

Directive 2003/97/EC of the European Parliament and of the Council of 10 November 2003 on the approximation of the laws of the Member States relating to the type-approval of devices for indirect vision and of vehicles equipped with these devices, amending Directive 70/156/EEC and repealing Directive 71/127/EEC (Text with EEA relevance) (repealed)

ANNEX I

DEFINITIONS AND ADMINISTRATIVE PROVISIONS FOR EC TYPE-APPROVAL

1. DEFINITIONS

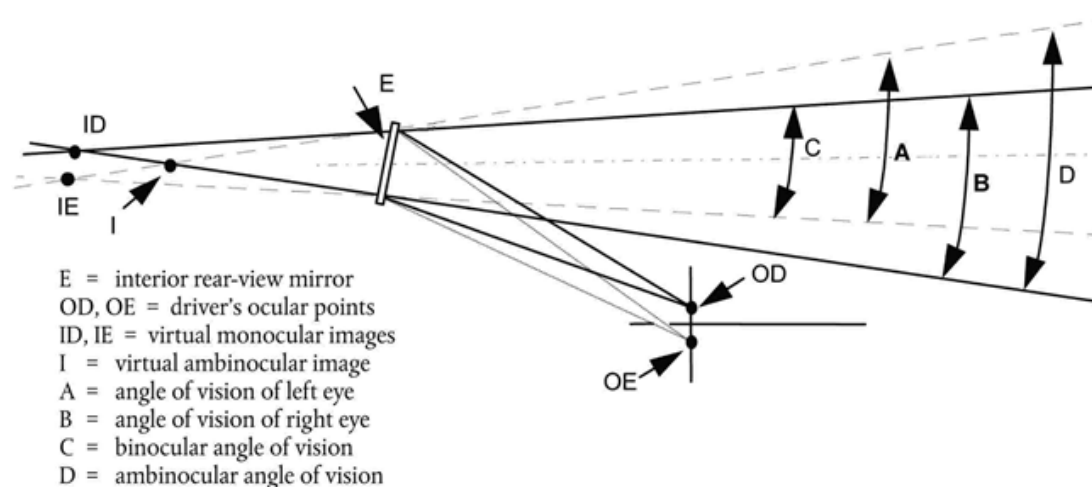
- 1.1. 'Devices for indirect vision' means devices to observe the traffic area adjacent to the vehicle which cannot be observed by direct vision. These can be conventional mirrors, camera-monitors or other devices able to present information about the indirect field of vision to the driver.
- 1.1.1. 'Mirror' means any device, excluding devices such as periscopes, intended to give a clear view to the rear, side or front of the vehicle within the fields of vision defined in point 5 of Annex III.
- 1.1.1.1. 'Interior mirror' means a device as defined in point 1.1, which can be fitted in the passenger compartment of a vehicle.
- 1.1.1.2. 'Exterior mirror' means a device as defined in point 1.1, which can be mounted on the external surface of a vehicle.
- 1.1.1.3. 'Surveillance mirror' means a mirror other than the ones defined in point 1.1.1, which can be fitted to the inside or outside of the vehicle in order to provide fields of vision other than those specified in point 5 of Annex III.
- 1.1.1.4. 'r' means the average of the radii of curvature measured over the reflecting surface, in accordance with the method described in point 2 of Appendix 1 to Annex II.
- 1.1.1.5. 'The principal radii of curvature at one point on the reflecting surface (r_i)' means the values obtained with the apparatus defined in Appendix 1 to Annex II, measured on the arc of the reflecting surface passing through the centre of this surface parallel to the segment b, as defined in point 2.2.1 of Annex II and on the arc perpendicular to this segment.
- 1.1.1.6. 'The radius of curvature at one point on the reflecting surface (r_p)' means the arithmetical average of the principal radii of curvature r_i and r'_i , i.e.:
- 1.1.1.7. 'Spherical surface' means a surface which has a constant and equal radius in all directions.
- 1.1.1.8. 'Aspherical surface' means a surface which has only in one plane a constant radius.
- 1.1.1.9. 'Aspherical mirror' means a mirror composed of a spherical and an aspherical part, in which the transition of the reflecting surface from the spherical to the aspherical part has to be marked. The curvature of the main axis of the mirror is defined in the x/y coordinate system defined by the radius of the spherical primary calotte with:
- R : nominal radius in the spherical part
k : constant for the change of curvature
a : constant for the spherical size of the spherical primary calotte
- 1.1.1.10. 'Centre of the reflecting surface' means the centre of the visible area of the reflecting surface.
- 1.1.1.11. 'The radius of curvature of the constituent parts of the mirror' means the radius 'c' of the arc of the circle which most closely approximates to the curved form of the part in question.

1.1.1.12. ‘The driver’s ocular points’ means two points 65 mm apart and 635 mm vertically above point R of the driver’s seat as defined in Appendix 6 to this Annex. ^[F1]In the case of a seat with fixed seat-back angle, the location of the ocular points shall be adjusted in accordance with the provisions of Appendix 7 to this Annex.] 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 must pass through the centre of the driver’s designated seating position, as specified by the vehicle manufacturer.

Textual Amendments

F1 Inserted by Commission Directive 2005/27/EC of 29 March 2005 amending, for the purposes of its adaptation to technical progress, Directive 2003/97/EC of the European Parliament and of the Council, concerning the approximation of the laws of the Member States relating to the type-approval of devices for indirect vision and of vehicles equipped with these devices (Text with EEA relevance).

1.1.1.13. ‘Ambinocular vision’ means the total field of vision obtained by the superimposition of the monocular fields of the right eye and the left eye (see *figure 1* below).



1.1.1.14. ‘Class of mirror’ means all devices having one or more common characteristics or functions. They are classified as follows:

- Class I: ‘Interior rear-view mirror’, giving the field of vision defined in point 5.1 of Annex III;
- Class II and III: ‘Main exterior rear-view mirror’, giving the fields of vision defined in points 5.2 and 5.3 of Annex III;
- Class IV: ‘Wide-angle exterior mirror’, giving the field of vision defined in point 5.4 of Annex III;
- Class V: ‘Close-proximity exterior mirror’, giving the field of vision defined in point 5.5 of Annex III;
- Class VI: ‘Front mirror’, giving the field of vision defined in point 5.6 of Annex III.

1.1.2. ‘Camera-monitor device for indirect vision’ means a device as defined in item 1.1, where the field of vision is obtained by means of a camera-monitor combination as defined in points 1.1.2.1 and 1.1.2.2.

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- 1.1.2.1. 'Camera' means a device that renders an image of the outside world by means of a lens onto a light-sensitive electronic detector that then converts this image into a video signal.
- 1.1.2.2. 'Monitor' means a device that converts a video signal into images that are rendered into the visual spectrum.
- 1.1.2.3. 'Detection' means the ability to distinguish an object from its background/surroundings at certain distance.
- 1.1.2.4. 'Luminance' contrast means the brightness ratio between an object and its immediate background/surrounding that allows the object to be distinguished from its background/surroundings.
- 1.1.2.5. 'Resolution' means the smallest detail that can be discerned with a perceptual system, i.e. perceived as separate from the larger whole. The resolution of the human eye is indicated as 'visual acuity'.
- 1.1.2.6. 'Critical object' means a circular object with a diameter $D_0 = 0,8 \text{ m}^{(1)}$.
- 1.1.2.7. 'Critical perception' means the level of perception that the human eye is generally capable of achieving under various conditions. For traffic conditions the limiting value for a critical perception is eight arc-minutes of visual angle.
- 1.1.2.8. 'Field of vision' means the section of the tri-dimensional space in which a critical object can be observed and rendered by the device for indirect vision. This is based on the view on ground level offered by a device and might possibly be limited on the basis of the applicable maximum detection distance of the device.
- 1.1.2.9. 'Detection distance' means the distance measured at ground level from the viewing reference point to the extreme point at which a critical object just can be perceived (the limiting value for a critical perception just barely achieved).
- 1.1.2.10. 'Critical field of vision' means the area in which a critical object has to be detected by means of a device for indirect vision and that is defined by an angle and one or more detection distances.
- 1.1.2.11. 'Viewing reference point' means the point linked to the vehicle to which the prescribed field of vision is related. This point is the projection on the ground of the intersection of a vertical plane passing through the drivers's ocular points with a plane parallel to the median longitudinal plane of the vehicle situated 20 cm outside the vehicle.
- 1.1.2.12. 'Visual spectrum' means light with a wavelength within the range of the perceptual limits of the human eyes: 380-780 nm.
- 1.1.3. 'Other devices for indirect vision' means devices as defined in point 1.1, where the field of vision is not obtained by means of a mirror or a camera-monitor type device for indirect vision.
- 1.1.4. 'Type of device for indirect vision' means devices that do not differ on the following essential characteristics:
 - design of the device inclusive, if pertinent, the attachment to the bodywork;
 - in case of mirrors the class, the shape, the dimensions and radius of curvature of the mirror's reflecting surface;
 - in case of camera-monitor devices the detection distance and the range of vision.

- 1.2. 'Vehicles of categories M₁, M₂, M₃, N₁, N₂, N₃' means those defined in Annex II, Part A to Directive 70/156/EEC.
- 1.2.1. 'Type of vehicle as regards indirect vision' means motor vehicles which are identical in respect of the following basic features:
 - 1.2.1.1. Type of device for indirect vision
 - 1.2.1.2. The bodywork features which reduce the field of vision;
 - 1.2.1.3. The coordinates of point R;
 - 1.2.1.4. The prescribed positions, and type-approval markings of compulsory and (if fitted) optional devices for indirect vision.
2. APPLICATION FOR EC COMPONENT TYPE-APPROVAL OF A DEVICE FOR INDIRECT VISION
 - 2.1. The application for EC component type-approval for a type of device for indirect vision shall be made by the manufacturer.
 - 2.2. The model information document is reproduced in Appendix 1 to this Annex.
 - 2.3. For each type of device for indirect vision the application shall be accompanied by:
 - 2.3.1. In case of mirrors, four samples: three for use in the tests and one to be retained by the laboratory for any further examination that might subsequently prove necessary. Additional specimens may be called for at the request of the laboratory.
 - 2.3.2. In case of other devices for indirect vision, one sample of all the parts.
3. INSCRIPTIONS

Specimens of a type of mirror or device for indirect vision other than a mirror submitted for EC component type-approval must bear the applicant's clearly visible and indelible trade mark or name and must allow sufficient space for the inscription of the EC component type-approval mark; this space must be indicated in the diagrams referred to in point 1.2.1.2 of Appendix 1 to this Annex.
4. APPLICATION FOR EC TYPE-APPROVAL OF A VEHICLE WITH REGARD TO THE INSTALLATION OF THE DEVICES FOR INDIRECT VISION
 - 4.1. The application for EC vehicle type-approval with regard to devices for indirect vision shall be made by the manufacturer.
 - 4.2. The model information document is reproduced in Appendix 3 to this Annex.
 - 4.3. For each type of vehicle the application shall be accompanied by:
 - 4.3.1. A vehicle representative of the type, the vehicle being if necessary determined by agreement with the technical department responsible for conducting the tests.
5. EC COMPONENT TYPE-APPROVAL
 - 5.1. Once the relevant requirements have been met, EC component type-approval shall be granted and a component type-approval number, in accordance with Annex VII to Directive 70/156/EEC, issued in respect of any mirror or device for indirect vision other than a mirror.

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- 5.2. This number shall not be assigned to any other type of device for indirect vision.
- 5.3. The model EC type-approval certificate is reproduced in Appendix 2 to this Annex.

6. MARKING

Any device for indirect vision conforming to a type in respect of which component type-approval has been granted pursuant to this Directive shall bear an EC component type-approval mark as specified in Appendix 5.

7. EC VEHICLE TYPE-APPROVAL

- 7.1. Once the relevant requirements have been met, EC vehicle type-approval shall be granted in respect of any type of vehicles.
- 7.2. The model EC type-approval certificate is reproduced in Appendix 4 to this Annex.
- 7.3. A type-approval number in accordance with Annex VII of Directive 70/156/EEC is assigned to each vehicle type. The same Member State must not assign the same number to another vehicle type.

8. TYPE MODIFICATIONS AND AMENDMENTS TO THE APPROVALS

- 8.1. Where type modifications are made to the type of vehicle or type of device for indirect vision approved pursuant to this Directive, the provisions of Article 5 of Directive 70/156/EEC shall apply.

9. CONFORMITY OF PRODUCTION (VEHICLES AND COMPONENTS)

- 9.1. Measures to ensure conformity of production must be taken in accordance with the provisions laid down in Article 10 of Directive 70/156/EEC.

- (1) A system for indirect vision is intended to detect relevant road users. The relevancy of a road user is defined by his or her position and (potential) speed. More or less in proportion with the speed of the pedestrian cyclist moped driver, the dimensions of these road users increase as well. For detection purposes a moped driver ($D = 0,8$) at 40 m distance would be equal to a pedestrian ($D = 0,5$) at a distance of 25 m. Considering the speeds, the moped driver would be selected as the criterion for the detection size; for that reason an object with a size of 0,8 m shall be used for determining the detection performance.