

Transmitted by the expert from IMMA

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agenda item 5(j))

Collective amendments - Regulation Nos. 53 and 113

Proposal for Amendment to Regulation No. 113 (Headlamps emitting a symmetrical beam) for introducing additional light source and additional light unit

Submitted by the expert from IMMA

The text reproduced below was prepared by the expert from the IMMA in order to introduce amendments to introduce additional light source and additional light unit. The modifications to the current text of the Regulation are marked in bold or strikethrough characters.

A. PROPOSAL

Insert new paragraphs 1.10. and 1.10.1., to read:

- "1.10. "Additional light source" means one of the passing beam light source, which is used to provide bend lighting.**
- 1.10.1. "Additional lighting unit" means the light emitting part of a headlamp designed to provide bend lighting and it is independent from the device designed to provide principal passing beam. It may consist of optical, mechanical and electrical components, and may include other lamp functions.**
"

Insert new paragraph 2.1.6., to read:

- "2.1.6. for additional lighting unit(s), the additional lighting unit identification code(s), if any."**

Paragraph 2.2.1., amend to read:

- "2.2.1. drawings in triplicate in sufficient detail to permit identification of the type and representing a frontal view of the headlamp, with details of lens ribbing if any, and the cross-section; the drawings shall indicate the space reserved for the approval mark.**

In the case of LED module(s) the drawings shall indicate ~~also~~ the space(s) reserved for the specific identification code(s) of the module(s) and in case the of additional lighting unit(s) designed to provide bend lighting, also the space(s) reserved for the specific identification code(s) of the additional lighting unit(s);

In the case of headlamps designed to provide bend lighting by additional lighting unit(s), the geometrical conditions of installation of the device(s) that meet(s) the requirements of paragraph 6.2.9."

Insert new paragraph 2.2.2.3., to read:

- "2.2.2.3. in the case of a headlamp designed to provide bend lighting, excluding those activated by operation of direction indicators, the bank angle(s) to activate additional light source(s) and/or additional lighting unit(s)."**

Insert new paragraph 3.3.1., to read:

- "3.3.1. In the case of a headlamp with non-replaceable light source(s) designed to provide bend lighting, the lamp shall bear the marking of the rated voltage and rated wattage."**

Insert new paragraph 3.9., to read:

"3.9. **In case additional lighting unit(s) designed to provide bend lighting is used, main headlamps used along with shall bear specific identification code of the additional lighting unit(s) mentioned in paragraph 3.10.2. below."**

Insert new paragraphs 3.10. to 3.10.3., to read:

"3.10. **Additional lighting unit(s) designed to provide bend lighting shall bear the following markings:**

3.10.1. **the trade name or mark of the applicant. This marking shall be clearly legible and indelible.**

3.10.2. **(a) in the case of filament light source, the category(s) of filament lamp(s), and/or
(b) in the case of LED module, the rated voltage and rated wattage and the specific identification code(s) of the LED module(s), and/or
(c) in the case of non-replaceable light source, the rated voltage and rated wattage.
(d) in the case of gas-discharge light source, the category of gas-discharge light source**

3.10.3. **the specific identification code(s) of the additional lighting unit(s). This marking shall be clearly legible and indelible.**

This specific identification code shall be comprised of starting letters "ALU" for "Additional Lighting Unit" followed by approval marking without the circle as prescribed in paragraph 4.2.1. below (ex. ALU E43 1234) and in case several non identical additional lighting units are used, additional symbols or characters shall follow (ex. ALU E43 1234-A, ALU E43 1234-B). 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., amend to read:

"5.3. **Except for additional light source(s) designed to provide bend lighting,** headlamps of class A, B, C or D shall be equipped with filament lamp(s) approved according to Regulation No. 37 and/or, for headlamps of class C or D, with (an) LED module(s)."

Paragraph 5.3.1., amend to read:

"5.3.1. It is possible to use two filament light sources for the **principal** passing beam and several filament light sources for the **principal** driving beam.

Any Regulation No. 37 filament lamp may be used, provided that:

(a) ...

(b) for Class A and B, its reference luminous flux for **principal** dipped-beam does not exceed 600 lm;

- (c) for Class C and D, its objective luminous flux for **principal** dipped-beam does not exceed 2,000 lm.

The design of the device shall be such that the filament lamp can be fixed in no other position but the correct one. 1/

The filament lamp holder shall ..."

Paragraph 5.3.2.3., amend to read:

- "5.3.2.3. The total objective luminous flux of all LED modules producing the **principal** passing beam shall be measured as described in paragraph 5. of Annex 12. The following minimum and maximum limits shall apply:

	Headlamps Class C	Headlamps Class D
Principal passing beam minimum	500 lumen	1000 lumen
Principal passing beam maximum	2000 lumen	2000 lumen

Paragraph 5.4.1., amend to read:

- "5.4.1. **Except for additional light source(s) designed to provide bend lighting**, the headlamp shall be equipped with (a) gas-discharge light source(s) approved according to Regulation No. 99 and/or (an) LED module(s)."

Paragraph 5.4.3.3., amend to read:

- "5.4.3.3. The total objective luminous flux of all LED modules producing the **principal** passing beam shall be measured as described in paragraph 5. of Annex 12. The following minimum limit shall apply:

	Headlamps Class E
Principal passing beam minimum	2000 lumen

Paragraph 5.7., amend to read:

- "5.7. On headlamps designed to provide alternately a driving beam and a passing beam, **or headlamps having additional light source(s) designed to provide bend lighting**, any mechanical, electromechanical or other device incorporated in the headlamp for these purposes ~~switching from one beam to the other~~ shall be so constructed that:"

Paragraphs 5.7.2. and 5.7.3., amend to read:

- "5.7.2. **except for additional light source(s) designed to provide bend lighting**, in the case of failure it shall automatically obtain the passing beam position;
- 5.7.3. **except for additional light source(s) designed to provide bend lighting**, either the passing beam or the driving beam shall always be obtained without any possibility of the mechanism stopping in between the two positions;"

Insert new paragraphs 6.1.6. to 6.1.6.4., to read:

- "6.1.6. **For the additional light source(s) provides the bend lighting**
- 6.1.6.1. **Additional light source according to Regulation No. 37 shall be checked by means of an uncoloured standard (étalon) filament lamp designed for a rated voltage as indicated in the relevant data sheet of Regulation No. 37. During the checking, the voltage at the terminals of the filament lamp shall be regulated so as to obtain the reference luminous flux as indicated at the relevant data sheet of Regulation No. 37.**
- 6.1.6.2. **LED module shall be measured at 6.3 V or 13.2 V respectively, if not otherwise specified within this Regulation. LED module(s) operated by an electronic light source control gear, shall be measured as specified by the applicant. Except for the class E, the values obtained by the LED module(s) shall be multiplied by a factor of 0.7 prior to check for compliance.**
- 6.1.6.3. **Non-replaceable light source(s) shall be measured at 6.3 V or 13.2 V respectively, if not otherwise specified within this Regulation. Except for the class E, the values obtained by the non-replaceable light source(s) shall be multiplied by a factor of 0.7 prior to check for compliance.**
- 6.1.6.4. **In the case of a Gas-discharge light source(s) according to Regulation No.99, the voltage applied to the terminals of the ballast is 13.5 V +/- 0.1 for 12V systems. Except for the class E, the values obtained by the Gas-discharge light source(s) shall be multiplied by a factor of 0.7 prior to check for compliance."**

Paragraphs 6.2.1. and 6.2.2., amend to read:

- "6.2.1. For a correct aiming the **principal** passing beam shall produce a sufficiently sharp "cut-off" to permit a satisfactory visual adjustment with its aid as indicated in paragraph 6. below. The "cut-off" must be substantially horizontal and shall be as straight as possible from at least 3° L to 3° R. In case the visual aim leads to problems or ambiguous positions, the instrumental method as specified in Annex 9, paragraphs 2. and 4., shall be applied and the quality or rather the sharpness of the "cut-off" and the linearity shall be checked on performance.
- 6.2.2. The **principal passing beam headlamp** shall be aimed so that:"

Insert new paragraphs 6.2.9. to 6.2.9.4., to read:

"6.2.9. Additional light source(s) according to Regulation No. 37, additional LED module(s), additional non-replaceable light source(s) and/or Gas-discharge light source(s) according to Regulation No. 99 may be used to contribute to bend lighting.

6.2.9.1. Bend lighting is permitted, provided that:

6.2.9.2. the following requirement regarding illumination shall be met, when the principal passing beam(s) and corresponding additional light source(s) are activated simultaneously:

(a) Left bank (when the motorcycle is rotated to the left about its longitudinal axis or direction indicators on the left side of the vehicle are switched on)

the illuminance values shall not exceed 1.08lx in the zone extending from HH to 15 deg above HH and from VV to 10 deg left.

(b) Right bank (when the motorcycle is rotated to the right about its longitudinal axis or direction indicators on the right side of the vehicle are switched on)

the illuminance values shall not exceed 1.08lx in the zone extending from HH to 15 deg above HH and from VV to 10 deg right.

6.2.9.3. except for headlamp(s) designed to provide bend lighting which is activated by operation of direction indicators this test shall be carried out with the bank angle specified by the applicant simulating the condition by means of the test fixture etc.

6.2.9.4. For this measurement, at the request of the applicant, principal passing beam and additional light source(s) may be measured individually."

Annex 2

Insert new figure 16., to read:

"Figure 16

Additional lighting units designed to provide bend lighting

ALU E43 1234

The additional lighting unit bearing the identification code shown above has been approved together with a headlamp initially approved in Japan (E43) under approval number 1234"

Annex 4

Insert new sub-paragraphs 1.1.1.1. (e), to read:

- "1.1.1.1. (a) ...
- (b) ...
- (c) ...
- (d) ...
- (e) **In the case of a headlamp having additional light source(s) designed to provide bend lighting, except for additional lighting unit(s), this additional light source(s) shall be switched on for one minute, and switched off for nine minutes during the activation of the passing beam only.**

If the headlamp has several additional light sources, the test shall be carried out with the additional light source whose wattage is the highest among other additional light sources."

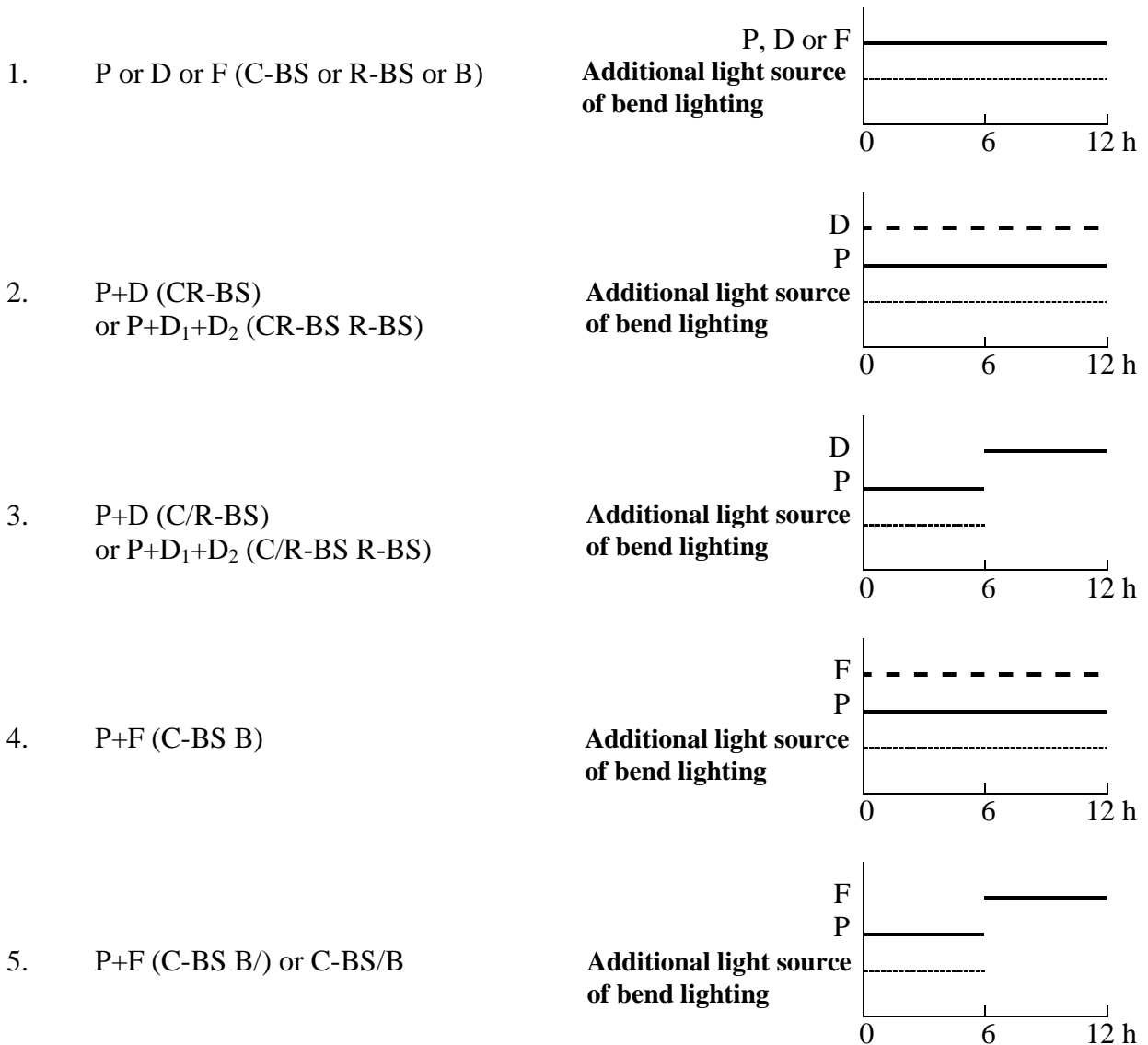
Annex 8., amend to read:

Annex 8

OVERVIEW OF OPERATIONAL PERIODS CONCERNING TEST FOR STABILITY OF PHOTOMETRIC PERFORMANCE

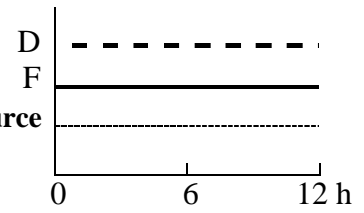
- Abbreviations: P: passing beam lamp
 D: driving beam lamp (D₁ + D₂ means two driving beams)
 F: front fog lamp
 - - - - - : means a cycle of 15 minutes off and 5 minutes lit.
 : means a cycle of 9 minutes off and 1 minutes lit.

All following grouped headlamps and front fog lamps together with the added class B marking symbols are given as examples and are not exhaustive.



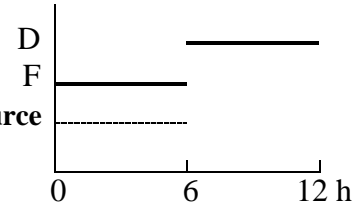
6. D+F (R-BS B) or
D₁+D₂+F (R-BS R-BS B)

**Additional light source
of bend lighting**



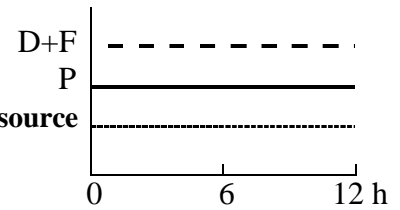
7. D+F (R-BS B/) or
D₁+D₂+F (R-BS R-BS B/)

**Additional light source
of bend lighting**



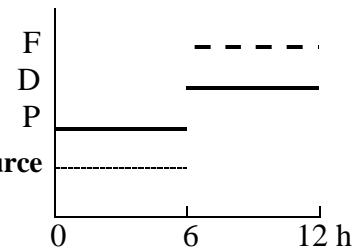
8. P+D+F (CR-BS B)
or P+D₁+D₂+F (CR-BS R-BS B)

**Additional light source
of bend lighting**



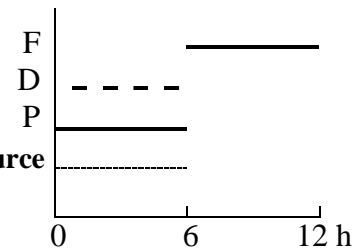
9. P+D+F (C/R-BS B)
or P+D₁+D₂+F (C/R-BS R-BS B)

**Additional light source
of bend lighting**



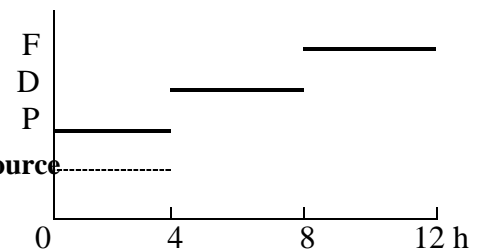
10. P+D+F (CR-BS B/)
or P+D₁+D₂+F (CR-BS R-BS B/)

**Additional light source
of bend lighting**



11. P+D+F (C/R-BS B/)
or P+D₁+D₂+F (C/R-BS R-BS/B)

**Additional light source
of bend lighting**



Annex 12

Paragraphs 4.1.1., amend to read:

"4.1.1. Red content

In addition to measurements as described in paragraph 7. of this Regulation, **except for LED module designed only to provide bend lighting:**

...

This value shall be calculated using intervals of one nanometre."

Paragraphs 4.2., amend to read:

"4.2. UV-radiation

Except for LED module designed only to provide bend lighting, the UV-radiation of a low-UV-type LED module shall be such that:

...

Table UV: Values according to "IRPA/INIRC Guidelines on limits of exposure to ultraviolet radiation". Wavelengths (in nanometres) chosen are representative; other values should be interpolated."

Paragraphs 4.3.1.1., amend to read:

"4.3.1.1. A photometric measurement of the headlamp shall be made after 1 minute of operation for the specific function at the test point specified below. For these measurements, the aim can be approximate but must be maintained for before and after ratio measurements.

Test points to be measured:

Principal passing beam 50 V

(For the measurement of bend lighting, the test point shall be specified by the manufacture.)

Driving beam H – V"

Paragraphs 5., amend to read:

5. The measurement of the objective luminous flux of LED module(s) producing the **principal** passing beam shall be carried out as follows:

...

The average of the measurements of the three samples of each type of LED module shall be deemed to be its objective luminous flux."

B. JUSTIFICATION

This proposal introduces additional light source(s) and additional light unit(s) to the passing beam to support the motorcycle driving characteristics when a vehicle is running on a curved road, narrowing the illumination area of the headlamp in the travelling direction. The additional light source (s) and additional light unit(s) will supplement the principal headlamp's light distribution by additional illumination to keep the illumination area wide enough; the night-time visibility for the rider is expected to improve.