

GRE-AFS Working Paper No. 4-2  
(4<sup>th</sup> session of the GRE Informal  
Group on AFS, 15-17 July 2003  
agenda item .)

REPORT ON THE THIRD SESSION OF THE GRE INFORMAL GROUP  
ON ADAPTIVE FRONT-LIGHTING SYSTEMS (AFS)

(7/8 and 11 April 2003)

1. The GRE Informal Group on Adaptive Front-Lighting Systems (AFS) held its third session on 7/8 and 11 April 2003 in Geneva, under the chairmanship of Mr. M. Lowe (United Kingdom). Experts from the following countries participated in the work: Czech Republic; France; Germany; Hungary; Italy; Japan; Netherlands; Norway; Poland; Republic of Korea; Russian Federation; Sweden; United Kingdom; United States of America. A representative of the European Commission (EC) participated. Experts from the following non-governmental organizations also participated: International organization for Standardization (ISO); International Organization of Motor Vehicle Manufacturers (OICA); International Motorcycle Manufacturers Association (IMMA); European Association of Automobile Suppliers (CLEPA); Working Party "Brussels 1952" (GTB), including an expert from the AFS Group; International Electrotechnical Commission (IEC).

REPORT ON THE SECOND SESSION OF THE INFORMAL GROUP

Documentation: Informal document No.5 for the fiftieth GRE session

2. The following corrections were noted in the section referring to paragraph 6.20.7.4.3. of the draft amendments to Regulation No. 48: In the second sub-paragraph replace "6.20.4.1." by "6.20.4.2." and "V-mode" by "E-mode".

ADOPTION OF THE AGENDA

3. As agreed at the second session of the Informal Group, the proposal for a new draft Regulation on AFS was the main item of discussion.

PROPOSAL FOR A NEW DRAFT REGULATION ON AFS

Documentation: Informal document No. 2 (GTB/AFS); Informal document No. 3 (GTB/AFS); Informal documents Nos. 3 (GTB/AFS), 7 (France), 8 (GTB/AFS), 9 (GTB/AFS), and 11 (Germany) for the second session of the Informal Group; Informal documents Nos. 8 (Poland) and 19 (Germany) for the fiftieth session of GRE.

4. The expert from GTB/AFS introduced, as a screen projection, a working paper which incorporates the draft Regulation as presented to the second session of the Informal Group and, in addition,  
-the changes agreed at the second session of the Informal Group (such as the deletion of all references to the daytime running light function);  
-references to informal documents from the second session of the Informal Group;

-proposals for new text based on these informal documents.

The Informal Group agreed to discuss the draft Regulation on the basis of this working paper and proceeded to a systematic reading. The principal items of discussion and the decisions taken are set out below. Purely editorial corrections are not mentioned.

Paragraph 1.1. (new)

As agreed in GRE the definition of AFS which is part of Regulation No. 48 paragraph 2.7.26.) will also be included in this Regulation.

Paragraph 1.4.2.

Read: "...movement of the kink of the cut-off..."

Paragraph 1.5.3. and footnote 1/

The Informal Group decided to delete this text in the draft Regulation and to include the relevant provisions in Regulation No. 48.

Paragraph 1.7.

Referring to the discussion at the second session, the Informal Group accepted the text proposed by GTB/AFS; this will also be included in Regulation No. 48 as paragraph 2.7.26.6. The expert from the EC offered to provide an editorially improved version at a later date.

Paragraph 2.2.2.

The text in square brackets was deleted, as the characteristics of adjustment devices were always verified by the Technical Service.

Paragraph 2.2.2.4.

In view of the discussion regarding paragraph 5.4. it was agreed to delete paragraph 2.2.9. and to insert a general requirement in paragraph 2.2.2.4. to read:

"the technical characteristics which enable the system to be adapted for different directions of traffic."

Paragraph 3.

After again reviewing the proposal by CLEPA for a simplified marking, the Informal Group decided to maintain the existing text; this also applies to paragraph 4.1.5.

Paragraph 3.4.

The Informal Group accepted the GTB/AFS proposal; the words " from the design " were deleted.

Paragraph 5.1.1.

Pending a decision regarding the presence and characteristics of "traffic-change systems" (as set out in paragraph 5.4.), the text was put in square brackets.

#### Paragraphs 5.2.1., 5.2.2. and 5.2.3.

After a general discussion regarding the presence of adjustment devices on certain lighting units of the AFS, the Informal Group decided to

- revise paragraph 5.2.1. to read: "Such adjustment device(s) need not be fitted on systems or part(s) thereof, provided that their use is confined to vehicles on which the setting can be adjusted by other means or no such means are needed according to the Applicant's system description.";
- delete and put in square brackets paragraph 5.2.2.;
- delete paragraph 5.2.3. and its two subparagraphs.

#### Paragraphs 5.3.2. to 5.3.4.

After several experts had pointed out that the issue of the use of light source modules/LED for front lighting was still under discussion in a GTB Task Force, the majority of governments proposed to delete these paragraphs for the time being and to review this issue at a later date; the Informal Group agreed to this proposal.

#### Paragraph 5.4.

Following a proposal by the expert from Italy, the Informal Group agreed to insert, as an alternative for discussion at a future session, a new text for this paragraph which sets out the different means to comply with the requirement for a traffic-change ability.

#### Paragraph 5.7.4.

The expert from Germany proposed to include an additional paragraph which would permit the combination of such systems with the system which provides the traffic-change mode; in this case, the requirements of paragraph 5.7.4. would not apply to the traffic-change mode.

#### Paragraph 5.8.

The experts from Czech Republic and the Netherlands recalled their proposals which would insert references to Regulation No. 10 and applicable ISO standards. The expert from the EC mentioned paragraph 5.1.1.4. in Regulation No. 13 (Braking), which refers to compliance with Regulation No. 10, 02 series of amendments. The expert from GTB/AFS noted that, as in Regulations Nos. 98 and 112, a general requirement was considered sufficient. The expert from Germany drew attention to aftermarket systems for which a specific requirement would be necessary. The Informal Group agreed to include a reference to Regulation No. 10 and put the text in square brackets for further consideration.

#### Paragraph 5.9.1.

Several government experts noted that the requirement should apply if more than two light sources are operated for the Class C (basic) passing beam and that a signal for the activation of a tell-tale should always be generated; in addition, failure cases covered by paragraph 5.7. should be excluded. The Informal Group agreed the text set out below which was put in square brackets for further consideration.

- 5.9.1. "[If more than two light sources are operated for the Class C (basic) passing beam:  
The system shall be so made that, in case one light source or one lighting unit not pertaining to paragraph 5.7. above has failed, said beam, if it is turned on, automatically provides illumination values:

.....  
.....  
.....

and, automatically a permanent signal is generated for the activation of a tell-tale according to the respective provisions of Regulation No. 48. ]"

The expert from GTB/AFS offered to prepare, as an alternative for further discussion, a revised version which would more precisely reflect the original intentions of the AFS Group with regard to requirements for certain AFS not being more severe than those for conventional headlamps in Regulation No. 112.

#### Paragraph 5.9.2.

Following a proposal by the expert from France, supported by the expert from CLEPA, this paragraph was deleted.

#### Paragraphs 5.9.3. and 5.9.3.1.

As a consequence of the decision regarding paragraph 5.3.2., these paragraphs were deleted.

#### Paragraph 5.9.4.

Noting proposals to delete this paragraph, the Informal Group agreed that, for the time being, the text should be left in square brackets. Attention was drawn to the problems of defining a failure and to similar requirements in other Regulations, such as Annex 18 to Regulation No. 13 entitled "Special requirements to be applied to the safety aspects of complex electronic vehicle control systems". The expert from GTB/AFS noted that the principal objective of this paragraph was already covered by a number of other requirements in the draft Regulation.

#### Paragraph 6.2.5.

The Informal Group agreed to the revised version.

#### Paragraph 6.2.6.3.

The horizontal range of 10 to 45 deg was accepted.

#### Paragraph 6.2.8.

Discussion on this paragraph was postponed, pending the final decision on the requirements regarding the traffic-change mode.

#### Paragraph 6.2.9.1.

Following a proposal by the expert from France to exclude the V-mode from the requirement, the Informal Group decided to insert an exemption in square brackets:

"[the Class V (town) passing beam is exempted]"

The expert from Germany entered a study reservation.

#### Paragraph 6.3.4.3.

The substance of the text could not be definitely clarified, and it was agreed to put this paragraph in square brackets.

#### Paragraph 6.5.6.

The expert from GTB/AFS explained the proposal to reduce the extent of the angular range which defines a cut-off subject to automatic levelling provisions; the Chairman recalled the discussion at the second session of the Informal Group on Regulation No. 48, where the majority of governments had been in favour of requiring automatic levelling. The Informal Group therefore decided to put paragraph 6.5.6.1. with the two alternatives in square brackets and to delete paragraph 6.5.6.2.

#### Annex 1

##### Paragraph 9.4.

In view of the decision taken on paragraph 6.5.6. of the draft Regulation, paragraph 9.4.1. was put in square brackets (with the alternative angular range included) and paragraph 9.4.2. was deleted.

##### Adaptive Front-Lighting System Specification; table of lighting functions

The expert from GTB/AFS drew attention to a new section which would indicate the lighting units used for neutral state/traffic-change mode. This was agreed by the Informal Group. The expert from Germany noted that additional wording was necessary to avoid an interpretation where the neutral state together with the traffic-change mode would be considered as an AFS. This was supported by the Informal Group, who requested the experts from Germany and GTB/AFS to review terminology, e. g. in the definition of AFS (new paragraph 1.1. in the draft Regulation) or in paragraphs 1.18.1. or 6.1.1.

#### Annex 3

##### Introductory note

Angular positions: The expert from Poland drew attention to his proposals in Informal document No. 10 for the 50<sup>th</sup> GRE session; he agreed to submit a Working Paper for the fourth session of the Informal Group.

The last sentence, which is in square brackets, was deleted, as its substance is covered by paragraph 5.1. of the draft Regulation.

##### Table 1

The expert from the United Kingdom noted that the photometric data were being analyzed in relation to those in Regulations Nos. 98 and 112; further explanations would be requested at the fourth session of the Informal Group.

The expert from France questioned the values in lines 11 (50 R) and 14 (50 L) for the Class V passing beam as they may be above the horizontal part of the cut-off defined in item 2.2. of Table 2. The expert from GTB/AFS explained the balance between the importance of these points and the allowance to turn down the passing beam. It was agreed to discuss this item again at the fourth session of the Informal Group.

#### Annexes 4 to 8

The expert from GTB/AFS confirmed that standard text from Regulations Nos. 98 and 112 had been used, including the test procedure for bend lighting in Annex 4. The proposals by Italy regarding cut-off aiming would be included in Annex 5. Annex 8 has been deleted, considering the decisions on paragraphs 5.3.2. and 5.3.3. of the draft Regulation.

#### Annex 9

The expert from Germany drew attention to his proposal regarding paragraphs 3.1. (step width of the vertical angle  $\leq 0.05^\circ$ ) and paragraph 3.2.1. (not more than one cut-off line to be visible). It was agreed to insert these proposals, subject to further review. It was also recognized that aiming should in principle be restricted to the neutral state of the system (passing beam and driving beam, if any). Noting also the proposal by Poland regarding paragraph 1.2.1. (horizontal part of the cut-off), the Informal Group invited the experts from Germany, Poland and GTB/AFS to develop an agreed text which would consolidate all proposals and should be available for the fourth session of the Informal Group.

#### Annex 10

##### Paragraph 1.8.1.

The square brackets around the second sentence were deleted; the text was amended to read: "...note 4 of Table 1, Annex 3 ..."

##### Paragraph 3.1.2.

Following comments by OICA and CLEPA, the Informal Group noted that the text of the second sentence would need further study as it did not provide instructions for the case where the conditions were not fulfilled.

#### Annex 11

The Informal Group noted that Description Form No. 2 would have to be revised; the text was put in square brackets.

#### NEXT SESSION OF THE INFORMAL GROUP

4. The Informal Group agreed to hold its fourth session from 15 to 17 July 2003 at the VDA offices in Frankfurt. Priority will be given to the draft Regulation on AFS. The following Working Papers will be prepared, submitted to the ECE Secretariat and placed on the website for this session:

A revised version of the draft Regulation on AFS (Expert from GTB/AFS)

A summary of key points for further discussion regarding the draft Regulation on AFS  
(Chairman)

A summary of key points for further discussion regarding the amendments to Regulation No. 48 (Chairman)

Members of the Informal Group were requested to submit additional comments, if any, by 15 June 2003.

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