

Date: 2026-01-28

GRE Task Force on Glare Prevention (TF GP)

5th meeting (hybrid session)

9 December 2025

9:30 – 17:00 (CET)

CLEPA Headquarters
Cours Saint-Michel 30g, Brussels

REPORT

		Documents
1.	Welcome and opening remarks The Chairman welcomed the participants to the meeting and thanked CLEPA for hosting this session.	
2.	Introduction of participants and organisations A list of all participants is available in Annex 1 to this Report.	
3.	Adoption of the agenda The agenda was adopted with modification, see TFGP-05-01/Rev.1 for details.	TFGP-05-01/Rev.1
4.	Approval of the report on the last meeting The report on the 4 th meeting (Brussels, 9 September 2025) was approved without modifications.	TFGP-04-04
5.	New study from UK on glare Mr. Bailey introduced to the group a newly released study from TRL titled: “Glare from road vehicle lighting on UK roads” (see TFGP-Rev.36). The study, published in October 2025, was performed using an instrumented left-hand drive car. This enabled the luminance camera to collect data from the usual driver eye position while driving at night. The observer in the car was instructed to press a button whenever they felt glared. Machine learning analysis was used to discover patterns in this data, to understand which variables were associated with glare and with high levels of luminance. The outcome of the study shows that road geometry as well as pitch and roll of the car are the main factors influencing luminance. Sharpness of the cut-off is not a key point but the light from below the cut-off that goes into the eyes of the driver is the problem. Dynamic levelling could address some of the scenarios about road geometry and topography. However, a question was raised about the effective needs to have as much light emitted as there is now. The maximum installation height (currently 1,2 m) was also a point for consideration.	TFGP-Ref.36

6.	<p>Input from the GTB Task Force “Glare Control” Mr. Matarazzo presented the input from GTB, prepared by their Task Force on Glare Control (doc. TFGP-05-06). This group, established before the GRE TF-GP, was tasked to review the existing literature in order to categorize different types of glare, identify their causes, and propose potential mitigation measures. The status of its work is summarized in document TFGP-05-07, where a rating is assigned to each cause of glare based on three combined factors: intensity, exposure duration, and frequency of occurrence. A higher rating indicates a more critical glare issue.</p> <p>The GTB Task Force is now focusing on defining possible solutions to mitigate the identified glare types, along with preliminary indication on the nature of these solutions (regulatory, technological, etc.). Additional updates will be provided as soon as available.</p> <p>The participants welcomed this contribution and agreed to consider it along with the results of the HWT literature.</p>	TFGP-05-06, TFGP-05-07
7.	<p>HWT on Literature – status update Mr. Matarazzo provided an update on the progress of the HWT Literature activities. The group has successfully completed its review of all available literature and will proceed in January, as scheduled, to summarize the main causes of glare and propose potential mitigation measures. This work will also incorporate the contributions developed so far by GTB (see TFGP-Rev.14).</p> <p>The participants agreed on the key investigation points, which align with the issues highlighted in the recent UK study, such as the need to update current regulations to reflect modern technologies and to determine what level of light should be considered excessive versus what is required to ensure safety.</p> <p>The HWT Literature will resume its work in January 2026 as scheduled and is expected to submit its final input to the TF-GP shortly before the next session.</p>	TFGP-05-09
8.	<p>HWT on PTI – status update <u>CITA status paper for GRE-TF GP and Letter of explanation</u> Mr. Rabe introduced doc TFGP-05-10, containing an analysis from FSD on the regulatory gaps in Reg. 149 and the current PTI practices, and how these gaps contribute to headlamp misalignment and, ultimately, glare on the road. The target of this work was to understand whether the way headlamps are approved during type approval is compatible with how they are inspected during PTI, and if inconsistencies between the two processes can lead to safety issues.</p> <p>Reg. 149 defines the photometric requirements of headlamps, including the cut-off shape and the expected location of the “kink of the elbow”. However, the regulation does not provide a precise, instrument-based definition of this point, even though both type-approval and PTI rely on it for alignment. In type approval, experts work in ideal laboratory conditions and often rely on visual estimation. In PTI, lamps are aimed on the vehicle using a headlight tester. Nevertheless, they are measuring according to a reference point that is not clearly defined and this creates a reproducibility problem.</p> <p>The case studies demonstrated that the current procedures fail to identify a consistent elbow position. When alignment depends on a point that cannot be reliably measured, the risk of misalignment increases and, with it, the risk of glare. Therefore, UN Regulations need clear measurable definitions for the cut-off and the elbow, applicable both in type-approval and PTI.</p>	TFGP-05-10

	<p>Mr. Ondrejka introduced docs. TFGP-05-02 and 03, as a CITA contribution to the discussion. The findings contained in these documents align with the work from FSD and highlight that the current Reg. 149 procedures are not precise enough to ensure consistent headlamp alignment. Since type-approval relies on subjective visual alignment and lacks clear definitions of the cut-off and the kink, PTI cannot reliably verify compliance and this regulatory gap contributes directly to glare in real traffic. CITA proposed a shift to fully objective, reproducible, instrument-based methods for both type-approval and PTI, along with clearer definitions, stricter tolerances, and improved compatibility with modern lighting technologies.</p> <p>Mr. Bailey asked whether the cut-off is the right thing to measure headlamps in PTI or a different method may be used. Mr. Schröder observed that in PTI the time is limited and today the cut-off measurement is the best available option. The participants agreed that the goal is to have the same measurement procedure in all PTI.</p>	TFGP-05-02, TFGP-05-03
9.	<p>HWT on ADB/AFS – status update</p> <p>Mr. Schramm provided a status report on the activities of the HWT ADB/AFS (doc. TFGP-05-08) and informed that the group has made progress in reviewing research on ADB/AFS coming from the ISAL symposia.</p> <p>Mr. Schramm noted that depending on implementation and beam pattern, ADB/AFS can either reduce or increase glare. Mr. Bailey reported that a weak point for automatic switching systems is their response time, which can cause brief glare spikes. He also questioned if AFS effectively removes certain glare sources.</p> <p>Participants further observed that drivers of vehicles equipped with ADB/AFS rely on such systems and rarely override them, even when needed, and mentioned ongoing studies on the human ability to spot cars coming from around a corner or bend. Mr. Kärkkäinen recalled that dirt remains a problem for glare and headlamp cleaning-system should be improved.</p>	TFGP-05-08
10.	<p>Next steps</p> <p>All the HWT contributions will be consolidated into a single document, to be merged after the February meeting and reviewed in April 2026.</p>	
11.	<p>Any Other Business</p> <p><u><i>AI analysis of R149 about cut-off in Type-Approval and PTI</i></u></p> <p>Mr. Targosinski presented documents TFGP-05-04 and 05, which include an AI-based analysis of the cut-off definition requirements, their impact on glare in real-driving conditions, and the implications for PTI procedures. Following an exchange of views, the participants concluded that, although AI is a good tool that can process large volumes of data, its outputs cannot be considered fully reliable, as it may generate unsupported information when data is missing. While the methodology itself may be promising, the results of this analysis will require independent validation before they can be regarded as trustworthy.</p> <p><u><i>Brief update on Transport Canada research activities on glare</i></u></p> <p>Ms. Lau informed that TC is studying how headlight glare affects drivers. The preliminary result of the study showed large differences in perceived glare among vehicles, especially from those with higher mounting heights and higher illuminance. The final report will be presented at the ESV conference in Toronto in May 2026.</p>	TFGP-05-04 TFGP-05-05 TFGP-05-11

	<p><u><i>Polarizing filters on headlamps and windshields</i></u></p> <p>Mr. Bailey informed about polarizing filters to be applied on the windshield and headlamps which could reduce glare, and asked whether any data exists on their effectiveness. Mr. Puglisi observed that such filters would also reduce the light emitted by the headlamp itself and offered to check within GTB if there is any further information on this subject to report at the next meeting. Mr. Nordeke added that polarization would generally reduce both incoming glare from other vehicles and the driver's own usable light output.</p> <p><u><i>Illegal light sources in Germany</i></u></p> <p>The Chairman reported finding in an online shop an H7 LED replacement bulb apparently legal, because bearing a Reg. 10 approval but, in reality, with a luminous flux far above the legal limit. The German Authority contacted the shop customer service and finally agreed that such illegal products will be removed from the catalogue. He mentioned that information about the possibility for Contracting Parties to prohibit the selling of not approved parts or equipment can be found in EU Regulation 2018/858 (Art. 50).</p> <p>Similar issues were noted in Finland, where these products are illegal but can still be found on the market and purchased. Mr. Puglisi highlighted the need to improve market surveillance at national level and Mr. Choda suggested raising the issue at GRE to inform all Contracting Parties. IEC stressed the importance of this point and suggested to be in contact with CITA due to their experience on PTI. The participants agreed that checks on possible illegal retrofits should occur both at the point of sale and during PTI. Since this was unanimously identified as a key aspect to prevent glare, it was agreed to be added to the GRE recommendations.</p>	
12.	<p>Next meetings</p> <p>The 6th meeting of the TF-GP will be held in Brussels (BE) on 3 February 2026 at the CLEPA Headquarters. The 7th session will be held on 13 April 2026 at CLEPA. Both meetings will be hybrid, with possibility to join via web.</p>	
13.	<p>Closure</p> <p>The Chairman thanked the participants for the fruitful contribution and closed the meeting.</p>	

Participation at the 5th TF-GP meeting
Brussels (BE)/Hybrid, 9 December 2025

Marc Fischer	GERMANY / TF Chairman	In person
Davide Puglisi	GTB / TF co-secretary	In person
Federico Matarazzo	GTB / TF co-secretary	WebEx
Ravinder Choda	AAPC	WebEx
Caroll Lau	CANADA	WebEx
Peter Ondrejka	CITA	WebEx
Ana-Isabel Munoz	CLEPA	WebEx
Frederic Hay	CLEPA	WebEx
Silke Barton	CLEPA	WebEx
Thomas Bauckhage	CLEPA	WebEx
Burkhard Böttcher	FIA	WebEx
Harm Zeven	FIA	WebEx
Timo Kärkkäinen	FINLAND	In person
Antoine Pamart	FRANCE	WebEx
Ralph Schröder	FSD	WebEx
Stephan Rabe	FSD	WebEx
Philipp Plathner	IEC	WebEx
Walter Schlager	IEC	WebEx
Takaaki Fukushima	IMMA	In person
Alex Desplenter	IMMA	In person
Takuya Minagawa	IMMA	In person
Takashi Sugiura	IMMA	In person
Tom Schultze	IMMA	In person
Satoru Kanai	JAPAN	WebEx
Kotaro Hashimoto	JAPAN	WebEx
Michiaki Sekine	JAPAN	WebEx
Seiji Nemoto	JAPAN	WebEx
Yoko Kato	JAPAN	WebEx
Yoshiro Aoki	JAPAN	WebEx
Magnus Nordeke	OICA	WebEx
Sonia Sudrie	OICA	WebEx
Thomas Schramm	OICA	In person
Ziya Metin Coskun	OICA	WebEx
Tomasz Targosinski	POLAND	WebEx
Phil Bailey	UK	In person