

Proposals for the Draft Regulation Rxxx

The following proposals for amendments of the text of the Draft Regulation Rxxx – AFS Informal Document No. 1 base on decisions made at GRE 49th session.

Wording as decided in GRE 49.

Paragraph 2.1.5.2., amend to read:

2.1.5.2. *specific information **code** sufficient to permit identification of the light source module(s);*

Paragraph 2.1.6.1., amend to read:

2.1.6.1. *specific information sufficient to permit identification of the non-replaceable light source(s) used, including **the specific identification code** assigned by the light source manufacturer and its objective luminous flux;*

Paragraph 3.5 to.3.6.2,, amend to read:

3.5. *Each installation unit shall bear a clearly legible and indelible marking of the specific identification(s) **code(s)** of the one or more light source modules being part of it, if any;*

3.6. *The light source module(s) of a system shall bear a clearly legible and indelible marking comprising of:*

3.6.1. *the trade name or mark of the applicant, **this marking must be clearly legible and indelible;***

3.6.2. *the specific identification **code** according paragraph 2.1.5.2., or, a space of sufficient size for the approval marking and the additional symbols prescribed in paragraph 4.2. below; **this marking must be clearly legible and indelible.***

This specific identification code shall comprise the starting letters "MD" for "MODULE" followed by the approval marking without

the circle as prescribed in paragraph 4.2.1. below; this specific identification code shall be shown in the drawings mentioned in paragraph 2.2.1. above. The approval marking does not have to be the same as the one on the lamp in which the module is used, but both markings shall be from the same applicant.

Paragraph 5.3..2 amend to read:

- 5.3.2. *and/or, one or more light source modules, where, in the case of a light source not being approved according to Regulation No. 37 or 99, the requirements of annex 8 to this Regulation shall apply;*
- 5.3.2.1. **The design of the light source module(s) shall be such that after replacement the light source module is secure and safe in position, orientation and fixing.**
- 5.3.2.2. **The light source module(s) shall be tamperproof and/or modification protected."**

Annex 1, Item 9., amend to read:

- 9.3. *The specific identification(s) **code(s)** of*
- 9.3.1. *the one or more light source modules(s) equipped with light sources not being approved according to Regulation No. 37 or 99 and indication of the respective lighting unit(s):*

Annex 2,

Insert at the end of Annex 2 a new Figure 14., to read:

"Figure 14. Light source modules

MD E3 17325

The light source module bearing the identification code shown above has been approved together with a lamp approved in Italy (E3) under approval number 17325."

* * *

Inside the main part:

delete the current version of paragraph 6.2.2.:

~~6.2.2. The system or part(s) thereof shall be so aimed that the position of the cut-off complies with the requirements indicated in the Table 2 of annex 3 to this Regulation.~~

Paragraph 6.2.2. to 6.2.2.4. amend to read:

Regarding the results in GRE as done in document TRANS/WP29/GRE/2002/41 and 42:

6.2.2. The system or part(s) thereof shall be visually aimed by means of the "cut-off" line which is specified in annex 9 of this Regulation, so that:"

6.2.2.1. in the case of a system or part(s) thereof shall designed to meet the requirements of right-hand traffic, the "cut-off" on the left-half of the screen is horizontal and, in the case of headlamps designed to meet the requirements of left-hand traffic, the "cut-off" on the right-half of the screen is horizontal.

The test screen for visual adjustment shall be positioned at

either a distance of 10 m and this horizontal part of the "cut-off" is situated on the screen 10 cm below the level hh (see annex 3); or at distance of 25 m and this horizontal part of the "cut-off" is situated on the screen 25 cm below the level hh (see annex 3);

and be sufficiently wide to allow examination and adjustment of the "cut-off" over of at least 5° on either side of the v-v-line.

6.2.2.2. For horizontal adjustment: The kink or elbow of the "cut-off" line shall be situated at the V-V-line, as described in Annex 9. If the beam does not have a clear elbow, the lateral adjustment shall be effected in the manner which best satisfies the requirements for illumination at points 75R and 50R for passing beams for right hand side traffic and for points 75L and 50L for left hand side traffic.

6.2.2.3. For vertical adjustment: The horizontal part of the "cut-off" line is moved from downward upwards and adjusted to its nominal position 1% below the H-H-line , as described in Annex 9, which is:

- 10 cm below the headlamp axis on the screen at 10 m distance or which is
- 25 cm below the headlamp axis on the screen at 25 m distance.

6.2.2.4. If, however, vertical adjustment cannot be performed repeatedly to the required position within the allowed tolerances, the instrumental method of ANNEX 9, paragraphs 4 and 5 shall be applied to test

compliance with the required minimum quality of the "cut-off" line and to perform the beam vertical adjustment."

- 6.2.3. When so aimed, the system or part(s) thereof, if its approval is sought solely for provision of the passing beam, needs to comply.....

Annex 9

PASSING BEAM "CUT-OFF" AND AIMING PROVISIONS

Paragraph 1.2.2 amend to read:

- 1.2.2. the "shoulder line part"
- (a) does not extend ~~more than $\Delta\beta = 0.2$ deg above~~ the line "B" going from the "kink" upwards to the right and being inclined versus H-H by 60 deg;
 - (b) does not extend ~~more than $\Delta\beta = 0.2$ deg below~~ the line "A" going from the "kink" upwards to the right and being inclined versus H-H by 10 deg, or, by 0 deg if it is a class V (town) passing beam, or if, according to the applicants specification, no separate horizontal adjustment of the respective lighting unit is foreseen;
 - (c) has a vertical extension of at least $\Delta\beta = 0.57$ deg, if it is a class C (basic) passing beam, or, it shall reach at least to H-H, in case of a class E (motorway) or a class W (wet road) passing beam, except if, according to the applicants specification, no separate horizontal adjustment of the respective lighting unit is foreseen;

There is a re-aim tolerance in Paragraph 6.2.4. so this tolerance produced at this place only confusion!

Paragraph 3 amend to read:

Regarding the results in GRE as done in document TRANS/WP29/GRE/2002/41 and 42:

3. "cut-off" quality evaluation ^{1/}:

3.1. Measurements shall be performed by vertically scanning through the horizontal part of the cut-off line in angular steps of 0.05° ^{2/} at either a measurement distance of:

- 10 m and a detector with a diameter of approximately 10 mm or at a measurement distance of
- 25 m and a detector with a diameter of approximately 30 mm.

The measurement of the cut-off quality shall be considered acceptable if the requirements of paragraph 3.2.2. of this Annex shall comply with at least one measurement at 10 m or 25 m.

The measuring distance at which the test was determined shall be noted down in paragraph 9 of the communication form (see annex 1 of this Regulation).

After visual horizontal adjustment according to paragraph 2.2 above, the scanning is done from downwards upwards through the cut-off line along the vertical lines at 1.5°, 2.5° and 3.5° left (for left hand side traffic: right) of the v-v-line). If so measured, the quality of the cut-off shall meet the following requirements:

After visual horizontal adjustment according to paragraph 2.1. above, the scanning is done at 1.5 deg, 2.5 deg and 3.5 deg left of V-V.

3.2. When so measured, the following conditions shall be met:

^{1/} For background information see; CIE-Draft Publication:"Definition of cut-off ", Vienna 1993;
Methods for an objective determination of the position of a "cut- off", CIE Congress 19th sess. TC 4.7 indiv. com. Kyoto 1979;
Position and Quality of the Cut-off in the Luminous Intensity Distribution of Automobile Headlamps, ATZ-worldwide, No.1, vol. 100 (1998) p. 58-64

^{2/} A value for •• of 0.01 will be recommended.

Paragraph 3.2.1. amend to read:

Correction of the text, also a minimum angle is introduced to avoid senseless compliance, this part of paragraph 3.2.1. is not approved in GRE 49!

3.2.1. No exposure of double lines:

The slope of the vertical gradient of the illuminances shall be continuous and not expose more than one vertical position leading to

$$(d^2(\log E_{\beta}) / d\beta^2 = 0$$

where β is the vertical angular value in degrees and E_{β} is the illuminance in lx at vertical angle β .

This requirement is deemed to be met if within the vertical interval of $\pm 1^\circ$ from the cut-off line, the slope of the gradient contains no two or more positions where:

$$d^2(\log E_{\beta_1}) / d\beta^2 = 0 \quad \text{and} \quad d^2(\log E_{\beta_2}) / d\beta^2 = 0$$

[for which β_1 is smaller than β_2

and

$(\beta_2 - \beta_1)$ is larger than [0.2°]

and

$E_{\beta_1} / E_{\beta_2}$ is smaller than 2 and not larger than [100]

and

$E_{\beta_2} / E_{\beta_2+0.4^\circ}$ is smaller than and not larger than [100]]

* * *

Wording as decided in GRE 49.

3.2.2. Sufficient sharpness:

the maximum value of $(\log E_{\beta} - \log E_{(\beta + 0.1^\circ)})$ evaluated at 2.5 deg left of V-V, is called the "sharpness factor" G of the "cut-off". G shall not be less than 0.13.

3.2.3. Sufficient linearity:

the straightness of the "horizontal part" of the "cut-off" line is deemed sufficient, if the vertical positions where $d^2(\log E_{\beta}) / d\beta^2 = 0$ of each vertical scanning line according paragraph 3.1. above, are located within a bandwidth of ± 0.2 deg from the mean of all values.

Paragraph 4. amend to read:

4. Instrumental vertical adjustment:

If the "cut-off" line complies with the requirements set out in paragraph 3. above, the vertical adjustment may be performed instrumentally. For this purpose the inflection point at 2.5° distant from the v-v-line where $d^2 (\log E) / dv^2 = 0$ is positioned at the nominal position below the h-h-line. The movement for measuring and adjusting the cut-off line shall be upwards from below the nominal position.

Figures A.9-1 through A.9-3

Note: In the figures the "cut-off" is shown schematically, projected on the aiming screen, and for a system designed for right-hand traffic; [for left-hand traffic, the sides have to be mirrored.]

Annex 5,

Insert a new paragraph 1.5., to read:

"1.5. If, however, vertical adjustment cannot be performed repeatedly to the required position within the allowed tolerances, at one of the sampled headlamps in a series of samples shall be tested the quality of cut-off according to the procedure described in to annex 9, paragraph 3."

Annex 7,

Insert a new paragraph 1.3., to read:

"1.3. If, however, vertical adjustment cannot be performed repeatedly to the required position within the allowed tolerances, at one of the sampled headlamps shall be tested the quality of cut-off according to the procedure described in to annex 9, paragraph 3."

In addition to the proposals before the experts of Germany requested:

In relation to the specification of the driving beam in paragraph 6.3.2.2.

6.3.2.2. Starting from point HV, horizontally to the right and left, the illumination of the driving beam shall be not less than 24 lx up to 2.6 deg and not less than 6 lx up to 5.2 deg.

Why we do not use the harmonized driving beam pattern?

TEST POINT NUMBER	TEST POINT LOCATION	Required illumination in lux	
		Min.	Max.
1	H-V (1)	(1)	---
2	H-3R & 3L	20	---
3	H-6R & 6L	7	---
4	H-9R & 9L	4	---
5	H-12R & 12L	1.2	---
6	2U-V	2	---
7	4D-V	---	(2)
	MAX. LUMINOUS INTENSITY	50	180.0

There is no absolute need to specify one function in two Regulations therefore:

Delete paragraph 6.4. and renumber the rest:

[6.4. Provisions concerning daytime running light

The system shall, prior to the subsequent test procedures, be set to the neutral state.

.....]

Annex 4

TESTS FOR STABILITY OF PHOTOMETRIC PERFORMANCE OF SYSTEMS IN OPERATION

Delete footnote 4 and the reference to that, because the content of the footnote is contra productive in relation to quality of a steady burning function and it is totally confusing in application of a test process if this function must be tested with other grouped or combined functions. This was discussed in the last informal meeting.

1.2. Dirty test sample

After being tested as specified in paragraph 1.1. above, the test sample shall be operated for one hour as described in paragraph 1.1.1. for each function or class of ~~4/7~~ after being prepared as prescribed in paragraph 1.2.1., and checked as prescribed in paragraph 1.1.2.; after each test a sufficient cooling down period must be assured.

~~4/7 The class W (wet road) passing beam, if any, is disregarded for lighting units providing or contributing to any other passing beam class or lighting function.~~

For clarification:

Annex 8

REQUIREMENTS FOR SYSTEMS INCORPORATING [LIGHT SOURCE MODULES AND/OR LIGHTING UNITS WITH] LIGHT SOURCES NOT BEING APPROVED ACCORDING TO REGULATION NO. 37 OR 99

PART A: [LIGHT SOURCE MODULES OR LIGHTING UNITS WITH] GAS DISCHARGE LIGHT SOURCE(S)

Paragraph 2.2 amend to read:

2.2. ~~Gas discharge~~ Light sources shall be so designed as to be and to remain in good working order when in normal use. They shall moreover exhibit no fault in design or manufacture.

It makes no sense to reduce this statement only to gas discharge light sources!

This are all modules which are part of device and fully in the responsibility of the device manufacturer, therefore is this test requirement here superfluous, because the colour will be tested with whole device and has to meet the colourimetric specifications as specified in paragraph 7 of this draft regulation. Therefore delete paragraph 9.10..

~~9.10. Colour~~

~~The colorimetric properties of the light source shall be measured in an integrating sphere using a measuring system, which shows the CIE~~

~~chromaticity co ordinates of the received light with a resolution of ± 0.002 .~~

PART B: [LIGHT SOURCE MODULES OR LIGHTING UNITS WITH] OTHER LIGHT SOURCE(S)

Paragraph 10.amend to read:

10. The technical requirements of paragraphs 1. through 9. of part A of this annex apply, where relevant.