

**GRE Task Force on Substitutes / Retrofits (TF S/R)****5th meeting**

30 January 2019, 10:30 – 15:30 CET  
 Philipsstraße 8, 52068 Aachen, Germany

**DRAFT REPORT**

		<b>Documents</b>
1	Welcome and opening remarks	
	The chairman opened the meeting and welcomed the participants.	
2	Organisational issues	
	The participants signed an attendance sheet, see Annex 1. A Skype-Telephone call was set-up, with screen-sharing. Some organisational items were announced by the meeting hosts. It was agreed that a demonstration on headlamps in the Lumileds laboratory would take place in the time-slot between 11:30 and 12:30.	
2.1	Introduction of participants	
	The participants briefly introduced themselves.	
3	Adoption of the agenda	TFSR-05-01rev1
	The agenda, as shown in document TFSR-05-01rev1, was approved. Mr. Tiesler-Wittig offered to give a presentation on the topic of “Light source technology development” and it was agreed to have this under agenda item 7.	
4	Approval of the report of the previous meeting	TFSR-04-09
	The report was approved.	
5	LED Substitutes for signalling application	
5.0	Review of the discussions / decisions at GRE80	GRE-80 report sections 16 to 20
	The chairman summarised the outcome of the GRE80 meeting on the LED substitutes for signalling applications. The documents submitted by this TF had been approved, and the timeline of entering-into-force of the different documents was noted.	
5.1	R128 Body text	GRE/2017/21 TFSR-03-02rev1 TFSR-04-01 GRE/2018/39

		WP29/2019/19
	It was noted that this proposal had been approved by GRE80 and was now on the agenda of WP29 with document number WP29/2019/19.	
5.2	R.E.5 PY21W/LED	GRE/2017/17 TFSR-03-03 TFSR-04-02 GRE/2018/40 WP29/2019/29 TFSR-05-02
	It was noted that this proposal had been approved by GRE80 and was now on the agenda of WP29 with document number WP29/2019/29.	
	Mr. Schlager introduced document TFSR-05-02, with corrections to the document GRE/2018/40. The justification for the needed changes was reviewed. The proposed changes, marked in yellow, were discussed.	
	The changes were agreed, and it was requested that the justification needed to be more detailed, especially for the beta-angle. Also the minimum flux at the low voltage (16V for 24V system) was discussed and it was requested that the change should be explained in the justification.	
	It was agreed to submit the updated document to GRE81 as an informal document, with an improved justification. ➔ Action item: Schlager, Plathner, Manz	
5.2.1	Additional category proposals (update from GTB WGLS)	[GRE/2019/xx]
	Mr. Terburg announced that GTB had submitted to GRE81 proposals for the following new LED substitute categories: <ul style="list-style-type: none"> <li>• C5W/LEDK</li> <li>• R5W/LED</li> <li>• W5W/LEDK</li> <li>• WY5W/LED</li> </ul> The GRE document numbers were not yet available.  He explained that these proposals also had an associated activity in IEC to define the interlock feature.	
5.3	Mechanical keying, Interlock IEC 60061	TFSR-04-06 GRE-80-03
	No discussion.	
5.4	Equivalence Criteria	GRE-77-02 TFSR-03-06 TFSR-04-05 GRE-80-02
	No discussion.	
5.5	Changes to Device Regulations	GRE/2017/14 GRE-78-04

		TFSR-03-04 TFSR-04-03 GRE/2018/42 [WP29/2019/xx]
	It was noted that this proposal had been approved by GRE80 and would be submitted to WP29 when the R-LSD had entered-into-force.	
5.6	Changes to Installation Regulations	GRE/2017/22 GRE-78-28 GRE-78-33 TFSR-03-05 TFSR-04-04 GRE/2018/41 [WP29/2019/xx]
	It was noted that this proposal had been approved by GRE80 and would be submitted to WP29 when the R-LSD had entered-into-force.	
6	LED Substitutes for road illumination application	
	The chairman introduced this new topic, based on the agreement in GRE80 to start this new work item in this task force.	
6.0	Review of the discussion at GRE80	GRE-80 report sections 16 and 21
	The report of GRE80 was noted.	
6.1	Demonstration of halogen headlamps equipped with LED prototypes	
	<p>There was a demonstration in the laboratory of four headlamps from the same vehicle model, the low beam with H7 and reflector optics being equipped with four different light sources</p> <ul style="list-style-type: none"> <li>• H7 halogen according R37</li> <li>• “very bad” LED replacement</li> <li>• “bad” LED replacement</li> <li>• “good” LED replacement</li> <li>• “fully equivalent” LED replacement (substitute according proposed equivalence criteria)</li> </ul> <p>As a reference, an OEM LED headlamp according to R112 was shown.</p> <p>Photos from the demonstration are shown in document TFSR-05-10.</p> <p>The possibility of a demonstration of the headlamps in GRE was discussed, potentially in the parking garage at the Palais des Nations.</p>	
6.2	R128 Body text	
	It was discussed if there was a need to amend R128. It was provisionally concluded that all the photometric and electric requirements needed for LED substitutes for RID applications were covered by the existing R128 text.	
6.3	R.E.5 – H7/LED	TFSR-05-06

	The draft category was briefly reviewed, and it was agreed to finalise it for the next TF meeting based on the agreed equivalence criteria.	
6.4	Mechanical keying, Interlock IEC 60061	TFSR-05-05
	The investigation on possible interlock-definitions was introduced and discussed.	
6.5	Equivalence Criteria	TFSR-05-04
	<p>Mr. Schlager introduced document TFSR-05-04 and the general principles and some details were discussed.</p> <p>It was agreed that the presentation covered all the necessary aspects for photometric equivalence.</p> <p>The following editorial improvements were suggested:</p> <ul style="list-style-type: none"> <li>• Include reference to the L1/6 technical requirements</li> <li>• Clarify the nomenclature for the measurement angles, to avoid confusion when defining “gamma” angles</li> </ul> <p>For the presentation to GRE, it should be made clear what parts are taken from substitutes for signalling, what parts are taken from the L1/6 discussion and what parts are specific and new for substitutes for RID applications.</p>	
6.6	Changes to Device Regulations – R-RID	TFSR-05-03
	Mr. De Visser explained the background of document TFSR-05-03, and it was noted that this document was based on the equivalent changes to the R-LSD.	
6.7	Changes to Installation Regulations	
	After a short review of the changes to the installation regulations for LED substitutes for signalling, it was concluded that no further changes were needed.	
	<p>In conclusion, the group agreed that the documents should be finalised in a meeting in May/June, in order to have a formal submission to GRE82 in October:</p> <ul style="list-style-type: none"> <li>• RE5 with H7/LED: -&gt; Plathner, Schlager, Torma</li> <li>• R-RID: -&gt; DeVisser</li> <li>• Equivalence guideline: -&gt; Schlager, Plathner, Torma</li> <li>• IEC interlock: -&gt; Versluijs</li> </ul>	
7	LED Retrofits	
	<p>Before the technical and administrative details for LED retrofits were discussed, Mr. Tiesler-Wittig gave a presentation on the general topic of light source technology development over the oncoming decades.</p> <p>The presentation was distributed after the meeting with document number TFSR-05-07.</p>	
	The chairman reminded that for LED retrofits the criteria for photometric equivalence had now been established in the work of the LED substitutes, and that the failure detection was the most critical point for LED retrofits.	

	<p>Mr. Böttcher added, on the topic of failure detection, that there was a need to show that there was no new safety relevant risk for the driver introduced by LED retrofits.</p> <p>In his view, the malfunction of the failure detection system was not a safety issue, possibly with the exception of turn indicators, where the failure detection was mandatory.</p>	
	<p>Mr. Krautscheid commented that next to the technical challenges, there is also the legal/ administrative challenge to use retrofits.</p> <p>In the EU, such topics are in the scope of “DG MOVE”.</p>	
	<p>Mr. Rovers noted that the differences in the technologies have been addressed by developing technical equivalence and he asked if also “legal equivalence” could be established.</p>	
	<p>Mr. Schlager showed a presentation summarising the general principles of failure detection and power consumption.</p> <p>This presentation also included ideas about “full equivalence” and the different options.</p> <p>After the meeting this was distributed with document number TFSR-05-08.</p>	
	<p>Based on these slides, a general discussion was held on the technical and administrative options that were available for LED retrofits.</p> <p>For the technical aspects, two options were identified: Full technical equivalence, based on the LED substitutes, but also including</p> <ul style="list-style-type: none"> <li>- higher wattage</li> <li>- dimming capability</li> <li>- very high ambient temperature</li> </ul> <p>Or partial equivalence with additional rules, either on UN or national / regional level</p> <p>For the administrative procedures, it was discussed to use R37 with a “filament equivalent” concept.</p>	
	<p>It was agreed that the topic of LED retrofits needed further discussions in the TF to evaluate the different options available.</p>	
7.0	<p>Review the discussion at GRE-80</p>	<p>GRE-80-33 GRE-80-34 GRE-80 report, section 21</p>
	<p>The documents were noted.</p>	
7.1	<p>To note the former discussions in the TF</p>	<p>TFSR-04-09</p>
	<p>No discussion.</p>	
7.2	<p>Missing equivalence aspects compared to R37 counterpart</p>	
	<p>This topic was discussed under agenda item 7.</p>	
7.3	<p>Relationship with traffic and equipment use laws</p>	<p>TFSR-01-11</p>

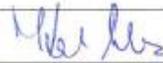
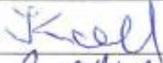
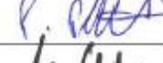
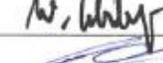
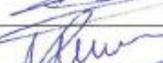
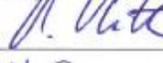
		TFSR-02-05
	This topic was discussed under agenda item 7.	
7.3.1	Draft Survey	TFSR-04-07
	No discussion.	
8	Next meeting(s)	
	<p>It was agreed to target a next face-to-face meeting for mid / end of May.</p> <p>➔ Action item: Plathner, Manz</p> <p>(Note by the secretary: the next meeting was agreed for 15 May in Brussels)</p>	
9	Closure	
	<p>It was agreed to give a status report to GRE81 on the topic of LED substitutes for RID applications.</p> <p>➔ Action item: Plathner, Manz</p>	
	The chairman thanked the participants and closed the meeting.	

*P. Plathner*

## Attendance Sheet

5th meeting of GRE Task Force Substitutes / Retrofits

Aachen, Germany, 30 January 2019

Name	CP / NGO	Signature
Mr. Manz	DE	
Mr. Krautscheid	DE	
Mr. Plathner	IEC	
Mr. Schlager	IEC	
Mr. Rovers	NL	
Mr. De Visser	IEC	
Mr. Versluijs	IEC	
Mr. Terburg	GTB	
Mr. Böttcher	ADAC / FIA	
Mr. Zimmermann	ADAC / FIA	
Mr. Vandervreken	CLEPA	
Mr. Bartelsen	DE	/
Mr. Bailey	UK	by telephone, per [unclear]
Mr. Goldbach	OICA	/
Mr. Blusseau	CLEPA	/
Mr. Prigent	OICA	/
Mr. Pamart	FR	/
W. van Laarhoven	NL	/
Mr. Torma	GTB	
Mr. Tiesler-Wittig	GTB	