

AVSR-18-02

Automated Driving System (ADS) Marker Lamps

Mercedes-Benz AG Concept presented at 89th GRE Session via TF AVSR

15.07.2024

ADS Marker Lamps - *External indication that the vehicle's L3 or higher Automated Driving System is engaged*

ADS Marker Lamps

- for an increased **acceptance** and **confidence** of other road users in this new technology of Automated Driving Systems,
- an **easy** and **intuitive signal understanding** in road traffic using the newly defined and unique light color Turquoise,
- making it easy for **traffic law enforcement** and **police officers** to **identify the ADS status** from any direction and deduce whether the drivers are allowed to divert their attention from the driving task



Fundamental Principles for ADS Marker Lamps

Installation

- Permissible to install **two front, two side** and **two rear** ADS Marker Lamps
- Permissible to **reciprocally incorporate the ADS Marker Lamps with the front, side and rear direction-indicator lamps**; to regulate the mounting position accordingly and as well the electrical connection / switching requirements to avoid an impairment of the effectiveness of the direction-indicator lamps
- Furthermore, permissible to reciprocally incorporate the front ADS Marker Lamps with front position lamps and/or daytime running lamps

Photometry

- **Front ADS Marker Lamps** – Based on the proposal from the GB Draft; in HV during daytime ambient lighting conditions min. 50 cd to max. 300 cd & nighttime conditions min. 10 cd to max. 125 cd
- **Lateral ADS Marker Lamps** – Minimum visibility angles as regulated for the side marker lamps [or for vehicle length < 6 m alternatively permissible as required for the side direction-indicator lamps acc. UN-R 148]; luminous intensity as regulated for the side direction-indicator lamp of Cat. 5 min. 0.6 cd to max. 280 cd.
- **Rear ADS Marker Lamps** – Luminous intensity as regulated for rear position lamps with variable lum. intensity (Cat. R2) in UN-R 148; in HV min. 4 cd to max. 42 cd

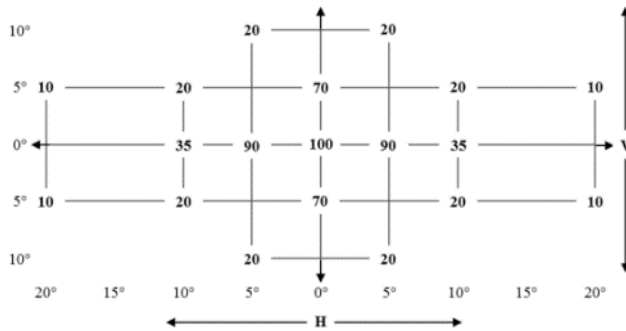
Light Color

Turquoise, as defined in **SAE J3134 & GB Draft**; the emitted color of light per CIE 1931 coordinate system shall be within the boundaries with the following intersection points (x=0.012, y=0.495), (x=0.200, y=0.400), (x=0.200, y=0.320), (x=0.040, y=0.320)

Proposal for Technical Specifications

Front:

- **2 ADS Marker Lamps** permissible
- **Mounting height** 250mm to 1500mm & installed symm. in width
- **Minimum visibility angles*** 45° in 80° out, 15° up 15° down; (in case of mounting height < 750mm 20° in 80° out, 15° up 5° down)
- **Minimum luminous intensity within above-mentioned min. visibility angles*** min. 0.3cd daytime & 0.07cd nighttime
- **Luminous intensity in HV**** daytime 50cd to 300cd & nighttime 10cd to 125cd
- **Light distribution***



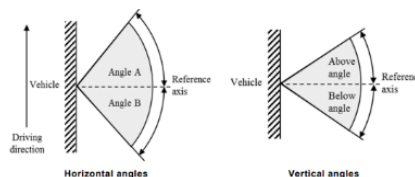
* derived from the requirements for direction-indicator lamps acc. UN-R 148

** same requirements from GB draft



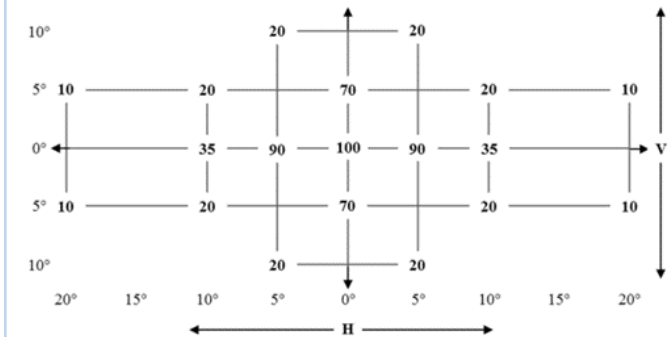
Side:

- **2 ADS Marker Lamps** permissible
- **Mounting height** 250mm to 1500mm & position in length within the middle third of the vehicle
- **Minimum visibility angles** 45° front, 45° rear, 10° up, 10° down (in case of mounting height < 750mm 5° down)
- **Minimum luminous intensity within above-mentioned min. visibility angles** min. 0.3cd daytime & 0.07cd nighttime (same as for the front and rear ADS Marker Lamps)
- **Var. luminous intensity** for daytime and night-time ambient light conditions permissible
- **Luminous intensity in HV** 0.6cd to 280cd



Rear:

- **2 ADS Marker Lamps** permissible
- **Mounting height** 250mm to 1500mm & installed symm. in width
- **Minimum visibility angles*** 45° in 80° out, 15° up 15° down; (in case of mounting height < 750mm 20° in 80° out, 15° up 5° down)
- **Minimum luminous intensity within above-mentioned min. visibility angles*** min. 0.3cd daytime & 0.07cd nighttime
- **Luminous intensity in HV**** 4cd to 42cd
- **Light distribution***



* derived from the requirements for direction-indicator lamps acc. UN-R 148

** same requirements as for var. lum. int. rear position lamp (Cat. R2) acc. UN-R 148