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7 August 2008

AGREEMENT

**CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS
FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED
AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR
RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF
THESE PRESCRIPTIONS */**

(Revision 2, including the amendments that entered into force on 16 October 1995)

Addendum 45: Regulation No. 46

Revision 2 - Amendment 2

Supplement 2 to the 02 series of amendments - Date of entry into force: 11 July 2008

**UNIFORM PROVISIONS CONCERNING THE APPROVAL OF DEVICES FOR
INDIRECT VISION AND OF MOTOR VEHICLES WITH REGARD TO THE
INSTALLATION OF THESE DEVICES**



UNITED NATIONS

*/ Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

GE.08-24780

Paragraph 1.1., amend to read:

"1.1. to compulsory and optional devices for indirect vision, set out in the table under paragraph 15.2.1.1.1., intended to be installed on motor vehicles "

Insert a new paragraph 2.1.1.4., to read:

"2.1.1.4. "Vision support system" means a system to enable the driver to detect and/or see objects in the area adjacent to the vehicle."

Paragraphs 2.1.1.4. to 2.1.1.12. (former), renumber as paragraphs 2.1.1.5. to 2.1.1.13.

Paragraph 2.1.2.1., amend to read:

"2.1.2.1. "Camera" means a device that renders an image of the outside world and then converts this image into a signal (e.g. video signal)."

Paragraph 2.1.2.2., amend to read:

"2.1.2.2. "Monitor" means a device that converts a signal into images that are rendered into the visual spectrum."

Paragraph 2.1.2.4., amend to read:

"2.1.2.4. "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."

Paragraph 2.1.2.8., amend to read:

"2.1.2.8. "Field of vision" means the section of the tri-dimensional space which is monitored with the help of a device for indirect vision. Unless otherwise stated, this is based on the view on ground level offered by a device and/or devices other than mirrors. This may be limited by the relevant detection distance corresponding to the critical object."

Paragraph 4.2., amend to read:

"4.2. Every device shall possess a space large enough to accommodate the approval mark, which must be legible when the device has been mounted on the vehicle; this space shall be shown on the drawings referred to in Annex 1."

Paragraph 6.1.3.2.2.3., replace the reference to paragraph 2.1.1.10. by a reference to paragraph 2.1.1.11.

Paragraph 6.2.2.2.2., amend to read:

"6.2.2.2.2. The monitor shall render a minimum contrast under various light conditions as specified by ISO 15008:2003."

Paragraph 6.2.2.2.4., amend to read:

"6.2.2.2.4. The measurements for the luminance contrast shall be carried out according to ISO 15008: 2003."

Paragraph 12.5., should be deleted.

Paragraph 12.6. (former), renumber as paragraph 12.5.

Paragraph 15.1.1., amend to read:

"15.1.1. The compulsory and optional devices for indirect vision, set out in the table under paragraph 15.2.1.1.1., installed on the vehicle shall be of a type approved under this Regulation."

Paragraph 15.1.4., amend to read:

"15.1.4. The fields of vision defined below shall be established using ambimocular vision, the eyes being at the "driver's ocular points" as defined in paragraph 12.1. The fields of vision shall be determined when the vehicle is in running order as defined in document TRANS/WP.29/78/Rev.1/Amend.2, Annex 7, paragraph 2.5.4., plus for M1 and N1 vehicles one front seat passenger (75 kg). When established through windows, the glazing shall have a total light transmission factor in accordance with Regulation No. 43, Annex 21."

Paragraph 15.2.1.1.2., amend to read:

"15.2.1.1.2. In case the described field of vision of a front mirror prescribed in paragraph 15.2.4.6. and/or a close proximity mirror described in paragraph 15.2.4.5. can be obtained by another device for indirect vision that is approved according to paragraph 6.2. and that is installed according to paragraph 15., this device can be used instead of the relevant mirror or mirrors.

In case a camera/monitor device is used, the monitor must exclusively show:

- (a) the field of vision prescribed in paragraph 15.2.4.5. when the close proximity mirror has been substituted,
- (b) the field of vision prescribed in paragraph 15.2.4.6. when the front mirror has been substituted while the vehicle is moving forward with a speed up to 30 km/h, or

- (c) simultaneously the fields of vision prescribed in paragraphs 15.2.4.5. and 15.2.4.6. when the close proximity mirror and the front mirror have been substituted. In the case of the vehicle is moving forward at a higher speed than 30 km/h or moving backwards, the monitor may be used for other information, provided that the field of vision prescribed in paragraph 15.2.4.5. is permanently displayed."

Paragraph 15.2.4.6.1., amend to read:

- "15.2.4.6.1. The field of vision shall be such that the driver can see at least a flat horizontal portion of the road, which is bounded by:
- (a) a transverse vertical plane through the outermost point of the front of the vehicle,
 - (b) a transverse vertical plane 2,000 mm in front of the plane defined in (a),
 - (c) a longitudinal vertical plane parallel to the longitudinal vertical median plane going through the outermost side of the vehicle at the driver's side and,
 - (d) a longitudinal vertical plane parallel to the longitudinal vertical median plane 2 000 mm outside the outermost side of the vehicle opposite to the driver's side.

The front of this field of vision opposite to the driver's side may be rounded off with a radius of 2 000 mm (see figure 8)".

For the defined field of vision, see also paragraph 15.2.4.8.2.

The provisions for front mirrors are compulsory for forward controlled (as defined in paragraph 12.5.) vehicles of categories $N_2 > 7.5$ t and N_3 .

If vehicles of these categories cannot fulfil the requirements by using a front mirror or a camera/monitor device, a vision support system shall be used. In the case of a vision support system this device must be able to detect an object of 50 height and with a diameter of 30 cm within the field defined in figure 8."

Insert a new paragraph 15.2.4.6.3., to read:

- "15.2.4.6.3. For the purpose of paragraphs 15.2.4.6.1. and 15.2.4.6.2. parts permanently attached to the vehicle that are situated both above the driver's eye points and in front of the transverse vertical plane passing through the foremost surface of the vehicle's front bumper shall not be taken into account when defining the front of the vehicle."

Paragraph 15.2.4.8.1., amend to read:

"15.2.4.8.1. Interior rear-view mirror (Class I)

The field of vision may be reduced by the presence of headrest and devices such as, in particular, sun visors, rear windscreen wipers, heating elements and stop lamp(s) of category S3 or by components of bodywork such as window columns of rear split doors, provided that the required field of vision is reduced only partly. The degree of obstruction shall be measured with the headrests adjusted to their lowest possible position and with the sun visors folded back."

Paragraph 15.2.4.8.2., amend to read:

"15.2.4.8.2. Exterior mirrors (Classes II, III, IV, V and VI)

In the fields of vision specified above, obstruction due to the bodywork and its components, such as other cab mirrors, door handles, outline marker lights, direction indicators and front and rear bumpers, as well as reflective-surface cleaning components, shall not be taken into account if they are responsible for a total obstruction of less than 10 per cent of the specified field of vision. In the case of a vehicle designed and constructed for special purposes where, due to its special features, it is not possible to meet this requirement, the obstruction of the required field of vision of a Class VI mirror caused by the special features may be more than 10 per cent but not more than necessary for its special function."

Paragraph 15.3.5., amend to read:

"15.3.5. Vehicles may be equipped with additional devices for indirect vision. "

Paragraphs 15.3.5.1. and 15.3.5.2. and figure 9, should be deleted.

Paragraph 21.3., amend to read:

"21.3. ... of amendments. However, this date shall be postponed by 12 months with regard to the requirements concerning a Class VI front mirror as a component and its installation on vehicles."

Annex 7, item 1.2.2., replace the reference to paragraph 2.1.1.5. by a reference to paragraph 2.1.1.6.
