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## Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on General Safety Provisions

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Geneva, 2–5 October 2012

Item 4 of the provisional agenda

**Regulation No. 46 (Devices for indirect vision)**

### **Proposal for amendments to Regulation No. 46 (Devices for indirect vision)**

**Submitted by the expert from the International Organization of Motor  
Vehicle Manufacturers \***

The text reproduced below was submitted by the expert from the International Organization of Motor Vehicle Manufacturers (OICA) proposing the installation of a new generation of exterior and interior mirrors enclosed in a protective housing or holder. The modifications to the existing text of the Regulation are marked in bold characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106 and ECE/TRANS/2010/8, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

## I. Proposal

*Paragraph 6.1.1.2.*, amend to read:

"6.1.1.2. (a) **Exterior rear-view mirrors (Class II to VII)**

The edge of the reflecting surface **shall** be enclosed in a protective housing (holder, etc.) which, on its perimeter, **shall** have a value "c" greater than or equal to 2.5 mm at all points and in all directions. If the reflecting surface projects beyond the protective housing, the radius of curvature "c" on the edge of the projecting part **shall** be not less than 2.5 mm and the reflecting surface **shall** return into the protective housing under a force of 50 N applied to the point of greatest projection, relative to the protective housing, in a horizontal direction, approximately parallel to the longitudinal median plane of the vehicle.

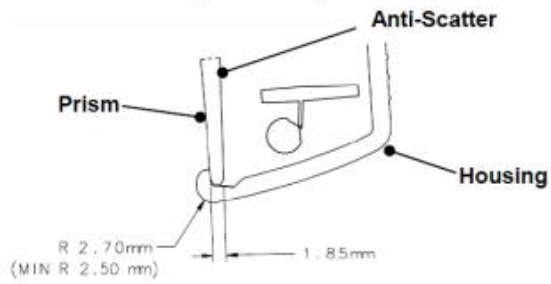
(b) **Interior rear-view mirrors (Class I)**

**In cases, where the edge of the reflecting surface is enclosed in a protective housing (holder, etc.), the radius of curvature "c" on its perimeter shall be not less than 2.5 mm at all points and in all directions. In cases, where the edge of the reflecting surface projects beyond the protective housing, this requirement shall apply to the edge of the projecting part."**

## II. Justification

1. The evolution of technology nowadays makes possible a new generation of interior rear-view mirrors without housing or holder. This new design allows the mirror to be smaller in overall dimensions (i.e. in both width and height), leading to an improved forward Field of Vision (FOV), with no decrease in performance, while still maintaining the required rearward FOV. Unfortunately, the current text of Regulation No. 46 only allows for a mirror design that contains a housing (holder, etc.) which encloses the edge of the reflecting surface.
2. Compared to standard prisms and electro-chromatic glasses, the frameless mirror technology improves the overall glass strength and does not affect mirror reflectivity, and the lack of frame around the glass has no influence on the performance for the driver. The edge of a frameless mirror is rendered opaque by abrasion of the projecting part; only the plane mirror surface does reflect light.
3. Concerning the resistance to impact, the current text of the regulation requires that the mirrors fulfil the requirements of paragraph 6.1.3.3. when tested in accordance with the pendulum test described in paragraph 6.1.3.2.
4. The provision that the reflecting surface returns into the housing under a force of 50 N is not relevant for interior rear-view mirrors because they are designed such that the glass is fixed to the housing. Therefore, OICA proposes to divide the paragraph 6.1.1.2. into two sub-points, (a) for exterior rear-view mirrors (Class II to VII) and (b) interior rear-view mirrors (Class I).

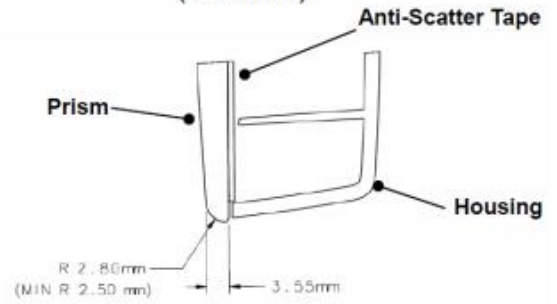
**Standard Prismatic Mirror Construction (Section)**



STANDARD PRISM SECTION VIEW SCALE: 2:1



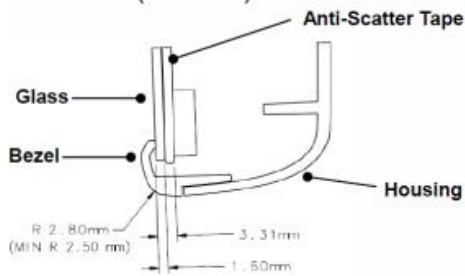
**Frameless Prismatic Mirror Construction (Section)**



FRAMELESS PRISM SECTION VIEW SCALE: 2:1



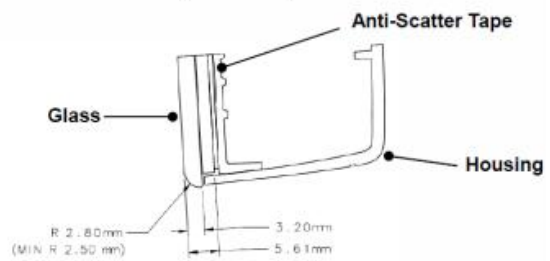
**Standard EC Mirror Construction (Section)**



STANDARD EC SECTION VIEW SCALE: 2:1



**Frameless EC Mirror Construction (Section)**



FRAMELESS EC SECTION VIEW SCALE: 2:1

