

71 Driving vision assistant system

71.1 Effective Date and Scope:

71.1.1 Effective from 2017/1/1, the new vehicle types of category M2 and M3, and from 2019/1/1, the all vehicle types of category M2 and M3, shall comply with this regulation.

71.1.2 Effective from 2018/1/1, the all vehicle types of category M2 and M3, shall installed with cameras on both sides and interior monitor, and applicants shall provide declaration of design compliance of documents for certification institution.

71.1.3 Effective from 2019/1/1, the all vehicle types of category M2 and M3, shall installed with driving vision assistant system which comply with this regulation.

71.1.4 The following vehicles could exempt from paragraph 71.4.2, which regarding to relevant paragraph of rear view camera.

71.1.4.1 Trailer of category N2 and N3.

71.1.4.2 Applicants shall provide documents to prove the special equipment or when operating equipment that located on the back of category N will interfere with rear view camera, and shall be confirmed by certification institution.

71.1.5 Camera monitor systems(CMS) conformed to the VSTD may be installed on right and left side of vehicle as an alternative for Driving vision assistant system of both right and left side of vehicle.

71.1.6 From 2025/7/1, the new vehicle type of category symbols M2、M3、N2 and N3, and from 2026/1/1 all vehicle types of category symbols M2、M3、N2 and N3 shall comply with this regulation;and shall comply with paragraph 71.4.1.5 and paragraph 71.4.2.6. in addition.

71.2 Definitions

71.2.1 Driving vision assistant system: an assistant system using cameras mounted outside of vehicle to provide driver with the vision adjacent to the vehicle.

71.2.2 "The driver's ocular points" means two points 65 mm apart and 635 mm vertically above point R of the driver's seat. The straight line joining these points runs perpendicular to the vertical longitudinal median plane of the vehicle. The centre of the segment joining the two ocular points is in a vertical longitudinal plane which shall pass through the centre of the driver's designated seating position, as specified by the vehicle manufacturer.

71.2.3 "Ocular reference point" means the middle point between the driver's ocular points.

71.3 The principles of applicable type and scope of driving vision assistant system shall be as below:

- 71.3.1 The same vehicle category.
- 71.3.2 The same brand and vehicle type series.
- 71.3.3 The same type of series and design of the camera and monitor.
- 71.3.4 The same chassis brand.
- 71.3.5 The same chassis vehicle type series declared by chassis manufacturers
- 71.3.6 If use chassis vehicle instead of completed vehicle for entire or partial testing, The principles of applicable type and scope of driving vision assistant system shall be as below :
 - 71.3.6.1 The same vehicle category.
 - 71.3.6.2 The same chassis brand.
 - 71.3.6.3 The same chassis vehicle type series declared by chassis manufacturers.
 - 71.3.6.4 The same type of series and design of the camera and monitor.

71.4 Driving vision assistant system requirements

- 71.4.1 Declaration of design compliance: applicant shall ensure and declare to comply with the following requirements.
 - 71.4.1.1 Camera resolution shall not be less than 270,000 pixels, and the illumination shall be less than 1 lux, the signal / noise ratio shall not be less than 40 dB, and images of camera shall be shown on the monitor clearly.
 - 71.4.1.2 Dynamic range values of camera shall be more than 70 dB.
 - 71.4.1.3 The effectiveness of this system shall not be adversely affected by magnetic or electrical fields.
 - 71.4.1.4 System shall be powered by vehicle, and all of functions shall be automatically activated when the ignition (start) switch is turned to the "on" (run) position, and it is not allowed to deactivate the system manually.
 - 71.4.1.5 The maximum background luminance shall be visible and adjusted from surroundings (e.g. during nighttime driving conditions, tunnels, etc.), in order to avoid cause any discomfort, distraction or glare the driver.
- 71.4.2 Installation requirements of vehicle
 - 71.4.2.1 Quantity and position of camera:
 - 71.4.2.1.1 At least one camera shall be mounted on right, left and rear sides of vehicle, and depending on the length of vehicle, additionally cameras may be mounted on both right and left sides , all cameras mounted on vehicle shall be firmly fixed.
 - 71.4.2.1.2 Cameras mounted on both right and left sides of vehicles shall not be less than 2 m from the ground when the vehicle is

laden; or where the bottom edge of camera is less than 2 m above the ground when the vehicle is laden, this camera shall not project more than 50 mm beyond the overall width of the M2 and M3, this camera shall not project more than 250 mm beyond the overall width of the N2 and N3. The overall width of the vehicle measured without these devices and the cameras shall have a radii of curvature of no less than 2.5 mm.

71.4.2.2 Camera system of both right and left sides could have image record function, and the total time of recorded images shall not be less than 30 minutes.

71.4.2.3 Field of vision for right and left side camera: the vision field shall not be less than the vision field stipulated for main exterior mirror (Class II) of "Installation of devices for indirect vision" of "VSTD".

71.4.2.4 Field of vision for rearward camera: The field of vision shall be such that the driver can see at least the full width of the vehicle centered on the vertical longitudinal median plane of the vehicle, and starting from the plane which is 30 centimeters rearward of the rear edge of vehicle and extend to at least 3 m(see Figure 1).

71.4.2.5 Image display requirements:

71.4.2.5.1 Driver compartment shall at least have a monitor with size not smaller than 7 inches, and it shall be easily watched by the driver. The monitor shall display both right and left sides' image or in line with direction indicator and the monitor shall base on the direction indicator to display the image during operation period.

71.4.2.5.2 When vehicle is in reverse positions, the display of rearward vision shall be displayed within 2 seconds, and it may temporarily replace the image of right and left sides.

71.4.2.5.3 The rearview image shall continually be displayed when vehicle is in reverse positions.

71.4.2.6 Field of vision for right and left side of vehicle and display of rearview image requirements

71.4.2.6.1 Driver compartment shall have a monitor with size is 7 inches at least, the centre of the monitor(s) shall not be below a plane passing through the driver's ocular points, and declined 30 deg. below.

71.4.2.6.1.1 In the case of monitor is integrated with the dashboard, it is exempt from paragraph 71.4.2.6.1.

71.4.2.6.2 If the number of monitor is more than two, the field of view for the right side shall be presented to the right of the longitudinal vertical plane through the ocular reference point, the field of view for the left side shall be presented to the left of the longitudinal vertical plane through the ocular reference point.

71.4.2.6.3 Monitor used to display image of field of vision for both side of vehicle, may be same monitor used to display image of

field of vision for rearview.

- 71.4.2.6.4 The arrangement of monitor shall be easily watched by the driver from the driver seat, and it shall display image of both side for all the time, or during activation of direction indicator, display image which corresponding vehicle side of activated direction indicator. The direction of image shall be same as actual field of view to the corresponding side of the vehicle.
- 71.4.2.6.5 The location of monitor shall be convenient to the driver to operate.
- 71.4.2.6.6 If control located in compartment is in the normal driving position, the monitor defined size shall be visible without any obstruction from the ocular reference point. A virtual testing is acceptable.
- 71.4.2.6.7 Obstruction of the driver's direct view caused by the monitor shall be restricted to a minimum.
- 71.4.2.6.8 The outer surface of the monitor shall not have any sharp or cutting edges, which are in potential, static contact with a sphere either 165 mm in diameter, edges must have a radius of curvature 'c' of not less than 2.5 mm.

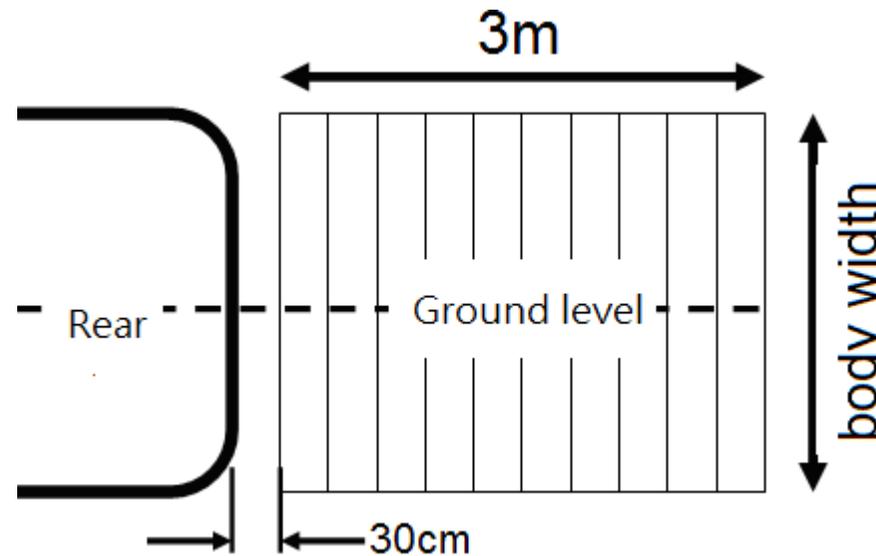


Figure 1: Field of vision for rearward camera