

## **GRE Task Force on Substitutes / Retrofits (TF S/R)**

### **16<sup>th</sup> meeting**

7 March 2023, 14:00 – 17:00 CET, Part 1

Continued

8 March 2023, 09:00 – 11:00 CET, Part 2

### **Federal Ministry for Digital and Transport**

Robert-Schuman-Platz 1

53175 Bonn, Germany

### **Hybrid meeting**

#### **7<sup>th</sup> of March: Room 3.124**

#### **WebEX**

<https://bmdv.webex.com/bmdv/j.php?MTID=m7d0e19f51347d0a17334de00a1c02975>

#### **8<sup>th</sup> of March: Room U1.501**

#### **WebEx**

<https://bmdv.webex.com/bmdv/j.php?MTID=m8b6f976ba750c7539f77942cc60ba2ac>

for WebEx details: see Annex

## **DRAFT REPORT**

		<b>Documents</b>
1	Welcome and opening remarks	
	The vice-chair opened the meeting and welcomed the participants to the hybrid meeting. It was agreed that the vice-chair would lead the meeting, since the chair could only join remotely.	
2	Organisational issues	
	Some organisational issues were announced by the host. The participants were noted by the secretary, see Annex 1	
2.1	Introduction of participants	
	The participants briefly introduced themselves.	
3	Adoption of the agenda	TFSR-16-01
	The experts from IEC announced that they had prepared some additional material to be presented under agenda item 5. The agenda was approved with this addition.	
4	Review of the discussion at GRE 87	GRE-87-02 Report GRE-87, paragraph 15
	The report of GRE 87 was reviewed together on the screen, also noting document GRE-87-02.	

	Mr. Rovers suggested to give a report to GRE88 about this meeting. This was confirmed by the group and the chairs, together with the secretary, agreed to prepare this status report, like was done in the past.	
5	New equivalence approach for high-flux LEDr categories in R37	
5.0	<p>Basic technical considerations</p> <ul style="list-style-type: none"> <li>• Effect of light source photometry on beam performance</li> <li>• Discussion and way forward</li> </ul>	TFSR-16-02
	<p>The discussion of this item was started on March 7 and resumed on March 8;the following covers the discussion on both days.</p> <p>Mr. Terburg and Mr. Schlager introduced a new document, which was distributed at the end of the first day with document number TFSR-16-02.</p> <p>Slides 4 to 7 were presented and reviewed the discussion at GRE87 and the request to “cautiously re-evaluate” the equivalence criteria for high power light sources.</p> <p>The target for this meeting to “Create foundation for a converging discussion to achieve LEDr unification in all UNECE countries” was confirmed by the participants.</p> <p>Slide 9 presented two possible new “equivalent approaches”, both based on a “bi-directional” LEDr design.</p> <p>The discussion first focussed on the “Box 1”, which was considering a bi-directional design with the working title ““EQ+” or “intelligent equivalence”.</p> <p>It was explained that such an approach would impact only the photometrical content of the category sheets of R.E.5, and slides 11 to 15 were used to summarise the parts of the existing H11_LEDdr category sheet that would need amendment.</p> <p>The introduction of the slides 11 to 15 triggered questions about the light source specification and the effect on beam performance.</p> <p>To support this discussion, the slides 21 to 30 were used and during the discussion the slides were presented and discussed in detail.</p> <p>The experts from OICA stated that they would like to see also CLEPA experts and test house experts involved in this detailed photometry discussion and that they needed more time to study this document.</p> <p>It was noted that also no expert from France was present in this meeting, whereas experts from France had been active in this task force in the past, and France had also made an intervention at the GRE87 meeting on the topic of LEDr.</p> <p>The expert from OICA questioned the consequences on the type approval of the headlamp in case the light source was replaced and the beam performance changed as a consequence of this; he asked if an extension of the headlamp approval was needed.</p> <p>There followed a longer discussion about the type approval situation of headlamps and the replacement of approved light sources in this headlamp during the “lifetime” of the vehicle.</p>	

Specifically, the situation was analysed where the headlamp is approved with an R37 approved replaceable light source:

It was confirmed by the experts from the German authorities that the replacement of the light source (e.g. in case of light source failure) does not impact the headlamp approval, if the replacement light source has an own national or international approval, which includes the headlamp in the area of use

It was noted that this concept was always a fundamental pillar of UNECE lighting regulations since the introduction of replaceable UN approved light sources.

It was also reminded that the “legal situation” for the use of LED replacement light sources had been extensively discussed over the past years in this task force and in GRE, resulting in the R37 amendment that has already entered into force.

It was reminded that for the “intelligent equivalence” approach only the “photometric equivalence criteria” are under re-evaluation, and not the general regulation concept of replaceable UN approved light sources, which remains unchanged.

The experts from OICA further raised questions about mechanical compatibility, additional electronic devices, and EMC requirements.

Also here, it was reminded that these topics for LED replacement light sources were already covered by the existing R37 text (in force) and had been extensively discussed in this task force and GRE over the past years.

It was reminded also in this context that only the “photometric equivalence criteria” are under re-evaluation, not the general regulation concept of replaceable UN approved light sources.

The discussion then resumed with the focus on the photometric topics.

Based on slide 28 there was a longer discussion about “acceptable” change to the beam pattern in case of LED replacements.

There was general agreement that a change of the beam pattern “within” the R112 requirements would be acceptable since compliance with R112 specifications represents the agreed safety levels.

However, there were some concerns about a “significant” change of the beam pattern, but still within R112 requirements, when switching to LED replacement light sources.

It was highlighted by the experts from IEC and GTB that the expected change was leading to more light in the areas where the driver’s eyes are usually fixated to during night drives, and which would lead to greater beam range.

It was also reminded that even within the existing halogen light source specification there are different variants possible, i.e. longer filament (low luminance, long lifetime) and shorter filament (shorter lifetime, higher luminance), which would also clearly impact beam performance, but respecting the R112 beam photometry specifications.

The experts from IEC were asked to prepare some additional material for the next meeting to show the already existing “range of variation” with halogen bulbs and its impact on the beam performance.

The slides 23 to 26 were specifically used to discuss the topic of “glare”. The general concept of “glare free zone” for halogen light sources was

reviewed and how a “contrast requirement” for LEDr can ensure that the glare levels were controlled to within the legal limits. It was further confirmed that the “glare control” requirements were already fully part of the existing H11-LEDr specification, in force in Regulation 37 and R.E.5, and would be kept unchanged with the “intelligent equivalence” approach based on a bi-directional design.

The discussion on the photometric details was summarised on the basis of slide 30.

After completing the discussion on the “intelligent equivalence” approach, the discussion then returned to slides 16 to 19 of TFSR-16-02, and focussed on the “Box 2” and the “application level equivalence” which was being used for national approvals in e.g. Germany and France.

Mr. Terburg and Mr. Schlager introduced the concept of this “vehicle specific approval” with a “positive list” and the experts from Germany summarised the process applied for the German approval.

It was reminded that Germany had informed the European Commission about their intention to issue a national approval and that they had received the OK to proceed in this way.

The common features of the process in Germany and France were discussed, as well as the differences.

The differences being mainly the “entry requirement” for starting the approval process:

- Germany had requested a “no glare proof” in more than 80% of the “addressable market”
- whereas France had requested a “positive list coverage”, covering more than 20% of the “addressable market”

It was clarified that the “addressable market” means the vehicles registered in the respective country in the last 10 years for approval from France and 6 years for approval from Germany, using the respective light source category for low beam.

In the meanwhile Germany has adapted the requirements to those from France.

It was requested to prepare for a next meeting a better overview, maybe in a flow chart diagram, about the differences and commonalities between the German and French national approval approach.

Also the process for the end consumer, how to handle a “vehicle specific approval” was explained on the basis of slide 18.

Mr. Burkhard confirmed the advantages of LEDr for consumers, mentioning specifically the lower power consumption and the higher lifetime, leading to fewer failures on the road, which had been confirmed by the experience of the last 2 years in Germany.

The expert from Poland informed that he had performed several headlamp measurements with LEDr products, and showed a presentation with the results. (the presentation was further modified after the meeting and distributed after the meeting with document number TFSR-16-03).

	<p>He summarised that LEDr products with a good chip alignment and with a good contrast did generate a very good cut-off in these tested headlamps and that no additional glare was observed.</p> <p>So these results fit to the “principles of headlamp optics”, as shown in document TFSR-16-02.</p> <p>For example, in projector headlamps he explained that the glare levels were also not increased, but that no “improvement” of the beam could be observed either.</p>	
	<p>After the presentation of documents TSFR-16-02 and TFSR-16-03 was completed, the chair thanked all participants for the active contributions in the discussion and the prepared slides.</p> <p>He requested all experts to submit comments and questions about the presented documents to the secretary <b><u>by 17 March</u></b>.</p> <p>With respect to further consideration of the “positive list approach” the expert from Germany suggested to look at the legal aspects of UN regulations R90 (brake replacement parts) and R92 (replacement exhaust silencing systems for motorcycles); these could provide a parallel view on how such vehicle-specific replacement parts are addressed within the UN framework.</p> <p>It was agreed to give a status report at the next GRE and to invite all GRE experts again to participate in this discussion.</p> <p>Also a date for the next meeting should be finalised during the next GRE meeting, where the week of 12 June was identified as a possible time slot. The location was also not yet finalised, but it was considered to have a face-to-face meeting with possible demonstrations in the lab.</p>	
6	Next meeting(s)	
	Possibly in the week of 12 June, to be confirmed at GRE	
7	Closure	
	The chair thanked the participants and closed the meeting.	

*P. Plathner*

### Annex 1: Participants

Name	CP / NGO	
Rainer Krautscheid	DE - host	In person
Karl Manz	Chair, DE	by telephone on 7 March in person, on 8 March, partly
Phil Bailey	Co-chair, UK	In person
Philipp Plathner	Secretary, IEC	In person
Walter Schlager	IEC	In person
Bart Terburg	GTB / SAE	In person
Derwin Rovers	NL	In person
Marc Fischer	DE	In person
Mark Grainger	OICA	In person
Jean-Marc Prigent	OICA	By WebEx
Aurelie Berthel	OICA	By WebEx
Soomin Kwon	Korea	By WebEx
Siva Thiruvanagan	Australia	By WebEx
Tomasz Targosinski	Poland	By WebEx
Josef Schug	GTB WGLS	By WebEx
Burkhard Böttcher	FIA	By WebEx
Werner Halbritter	IEC	By WebEx
Thomas Bauckhage	CLEPA	By WebEx, only 8 March
Ma Wensong	China	By WebEx , only 8 March
Nana Tong	GTB WGLS	By WebEx , only 8 March