act partially amending the Road traffic act (2022) (https://www.npa.go.jp/english/bureau/traffic/selfdriving.html) <p>Provisions for establishing a permission system for specified automated operation, which is driverless automated driving, equivalent to level 4 in the SAE, named specified automated operation (SAE).</p> <p>As part of rules to be observed by the person that has obtained the permission figures an explicit requirement that remote monitoring equipment must be placed, and a person who conducts the remote monitoring (supervisor) must be allocated (unless the supervisor is inside the vehicle). Moreover, it states that education must be provided for the supervisor.</p> <p>The remote supervisor is obliged to:</p> <ul style="list-style-type: none"> • Monitor the state of the operation of the remote monitoring • In the event of a traffic accident: <ul style="list-style-type: none"> • take measures to notify the fire department and to send a person responsible for on-site measures to the scene • take measures to report the date, time, etc., to a police officer.

		As part of operational measures in case the ADS needs support: the supervisor must take measures such as where there is a need to follow police instructions on site or in case of a traffic accident.
Federal motor carrier safety administration (USDOT/FMCSA)	Remote assistance	<ul style="list-style-type: none"> - National consultation published 2023 (one-month period in February) (https://www.govinfo.gov/content/pkg/FR-2023-02-01/pdf/2023-02073.pdf) <p>A national consultation launched to receive insights from the industry on a regulatory approach to meet significant road safety benefits. The consultation is organized in three parts, one of those concerning the “oversight for remote assistants”.</p> <p>More precisely, the notice refers to:</p> <ul style="list-style-type: none"> • remote driving, especially the oversight of remote drivers and requirements applicable to them (same as conventional drivers); • remote assistance (monitoring the L4 / L5 ADS-equipped vehicle from remote), especially to remote assistant, who will “enable the ADS to complete the driving task” and “engage with law enforcement personnel, first responders and/or other public officials”. <p>FMCSA seeks information on what requirements, if any, should be imposed on persons performing remote assistant duties for motor carriers operating Level 4 or 5 ADS-equipped commercial motor vehicles.</p> <p>The notice shares five questions to help find the way forward in establishing a federal regulation encompassing remote assistant operators’ duties in terms of general requirements, qualification and federal oversight, specific limitation in working conditions, other considerations to have.</p>
California DMV (USA)	Remote operator	<ul style="list-style-type: none"> - Testing regulation for the operation of autonomous vehicles on public roads (2022) - Deployment regulation implementing the Vehicle Code providing for the regulation of the deployment of autonomous vehicles on public roads in California (https://www.dmv.ca.gov/portal/file/adopted-regulatory-text-pdf/) <p>The testing regulation defines a “remote operator” as a natural person for the purpose of the operation of autonomous test vehicles on public roads (article 3.7) who:</p> <ul style="list-style-type: none"> • possesses the proper class of license for the type of test vehicle being operated; • is not seated in the driver’s seat of the vehicle; • engages and monitors the autonomous vehicle; • is able to communicate with occupants in the vehicle through a communication link.

		<p>For the purpose of deployments, the term “operator” is defined as the person who is seated in the driver’s seat, or, if there is no person in the driver’s seat, causes the autonomous technology to engage².</p> <p>Provisions are made in relation to the operator who has the ability to:</p> <ul style="list-style-type: none"> • engage and disengage the autonomous technology; • be alerted by a system safety alert if an autonomous technology failure is detected while the autonomous technology is engaged. <p>A manufacturer operating an autonomous vehicle under a testing permit or deployment permit shall, under responsibility of a remote operator:</p> <ul style="list-style-type: none"> • maintain a dedicated emergency response telephone line that is available (at no cost for public agencies) for emergency response officials during all hours when an autonomous vehicle is on public road; • equip each autonomous vehicle with a two-way voice communication device that enables emergency response officials that are near the vehicle to communicate effectively with a remote human operator. <p>The so-called remote operator shall:</p> <ul style="list-style-type: none"> • have situational awareness of all autonomous vehicles and pick-up calls within the 30 seconds; • have the ability to immobilize the autonomous vehicle, allow emergency response official to move autonomous vehicle, or cause the autonomous vehicle to move as directed by an emergency response official. <p>For the purpose of the testing of an autonomous vehicle on public roads, the manufacturer shall certify that the vehicle is equipped with a communication link between the vehicle and a remote operator to provide information on the vehicle’s location and status and to allow two-way communication between the remote operator and any passengers if the vehicle experiences any failures that would endanger the safety of the vehicle’s passengers or other road users while operating without a driver.</p> <p>Moreover, the regulation stipulates the law enforcement interaction plan shall include how to communicate with a remote operator of the vehicle who is available at all time that the vehicle is in operation, including providing a contact telephone number for the manufacturer.</p> <p>The remote operator shall receive a training program and a certification by the manufacturer proving its ability to safely execute the duties of a remote operator. An outline and description of the remote operator training program shall be given to the department including the date that each remote operator completed the program. In particular the training program shall include:</p>
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² The manufacturer shall submit a description of how the vehicle that meets the SAE definition of level 4 or level 5 vehicle (or level 3 vehicle and the driver does not or is unable to take control of the vehicle) will safely come to a complete stop when there is an autonomous technology failure that would endanger the safety of the vehicle’s occupants of other road users.

		<ul style="list-style-type: none">• instruction on the ADS technology, including how to respond to emergency situations and hazardous driving scenarios the vehicle may encounter;• instruction that matches the level and technical maturity of the ADS. <p>The regulation also provides provision on the annual report summarizing disengagements including the party that initiated the disengagement (ADS technology, autonomous vehicle test driver, remote operator, passenger).</p>
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