

Automated Driving Systems Marker Lamp (ADS ML)

ADS Marker Lamp Definitions

Light signal (lamp) to inform the other road users about the autonomous driving system operational status of the vehicle

“A device emitting light to indicate when a vehicle’s ADS is engaged in the operation of the vehicle. ADS lamps are intended to be visible to road users (i.e., nearby pedestrians, pedal cyclists, and motorists) in close proximity to the vehicle. These ADS lamps provide information to the road user, in the absence of a driver, as to the vehicles’ ADS status and intent, and may provide comfort and ease of acceptance as ADS-equipped vehicles are introduced into the market.”

SAE J3134™(2019)

“Automated Driving System Marker Lamp (ADSML)” means a lamp used to indicate that a vehicle is in autonomous mode level 3, 4 or 5 or when the vehicle is operated by a remote driver (as defined in SAE J3016).”

GTB WG SL Draft (2019)

ADS Marker Lamp

Motivation and background



- DE, Ethics commission Automated and connected driving (Report June 2017, Federal Ministry of Transport and Digital Infrastructure)
 - Paragraph No. 5 to read
 - „...*the technology must be designed in such a way that **critical situations do not arise in the first place...** the entire spectrum of technological options – ... **signals for persons at risk, ... – should be used and continuously evolved...**”*
 - Paragraph No. 16 to read
 - „...*it must be possible to clearly distinguish whether a driverless system is being used or whether a driver retains accountability with the option of overruling the system...*”



- US National Highway Traffic Safety Administration, chapter 5 of Federal Automated Vehicles Policy, September 2016
 - „...*manufacturers and other entities should consider how HAVs will **signal intentions to the environment around the vehicle, including pedestrians, bicyclists, and other vehicles...**”*

ADS Marker Lamp

Worldwide Regulatory and Standardization Status



- SAE recommended practice J3134 of 2019. Document revision starting in 2024. This document describes ADS signaling to the front only. Motivation to raise confidence of observers in automated vehicles.
- FMVSS 108 does not mention ADS marker lamp
- Limited approvals already released by the states of Nevada and California in Dec. 2023, based on the technical characteristics of SAE J3134-2019



- China does allow such a signal; however, it is yet not required by GB-standards. No info on Motivation.
- ADS marker lamp technical characteristics defined during the simplification process, but removed in Q3/2023
- Maybe this function will be integrated in the revision of the vehicle installation standard, to start in 2024



- ADS marker lamp is a topic under discussion today at the GRE TF AVSR. Different ideas on Motivation.
- In the past, GTB already worked on a regulatory scope of ADS ML
Document No. ITS/AD-15-05a-Rev1, June 21st 2018
<https://wiki.unece.org/pages/viewpage.action?pageId=60364189>



- **ISO/TR 23049:2018** Road Vehicles — Ergonomic aspects of external visual communication from automated vehicles to other road users (published)
- **ISO/CD PAS 23735** Road vehicles — Ergonomic design guidance for external visual communication from automated vehicles to other road users (in development)

ADS Marker Lamp

GTB proposal for a draft regulation: major aspects

1. General
 - Target groups: law enforcement, pedestrians, other road users
 - Hybrid regulation: device requirements + installation guidelines
2. Device
 - Color: cyan / turquoise
 - 2 intensity levels: day and night
3. Installation
 - Vehicle categories M, N, T, (O, R, S)
 - Installation at the front, to the side and rear
 - Reciprocal incorporation with other signaling functions allowed
 - Substitution of existing functions (DRL, position lamp, side-marker lamp)