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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Construction of Vehicles

DRAFT SUPPLEMENT 4 TO THE 02 SERIES OF AMENDMENTS  
TO REGULATION No. 3  
(Retro-reflecting devices)

Note: The text reproduced below was adopted by the Administrative Committee (AC.1) of the amended 1958 Agreement at its fifth session, following the recommendation by the Working Party at its one-hundred-and-eleventh session. It is based on document TRANS/WP.29/R.780, as amended (French only) (TRANS/WP.29/534, paras. 48 and 110).

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Under Contents, "Annexes", insert two new titles to read:

"Annex 16 - Minimum requirements for conformity of production control procedures

Annex 17 - Minimum requirements for sampling by an inspector"

Paragraph 5.5.1.1., footnote 1/, amend to read:

"1/ .... 24 (vacant), 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30-36 (vacant) and 37 for Turkey. Subsequent numbers ...."

Paragraph 8, replace by the following text:

"8. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

- 8.1. Retro-reflectors approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 6 and 7 above.
- 8.2. The minimum requirements for conformity of production control procedures set forth in annex 16 to this Regulation shall be complied with.
- 8.3. The minimum requirements for sampling by an inspector set forth in annex 17 to this Regulation shall be complied with.
- 8.4. The authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be once every two years."

Add new Annexes 16 and 17 to read:

"Annex 16

MINIMUM REQUIREMENTS FOR CONFORMITY OF PRODUCTION CONTROL PROCEDURES

1. GENERAL

- 1.1. The conformity requirements shall be considered satisfied from a mechanical and geometric standpoint, if the differences do not exceed inevitable manufacturing deviations within the requirements of this Regulation.
- 1.2. With respect to photometric performances, the conformity of mass-produced retro-reflectors shall not be contested if, when testing photometric performances of any retro-reflector chosen at random

no measured value deviates unfavourably by more than 20 per cent from the minimum values prescribed in this Regulation.

1.3. The chromaticity coordinates shall be complied with.

2. MINIMUM REQUIREMENTS FOR VERIFICATION OF CONFORMITY BY THE MANUFACTURER

For each type of retro-reflector the holder of the approval mark shall carry out at least the following tests, at appropriate intervals. The tests shall be carried out in accordance with the provisions of this Regulation.

If any sampling shows non-conformity with regard to the type of test concerned, further samples shall be taken and tested. The manufacturer shall take steps to ensure the conformity of the production concerned.

2.1. Nature of tests

Tests of conformity in this Regulation shall cover the photometric and colorimetric characteristics and the resistance to penetration of water.

2.2. Methods used in tests

2.2.1. Tests shall generally be carried out in accordance with the methods set out in this Regulation.

2.2.2. In any test of conformity carried out by the manufacturer, equivalent methods may be used with the consent of the competent authority responsible for approval tests. The manufacturer is responsible for proving that the applied methods are equivalent to those laid down in this Regulation.

2.2.3. The application of paragraphs 2.2.1. and 2.2.2. requires regular calibration of test apparatus and its correlation with measurements made by a competent authority.

2.2.4. In all cases the reference methods shall be those of this Regulation, particularly for the purpose of administrative verification and sampling.

2.3. Nature of sampling

Samples of retro-reflectors shall be selected at random from the production of a uniform batch. A uniform batch means a set of retro-reflectors of the same type, defined according to the production methods of the manufacturer.

The assessment shall in general cover series production from individual factories. However, a manufacturer may group together

records concerning the same type from several factories, provided these operate under the same quality system and quality management.

2.4. Measured and recorded photometric characteristics

The sampled retro-reflector shall be subjected to photometric measurements at the points and the chromaticity coordinates provided for in the Regulation.

2.5. Criteria governing acceptability

The manufacturer is responsible for carrying out a statistical study of the test results and for defining, in agreement with the competent authority, criteria governing the acceptability of his products in order to meet the specifications laid down for the verification of conformity of products in paragraph 8.1. of this Regulation.

The criteria governing the acceptability shall be such that, with a confidence level of 95 per cent, the minimum probability of passing a spot check in accordance with annex 17 (first sampling) would be 0.95.

Annex 17

MINIMUM REQUIREMENTS FOR SAMPLING BY AN INSPECTOR

1. GENERAL

1.1. The conformity requirements shall be considered satisfied from a mechanical and a geometric standpoint, in accordance with the requirements of this Regulation, if any, if the differences do not exceed inevitable manufacturing deviations.

1.2. With respect to photometric performance, the conformity of mass-produced retro-reflectors shall not be contested if, when testing photometric performances of any retro-reflector chosen at random:

1.2.1. no measured value deviates unfavourably by more than 20 per cent from the minimum values prescribed in this Regulation.

1.2.2. Retro-reflectors with apparent defects are disregarded.

1.3. The chromaticity coordinates shall be complied with.

2. FIRST SAMPLING

In the first sampling four retro-reflectors are selected at random. The first sample of two is marked A, the second sample of two is marked B.

2.1. The conformity is not contested

2.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced retro-reflectors shall not be contested if the deviation of the measured values of the retro-reflectors in the unfavourable directions are:

2.1.1.1. sample A

A1:	one retro-reflector	0 per cent
	one retro-reflector not more than	20 per cent

A2:	both retro-reflectors more than	0 per cent
	but not more than	20 per cent
	go to sample B	

2.1.1.2. sample B

B1:	both retro-reflectors	0 per cent
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2.2. The conformity is contested

2.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced retro-reflectors shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the retro-reflectors are:

2.2.1.1. sample A

A3:	one retro-reflector not more than	20 per cent
	one retro-reflector more than	20 per cent
	but not more than	30 per cent

2.2.1.2. sample B

B2:	in the case of A2	
	one retro-reflector more than	0 per cent
	but not more than	20 per cent
	one retro-reflector not more than	20 per cent

B3:	in the case of A2	
	one retro-reflector	0 per cent
	one retro-reflector more than	20 per cent
	but not more than	30 per cent

2.3. Approval withdrawn

Conformity shall be contested and paragraph 9 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the retro-reflectors are:

2.3.1.	sample A		
	A4:	one retro-reflector not more than	20 per cent
		one retro-reflector more than	30 per cent
	A5:	both retro-reflectors more than	20 per cent
2.3.2.	sample B		
	B4:	in the case of A2	
		one retro-reflector more than	0 per cent
		but not more than	20 per cent
		one retro-reflector more than	20 per cent
	B5:	in the case of A2	
		both retro-reflectors more than	20 per cent
	B6:	in the case of A2	
		one retro-reflector	0 per cent
		one retro-reflector more than	30 per cent

### 3. REPEATED SAMPLING

In the cases of A3, B2, B3 a repeated sampling, third sample C of two retro-reflectors and fourth sample D of two retro-reflectors, selected from stock manufactured after alignment, is necessary within two months' time after the notification.

#### 3.1. The conformity is not contested

3.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced retro-reflectors shall not be contested if the deviations of the measured values of the retro-reflectors are:

##### 3.1.1.1. sample C

C1:	one retro-reflector	0 per cent
	one retro-reflector not more than	20 per cent
C2:	both retro-reflectors more than	0 per cent
	but not more than	20 per cent
	go to sample D	

##### 3.1.1.2. sample D

D1:	in the case of C2	
	both retro-reflectors	0 per cent

3.2. The conformity is contested

3.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced retro-reflectors shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the retro-reflectors are:

3.2.1.1. sample D

D2:	in the case of C2	
	one retro-reflector more than	0 per cent
	but not more than	20 per cent
	one retro-reflector not more than	20 per cent

3.3. Approval withdrawn

Conformity shall be contested and paragraph 9 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the retro-reflectors are:

3.3.1. sample C

C3:	one retro-reflector not more than	20 per cent
	one retro-reflector more than	20 per cent
C4:	both retro-reflectors more than	20 per cent

3.3.2. sample D

D3:	in the case of C2	
	one retro-reflector 0 or more than	0 per cent
	one retro-reflector more than	20 per cent

4. RESISTANCE TO PENETRATION OF WATER

With respect to the verification of the resistance to penetration of water, the following procedure shall be applied:

One of the retro-reflectors of sample A, after sampling procedure in Figure 1 of this annex, shall be tested according to the procedure described in paragraph 1 of annex 8 respectively paragraph 3 of annex 14 for class IV A reflectors.

The retro-reflectors shall be considered as acceptable if the test has been passed.

However, if the test on sample A is not complied with, the two retro-reflectors of sample B shall be subjected to the same procedure and both shall pass the test.

Figure 1

