

12 December 2011

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## 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 which entered into force on 16 October 1995)

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## Addendum 122: Regulation No. 123

### Revision 1 – Amendment 1

Supplement 1 to the 01 series of amendments - Date of entry into force: 28 October 2011

**Uniform provisions concerning the approval of adaptive front-lighting systems (AFS) for motor vehicles**



UNITED NATIONS

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\* 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.

*Paragraph 1.9.*, amend to read:

"1.9. "Neutral state" means.... or of the main beam, if any, in the maximum condition of activation is produced, and no AFS control signal applies;"

*Insert a new paragraph 2.1.7.*, to read:

"2.1.7. If the system is designed to provide an adaptive driving-beam;"

*Insert a new paragraph 2.2.2.(l)*, to read:

"2.2.2. ...

(l) In the case of adaptation of the driving-beam, which lighting units<sup>4</sup> provide or contribute to the gradual adaptation of the driving-beam and of the sensor system along with the technical characteristics relevant to their operation."

*Paragraphs 5.3. to 5.3.2.*, amend to read:

"5.3. Replaceable and non-replaceable light sources and LED modules:

5.3.1. The system shall be equipped with one or a combination of:

5.3.1.1. Light sources that are approved according to Regulation No. 37 and their series of amendments in force at the time of application for type approval and for which no restriction on the use is made;

5.3.1.2. Light sources that are approved according to Regulation No. 99;

5.3.1.3. LED module(s).

5.3.2. If a light source is replaceable:

5.3.2.1. The lamp holder shall conform to the characteristics given on the data sheet of IEC Publication No. 60061, as referred to in the relevant light source Regulation.

5.3.2.2. The design of the device shall be such that the filament lamp can be fixed in no other position but the correct one.

5.3.3. The class C (basic) passing beam shall be equipped only with replaceable light sources or LED modules."

*Paragraph 5.7.2.*, amend to read:

"5.7.2. Except in the case of adaptation of the driving-beam, either the passing beam or the driving beam shall always be obtained, without any possibility of remaining in an intermediate or undefined state; if this is not possible, such a state must be covered by the provisions according to paragraph 5.7.3. below;"

*Insert new paragraphs 6.3.6. to 6.3.7.2.*, to read:

"6.3.6. In the case of adaptation of the driving-beam function the system shall meet the requirements of the above paragraphs only when it is in the maximum condition of activation.

6.3.7. During adaptation, the driving-beam function shall meet the requirements for all the cases of Right-Hand and Left-Hand traffic specified in Part A of Table 7 in Annex 3 to this Regulation. These requirements shall be verified during the type approval testing in conjunction with a signal generator to be

provided by the applicant. This signal generator shall reproduce the signals provided by the vehicle and cause the adaptation of the driving-beam and in particular shall represent the settings so that the photometric compliance can be verified.

- 6.3.7.1. If the driving-beam function meets the requirements in Part A of Table 7 in Annex 3 to this Regulation specified for line 1 to line 3 for oncoming and preceding vehicles (symmetrical beam) the relevant information shall be noticed in the communication document in Annex 1, paragraph 18.5.
- 6.3.7.2. If the requirements of paragraph 6.3.7. above can be met for Right-Hand traffic or Left-Hand traffic only, the relevant information shall be reported in the communication document in Annex 1, paragraph 18.5."

*Annex 1,*

*Insert a new item 18.5., as follows:*

- "18.5. The system is designed to provide an adaptation of the driving-beam for:
- |  |                              |                              |
|--|------------------------------|------------------------------|
| Right-Hand and Left-Hand traffic:                    | <input type="checkbox"/> yes | <input type="checkbox"/> no  |
| Right-Hand and Left-Hand traffic (symmetrical beam): | <input type="checkbox"/> yes | <input type="checkbox"/> no  |
| Right-Hand traffic only:                             | <input type="checkbox"/> yes | <input type="checkbox"/> no  |
| Left-Hand traffic only:                              | <input type="checkbox"/> yes | <input type="checkbox"/> no" |

Annex 3,

Table 1, amend to read:

"Table 1

**Passing beam photometric requirements**

| No | Element  | Position /deg |      | passing beam |         |          |        |         |        |         |        |         |        |         |        |        |        |
|----|--|---------------|------|--------------|---------|----------|--------|---------|--------|---------|--------|---------|--------|---------|--------|--------|--------|
|    |  |               |      | horizontal   |         | vertical |        | class C |        | class V |        | class E |        | class W |        |        |        |
|    |  |               |      | at/          | from to | at       |        | min     | max    | min     | max    | min     | max    | min     | max    |        |        |
| 1  | B50L   | L             | 3,43 | U            | 0,57    | 50 4'    | 350    | 50      | 350    | 50      | 625    | 8/      | 50     | 625     | 8/     | 50     | 625    |
| 2  | HV   | V             |      | H            |         | 50 4'    | 625    | 50      | 625    | 50      |        |         | 50     |         | 50     |        |        |
| 3  | BR   | R             | 2,5  | U            | 1       | 50 4'    | 1750   | 50      | 880    | 50      | 1750   |         | 50     | 1750    |        | 50     | 2650   |
| 4  | Segment BRR                                      | R             | 8    | R            | 20      | U        | 0,57   | 50 4'   | 3550   |         |        |         |        | 3550    |        |        | 5300   |
| 5  | Segment BLL                                      | L             | 8    | L            | 20      | U        | 0,57   | 50 4'   | 625    |         |        |         |        | 880     |        |        | 880    |
| 6  | P  | L             | 7    | H            |         |          | 63     |         |        |         |        |         |        |         |        | 63     |        |
| 7  | Zone III (as specified by Table 3 of this annex) |               |      |              |         |          |        |         | 625    |         |        |         |        | 880     |        |        | 880    |
| 8a | S50, S50LL, S50RR                                | S/            |      | U            | 4       | 63 7/    |        |         |        |         |        |         | 63 7/  |         |        | 63 7/  |        |
| 9a | S100, S100LL, S100RR                             | S/            |      | U            | 2       | 125 7/   |        |         |        |         |        |         | 125 7/ |         |        | 125 7/ |        |
| 10 | 50 R   | R             | 1,72 | D            | 0,86    |          |        | 5100    |        |         |        |         |        |         |        |        |        |
| 11 | 75 R   | R             | 1,15 | D            | 0,57    | 10 100   |        |         |        |         |        |         | 15 200 |         |        | 20 300 |        |
| 12 | 50 V   | V             |      | D            | 0,86    | 5 100    |        |         |        |         |        |         | 10 100 |         |        | 10 100 |        |
| 13 | 50 L   | L             | 3,43 | D            | 0,86    | 3 550    | 13 200 | 3 550   | 13 200 |         |        |         | 6 800  |         |        | 6 800  | 26 400 |
| 14 | 25 LL  | L             | 16   | D            | 1,72    | 1 180    |        | 845     |        |         |        |         | 1 180  |         |        | 3 400  |        |
| 15 | 25 RR  | R             | 11   | D            | 1,72    | 1 180    |        | 845     |        |         |        |         | 1 180  |         |        | 3 400  |        |
| 16 | Segment 20 and below it                          | L             | 3,5  | V            | 2       |          |        |         |        |         |        |         |        |         |        |        | 17 600 |
| 17 | Segment 10 and below it                          | L             | 4,5  | R            | 2,0     | D        | 4      | 12 300  | 1      | 12 300  | 1      |         |        | 12 300  | 1/     |        | 7 100  |
| 18 | E <sub>max</sub> 3/                              |               |      |              |         | 16 900   | 44 100 | 8 400   | 44 100 | 16 900  | 16 900 | 16 900  | 29 530 | 8/      | 29 530 | 70 500 | 2/     |

Part B (bending modes): Table 1 Part A applies, however with the lines No. 1, 2, 7, 13 and 18 being replaced by those listed hereunder

|    |  |   |      |   |      |        |        |       |        |        |        |        |        |    |        |        |     |
|----|--|---|------|---|------|--------|--------|-------|--------|--------|--------|--------|--------|----|--------|--------|-----|
| 1  | B50L   | L | 3,43 | U | 0,57 | 50 4'  | 530    |       |        |        |        |        | 530    |    |        |        | 790 |
| 2  | HV   | V |      |   |      | 50 4'  | 880    |       |        |        |        |        | 880    |    |        |        |     |
| 7  | Zone III (as specified by Table 3 of this annex) |   |      |   |      |        |        |       |        |        |        |        | 880    |    |        | 880    |     |
| 13 | 50L  | L | 3,43 | D | 0,86 | 1 700  |        | 1 700 |        |        |        |        | 3 400  |    |        | 3 400  |     |
| 18 | E <sub>max</sub> 6/                              |   |      |   |      | 10 100 | 44 100 | 5 100 | 44 100 | 10 100 | 10 100 | 10 100 | 79 300 | 8/ | 20 300 | 70 500 | 2/  |

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Annex 3,

Table 1, footnote 4, amend to read:

"4 The contribution of each side of the system (for segment BLL and BRR: of at least one point), when measured according to the provisions of Annex 9 to this Regulation shall not be less than 50 cd."

Annex 3,

After table 6, insert a new table 7, as follows:

"Table 7

**Requirements concerning the adaptation of the driving-beam according to paragraph 6.3.7 of this Regulation**

| Part A | Test Point   | Position / Deg.  |          | Max. Intensity** |
|--------|--|------------------|----------|------------------|
|        |  | Horizontal       | Vertical | (cd)             |
|        | Line 1 Left<br>Oncoming vehicle at 50 m in the case of Right-Hand Traffic                    | 4.8°L to 2°L     | 0.57°Up  | 625              |
|        | Line 1 Right<br>Oncoming vehicle at 50 m in the case of Left-Hand Traffic                    | 2°R to 4.8°R     | 0.57°Up  | 625              |
|        | Line 2 Left<br>Oncoming vehicle at 100 m in the case of Right-Hand Traffic                   | 2.4°L to 1°L     | 0.3°Up   | 1 750            |
|        | Line 2 Right<br>Oncoming vehicle at 100 m in the case of Left-Hand Traffic                   | 1°R to 2.4°R     | 0.3°Up   | 1 750            |
|        | Line 3 Left<br>Oncoming vehicle at 200 m in the case of Right-Hand Traffic                   | 1.2°L to 0.5°L   | 0.15°Up  | 5 450            |
|        | Line 3 Right<br>Oncoming vehicle at 200 m in the case of Left-Hand Traffic                   | 0.5°R to 1.2°R   | 0.15°Up  | 5 450            |
|        | Line 4<br>Preceding vehicle at 50 m in the case of Right-Hand Traffic                        | 1.7°L to 1.0°R   | 0.3°Up   | 1 850            |
|        |  | >1.0° R to 1.7°R |          | 2 500            |
|        | Line 4<br>Preceding vehicle at 50 m in the case of Left-Hand Traffic                         | 1.7°R to 1.0°L   |          | 1 850            |
|        |  | >1.0° L to 1.7°L |          | 2 500            |
|        | Line 5<br>Preceding vehicle at 100 m in the case of Right-Hand Traffic                       | 0.9° L to 0.5°R  | 0.15°Up  | 5 300            |
|        |  | >0.5°R to 0.9°R  |          | 7 000            |
|        | Line 5<br>Preceding vehicle at 100 m in the case of Left-Hand Traffic                        | 0.9° R to 0.5°L  |          | 5 300            |
|        |  | >0.5°L to 0.9°L  |          | 7 000            |
|        | Line 6<br>Preceding vehicle at 200 m in the case of Left-Hand Traffic and Right-Hand Traffic | 0.45°L to 0.45°R | 0.1°Up   | 16 000           |

| <i>Part B</i> | <i>Test Point</i> | <i>Position /degrees*</i> |                 | <i>Min. Intensity**</i> |
|---------------|-------------------|---------------------------|-----------------|-------------------------|
|               |                   | <i>Horizontal</i>         | <i>Vertical</i> | <i>(cd)</i>             |
|               | 50R               | 1.72 R                    | D 0.86          | 5 100                   |
|               | 50V               | V                         | D 0.86          | 5 100                   |
|               | 50L               | 3.43 L                    | D 0.86          | 2 550                   |
|               | 25LL              | 16 L                      | D 1.72          | 1 180                   |
|               | 25RR              | 11 R                      | D 1.72          | 1 180                   |

\* Angular positions are indicated for right-hand traffic.

\*\* The photometric requirements for each single measuring point (angular position) of this lighting function apply to half of the sum of the respective measured values from all lighting units of the system applied for this function.

Each of the lines defined in part A of table 7, in conjunction with the test points as prescribed in part B of table 7 shall be measured individually corresponding to the signal provided by the signal generator.

In the case where the passing beam, which meets the requirements of paragraph 6.2., is continuously operated in conjunction with the adaptation of the driving beam, the photometric requirements in Part B of the table 7 shall not be applied."

*Annex 4*, amend to read:

**"Tests for stability of photometric performance of systems in operation - Tests on complete systems**

Once the ...

For the purpose of this annex:

- (a) ...
- (b) ...
- (c) ...

The tests shall be carried out:

- (a) ...
- (b) ...
- (c) In the case of a system providing an adaptation of the driving-beam, the driving-beam shall be in the maximum condition if activated.

The measuring equipment ....."

*Annex 4*,

*Paragraph 1.1.1.1.(d)*, amend to read:

"1.1.1.1. ...  
...

- (d) In the case of a test sample designed to provide a passing beam bending mode or a mode or function which is activated for a short time with an additional light source being energized, said light source shall simultaneously be switched on for 1 minute, and switched off for 9 minutes during the activation of the passing beam only, specified in (a) or (b) above."

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