



**Transport  
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Motor Vehicle  
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Sécurité des  
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**DOCUMENT NO. 111**

# **Perimeter Visibility Systems**

**Issued:**

**December 18, 2024**

*(Ce document est aussi disponible en français)*

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## 1. Introduction

*Document No. 111 — Perimeter Visibility Systems* contains requirements that must be respected in accordance with section 111 of Schedule IV to the *Motor Vehicle Safety Regulations*.

## 2. Definitions

“**Perimeter Visibility System**” means the set of devices or components which together perform the function of producing the image or images of the area surrounding the perimeter of the vehicle as required under CMVSS 111. (*System de vision de périphérique*)

## 3. Perimeter Visibility System Requirements

**3.1 Field of view.** The perimeter visibility system must provide images to the driver via a visual display, outlined in section 3.4, allowing for the complete visibility of the cylindrical test tool, as defined in section 3.3, placed in any possible location within the visibility zone, as defined in section 3.2, around the test vehicle under the conditions described in subsection 3.1.1.

3.1.1. The tests prescribed by this technical document must be performed with the vehicle stationary on a paved level surface and with daylight illumination conditions consisting of light that is evenly distributed from above and is at an intensity of at least 7,000 lux, as measured at the center of the exterior surface of the vehicle's roof.

**3.2 Visibility Zone.** The visibility zone used for determining the field of view must be determined according to the following procedure:

- a) Maneuver the test vehicle onto a predetermined location under the conditions described in subsection 3.1.1;
- b) Establish the median longitudinal vertical plane at the center of the test vehicle;
- c) Identify the perimeter of the test vehicle as:
  - i) the planes, which are parallel to the median longitudinal vertical plane, passing through the outermost point of the test vehicle, excluding mirrors, on the driver and passenger's sides; and,
  - ii) the planes which are perpendicular to the median longitudinal vertical plane, passing through the frontmost and rearmost points of the test vehicle;
- d) Establish the visibility zone around the perimeter of the test vehicle by measuring 4.57 meters (15 ft) outward from the entire perimeter of the vehicle;
- e) Mark the outer edges of the established visibility zone using tape, paint, or any other appropriate means.

**3.3 Cylindrical test tool.** For the purposes of section 3.1 the cylindrical test tool must:

- a) be 114 cm (45 in) high and 27 cm (10.6 in) in diameter; and
- b) of a colour that provides a high contrast with the surface on which the test vehicle is parked.

**3.4 Display.** The visual display unit referred to in subsections 3.4.1 and 3.4.2 must,

- a) provide a level of display performance to be usable by the driver; and,
- b) be capable of adjustment from within the occupant compartment of the vehicle.

3.4.1 An interior display must be installed as a component of the perimeter visibility system and must,

- (a) be capable of displaying different views (including but not limited to left, right, forward, and rearward views) to the driver, which, when cycled through the display, provide visibility to the entire visibility zone, as determined in section 3.2;
- (b) include an indicator on the display to inform the driver of which view(s) are currently displayed;
- (c) be capable of automatically selecting the views based on the operation of the school bus; and,
- (d) include a mechanism, within reach of the driver, that must allow the driver to promptly toggle between all available views when the school bus is stationary, while keeping at least one hand on the steering wheel at all times.

3.4.2. The display must conform to the provisions referred to in subsection 3.4.1 at any driver's eye position, when adjusted in accordance with the manufacturer's instructions.