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Comment on the draft regulation for testing of motor vehicles with remote-controlled driving functions

Initial situation

The Federal Ministry for Digital and Transport has submitted the draft regulation on exemptions from road traffic regulations for the testing of motor vehicles with remote-controlled driving functions (Straßenverkehr-Fernlenkverordnung - StVFernLV) of 6 May 2024 for consultation with associations. The regulation supplements the legal framework created by the Act on Autonomous Driving of 28 July 2021 and the Regulation on the Approval and Operation of Motor Vehicles with Autonomous Driving Functions in Specified Operating Areas (AFGBV) of 1 July 2022.

In contrast to autonomous driving, the driving task in a motor vehicle with a remote-controlled driving function is carried out by a human driver in an authorized operating area. However, the driver is no longer physically in the vehicle, but outside the vehicle at a control center.

The regulation is intended to promote innovations in teleoperation. In the future, the use of remote-controlled vehicles will enable new mobility concepts, e.g. in car sharing, local public transport, logistics and freight transport.

Key contents of the StVFernLV

The draft stipulates that an individual operating license must be applied for from the Federal Motor Transport Authority (KBA) for each vehicle. Type approval for teleoperated vehicles is not envisaged. The use of such vehicles is restricted to an operating area that must be authorized by the responsible authorities.

The vehicle owner is responsible for data collection and storage and must manage this data in compliance with data protection regulations. This data must be made available to certain authorities, such as KBA, for market surveillance purposes. In addition, the owner must evaluate the effects of operating the remote-controlled motor vehicle in a research project and submit the results to the KBA and the Federal Highway Research Institute (BASt).

The person driving remotely is legally categorized as the driver of the vehicle and is therefore liable in accordance with §18 StVG. The person must be named when applying for the operating area and be in an employment relationship with the vehicle owner. It is also stipulated that the remote-controlled person must be located in Germany and can be checked by the authorities at any time to ensure the driving ability.

When applying for an operating license for remote-controlled motor vehicles, the owner must include a safety concept for the functional safety of the overall remote-controlled system. The data transmission between the remote-controlled motor vehicle and the control center must be designed with a focus on low latency times, high availability, high reliability, high robustness and low error rates. Functional redundancies must be provided with regard to data transmission. An adequate transmission of image, control and audio signals from the control center to the telecommunications network and from the telecommunications network to the terminal device must be ensured. The signal latency should not exceed 200 ms for both image

signals and control commands. If this is exceeded, the speed may be adapted to the delay resulting from the sum of the latency times.

Limitations and points of criticism

The regulation is restricted to vehicles in categories M and N. This means that delivery robots or light vehicles in category L, which are of interest for good movers, are excluded from the regulation. In addition, it is required that individual or type approval has been granted for the motor vehicles prior to the installation of the technical equipment for remote control. This makes it more difficult to use experimental vehicles that have been developed for teleoperation per se.

The regulation interprets remote-controlled driving as a bridging technology for autonomous driving. There is no provision for interaction between technical supervision in autonomous driving, which does not intervene directly in longitudinal and lateral control, and the remote driver. A "smooth" takeover by the remote driver at the limit of the ODD for autonomous driving is therefore not readily possible. This would be interesting, for example, for hub-to-hub freight transport with remote-controlled driving function between freight distribution centers and the motorway and driverless (L4) driving on the motorway.

The requirements for the remote driver are based on those for obtaining a driving license for passenger transport. This is not readily apparent because it is unlikely that passengers will be carried as part of the test.

If a connection is lost, the operating limits are reached or if systems relevant to the driving task fail, the vehicle must be able to return to a risk-minimized state independently with the help of its assistance systems. The regulation explicitly only provides for the use of adaptive cruise control and emergency braking assistance systems. An *emergency driving function*, as required for autonomous vehicles, is not guaranteed. It therefore does not achieve a level of safety comparable to autonomous driving. It is not clear whether this is due to the fact that the StVFernLV "only" regulates the testing of such systems, while the AFGBV regulates regular autonomous operation.

Conclusion

The StVFernLV is an important step towards comprehensive legal regulation of teleoperated driving. It lays the foundation for safe and legally compliant testing of such vehicles, but still has weaknesses in some areas that should be addressed in future revisions. The aforementioned restrictions in the scope of application and in the intended use cases stand in the way of fully realizing the potential of teleoperation. A safety level comparable to that of autonomous driving must be stipulated in a future regulation for the regular operation of remote-controlled driving functions at the latest.

About us

TESACO GmbH is a start-up company founded in 2024 by four partners from industry and academia. With their many years of experience in safety assurance of Connected Cooperative Automated Mobility, they are contributing to the safe and reliable mobility of the future.
TESACO GmbH offers technical and approval support for the development and operation of vehicles and systems for Connected Cooperative Automated Mobility.

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