



Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Passive Safety****Seventy-ninth session**

Geneva, 1–5 June 2026

Item 4 of the provisional agenda

UN Global Technical Regulation No. 20 (Electric vehicle safety)**Proposal for a final status report on the development of
amendment 1 to UN Global Technical Regulation No. 20
(Electric vehicle safety)****Submitted by the expert from the European Commission on behalf of
the Informal Working Group on Electric Vehicle Safety (IWG-EVS) ***

1. The Global Technical Regulation on the Electric Vehicle Safety (EVS) is the result of numerous meetings and the excellent cooperation between the governments of Canada, China, Japan, Republic of Korea, the United States of America, and the European Union including standards organizations, testing authorities and industry experts. In 2012, the World Forum for Harmonization of Vehicle Regulations (WP.29) and the Executive Committee of the 1998 Agreement (AC.3), adopted a joint proposal by China, the European Union, Japan and the United States of America to establish two Informal Working Groups (IWG) to address the safety and environmental issues associated with electric vehicles.
2. The objective of the two formed working groups – on electric vehicle safety (IWG-EVS) and on electric vehicles and the environment (IWG-EVE) – was to seek regulatory convergence on the global scale via the work in the framework of the 1998 Agreement. IWG-EVS was established to develop provisions to address the safety of electric vehicles during in-use and post-crash of electric vehicles using science-based, data driven and performance-based approach. IWG-EVS conducted numerous meetings and necessary research and testing to complete the first phase of the efforts which resulted in the adoption of UN Global Technical Regulation (GTR) No. 20.
3. In November 2017, the Executive Committee of the 1998 Agreement (AC.3) endorsed the Authorization to develop Phase 2 of UN GTR No.20 (ECE/TRANS/WP.29/AC.3/50) submitted by the representatives of China, Japan, the United States of America and the

* In accordance with the programme of work of the Inland Transport Committee for 2026 as outlined in proposed programme budget for 2026 (A/80/6 (Sect. 20), table 20.7), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

European Union. During Phase 2, the mandate of IWG-EVS was extended several times, namely in November 2021, November 2022, March 2024 and March 2025.

4. The following topics were listed as the scope of work in Phase 2:
- (a) Water immersion test;
 - (b) Long-term fire resistance test;
 - (c) Rechargeable Electrical Energy Storage System (REESS) rotation test;
 - (d) REESS vibration profile;
 - (e) Flammability, toxicity and corrosiveness of vented gas (i.e. quantification of venting for tests addressing safety of REESS post-crash, potential risk of "toxic gases" from non-aqueous electrolyte);
 - (f) Thermal propagation and methods of initiation in the battery system;
 - (g) Post-crash REESS safety assessment and stabilization procedures;
 - (h) Light electric vehicles (e.g. categories L₆ and L₇¹, low speed vehicles);
 - (i) Protection during Alternating Current and Direct Current charging and feeding process; and
 - (j) Overcurrent requirements plus tests (component based).

5. As a result of extensive discussions on these topics, the informal working group agreed to maintain existing contents of the regulatory text of UN GTR No. 20, except for thermal propagation. The "Statement of technical rationale and justification" section of Amendment 1 to UN GTR No. 20 provides a concise account of discussions and conclusions for each of these topics considered during Phase 2.

6. Phase 2 efforts and discussions focused primarily on single-cell thermal runaway and propagation due to an internal short-circuit. Canada, China, France, Germany, Japan, Republic of Korea, Netherland (the Kingdom of), the United Kingdom of Great Britain and Northern Ireland, the United States of America, the European Union and OICA shared progress in thermal propagation research and field data. In October 2021, the informal working group established the thermal propagation task force, led by China, Japan, and Canada, and a thermal propagation documentation sub-group, led by the United States of America. Between 2023 and 2024, the work of the Ad-hoc Special Interest Group on model regulation regarding the safety of electric vehicles with a focus on a thermal propagation test method, also laid an important foundation for the development of Phase 2 of the regulation.

7. Since several Contracting Parties had already adopted national requirements on thermal propagation, the IWG agreed to formulate Phase 2 regulatory text by capturing the minimum common elements between Contracting Party positions and approaches, and in a manner that would not require any changes to the recently published regulatory documents.

8. As a result, two compliance paths were further developed by the IWG over the course of Phase 2. The first safety path was a physical test of vehicles or REESS and the second safety path was the risk management approach. For Contracting Parties electing to incorporate the test approach in their respective jurisdictions, there are 5 initiation methods. For Contracting Parties electing to pursue a risk management approach (RMA), the intent was to (a) document the known risk to vehicle occupants caused by thermal propagation which is triggered by an internal short-circuit leading to single cell thermal runaway, and (b) document the reduction of risk resulting from implementation of the identified risk mitigation functions or characteristics at the cell, REESS, or vehicle level.

9. While amendment 1 to UN GTR No. 20 complements the original UN GTR No. 20 with important safety provisions, electric vehicle technologies continue to evolve including new lithium-ion chemistries, new chemistry families, new or enhanced battery diagnostic

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.7, paragraph 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html.

capabilities, and higher power, energy and/or voltage system designs, and these developments need to be further researched and tested. Areas related to electric vehicles safety such as:

- (a) expansion of the protection scope of the thermal propagation test;
- (b) post-crash REESS safety assessment, stabilization procedures and non-occupant and surroundings safety;
- (c) maintaining the electric vehicle battery safety during the in-use phase;
- (d) safety of swappable batteries;
- (e) micromobility, light-category vehicles, e-trailers safety;
- (f) quantitative criteria on flammability, toxicity and corrosiveness of vented gases and smoke; and
- (g) bottom protection

currently remain unregulated and are listed among the topics to be addressed by IWG-EVS in Phase 3 (ECE/TRANS/WP.29/2026/42).
