**SLR-27-03**

R.I.D. regulation, comments and proposal concerning the lamp aiming and cut-off requirements

***Lamp aiming:***

In R.I.D. regulation the lamp aiming definitions, requirements and tolerances are scattered throughout the document. Because of this, we notice inconsistencies and the eventual modifications or updates of a chapter can still create more problems.

Examples:

5. Specific Technical Requirements

5.1.1. ...

* In the case of a road illumination device providing a driving-beam only, it shall be so adjusted that the area of maximum luminous intensity is centred on the point of intersection of lines H-H and V-V; such a device needs to meet only the requirements referred to in paragraph 5.1.3

5.3.3.5. If the specified beam requirements are not met, a re-aiming of the beam position within 0.5 degree up or down and/or 1 degree to the right or left, with respect to its initial aiming is allowed; in the revised position all photometric requirements shall be met. These provisions do not apply to lighting units as indicated under paragraph 5.3.3.1.1..

5.4.1. Aiming procedure

5.4.3. Where a headlamp so aimed does not meet the requirements set out in paragraphs 5.4.4. and 5.1., its alignment may be changed, except for headlamps that have no mechanism to adjust horizontal aim, on condition that the axis of the beam is not displaced laterally by more than 0.5 degree to the right or left and vertically by not more than 0.25 degree up or down. To facilitate alignment by means of the "cut-off", the headlamp may be partially occulted in order to sharpen the "cut-off". However, the "cut-off" should not extend beyond the line H-H.

5.5.2.5. If the specified luminous intensity requirements are not met, a re-aim of the cut-off position within±0.5° vertical and/or ±2° horizontal is allowed. In the re-aimed position all photometric requirements shall be met.

**Annexe 2**

1.2.3.              For AFS corresponding to paragraph 5.3. of this UN Regulation, if the results of the test described above do not meet the requirements, the alignment of the system may be changed in each class, provided that the axis of the beam is **not displaced laterally by more than 0.5 degree to the right or left and not by more than 0.2 degree up and down**, each independently and with respect to the first aiming.

AND

**Annexe 5**

1.2.3.              Where a headlamp or AFS so aimed does not meet the requirements set out in paragraphs this UN Regulation 5.2. to 5.4. of this UN Regulation respectively, its alignment may be changed, provided that the axis of the beam is not displaced:

            Horizontally from line A by more than:

**(a)       0.5° to the left or 0.75° to the right, for right hand traffic; or**

**(b)       0.5° to the right or 0.75° to the left, for left hand traffic; and**

**Vertically not more than 0.25° up or down from line B.**

**Conclusions:**

* **For AFS , horizontally re-aim in Annex2  +/- 0.5° versus  0.5° to the left or 0.75° to the right accorded by annex 5**
* **For AFS , vertically re-aim in Annex2    +/- 0.2° versus  0.25° accorded by annex 5**

Annex 5 Aiming procedures, instrumental verification of the "cut-off" for asymmetric passing-beams

Annex 6 Definition and sharpness of the horizontal "cut-off" line and aiming procedure by means of this "cut-off" line for symmetrical passing beam headlamps and front fog lamps

**Comments:** Annex 5 and 6 treat the same subject but have completely different titles

***Cut-off Definition and sharpness:***

Annex 5 2.3.2. Horizontal adjustment

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1. The "0.2 D line" method (see Figure A5-III).

...........The maximum gradient "G" determined using the formula G = (log Eβ - log E(β + 0.1°)) where β is the horizontal position in degrees, shall not be less than 0.08.

Annex 5 2.3.2. Horizontal adjustment

4.1.2. Sharpness of "cut-off": if scanned vertically through the horizontal part of the "cut-off" line along the ±2.5 -lines, the maximum value measured for:

G = (log EV - log E(V + 0.1°) )

**Conclusion: Same formula in the two annexes**

Annex 5 2.2.                 Measurement of the quality of the "cut-off"

            To determine the minimum sharpness, measurements shall be performed by vertically scanning through the horizontal part of the "cut-off" in angular steps of 0.05° at either a measurement distance of:

(a)       10 m with a detector having a diameter of approximately 10 mm; or

(b)       25 m with a detector having a diameter of approximately 30 mm.

.......

            To determine the maximum sharpness, measurements shall be performed by vertically scanning through the horizontal part of the "cut-off" in angular steps of 0.05° exclusively at a measurement distance of 25 m and with a detector having a diameter of approximately 30 mm.

**Conclusion: For minium sharpness, measurement are at 10 or 25 m but for the maximum sharpness the option 10m does not exist.**

***Proposal:***

* reorganize and group all the requirements concerning the RID functions aiming in a single annex (new annex 5)
* reorganize and group all the requirements concerning the Passing Beams and Front Fog Lamps "cut-off" line sharpness in a single annex (new annex 6)