



Transmitted Electronically via Regulations.gov

February 23, 2026

The Honorable Jonathan Morrison
Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue NE
Washington, DC 20590

Re: Alliance for Automotive Innovation Comments re: Notice and Request for Comment; Proposal for a New United Nations Global Technical Regulation for Automated Driving Systems (ADS)

Dear Administrator Morrison:

The Alliance for Automotive Innovation (Auto Innovators) appreciates the opportunity to submit comments regarding the proposed Global Technical Regulation (GTR) for Automated Driving Systems. We commend the National Highway Traffic Safety Administration's (NHTSA) efforts to understand industry needs with respect to international regulatory harmonization for automated driving systems (ADS). Auto Innovators supports NHTSA's goal of advancing U.S. leadership by ensuring regulatory guidance that is clear and consistent, technology neutral, and supportive of industry innovation for improved mobility and safety for all. While this comment highlights several issues that require serious consideration before the GTR can be implemented in the United States, Auto Innovators supports the ratification of the GTR during the upcoming WP.29 convening.

Auto Innovators represents the full auto industry, including the manufacturers producing most vehicles sold in the U.S., equipment suppliers, battery producers, semiconductor makers, technology companies, and autonomous vehicle developers. Our mission is to work with policymakers to realize a cleaner, safer, and smarter transportation future and to maintain U.S. competitiveness in cutting-edge automotive technology. Representing over 5 percent of the country's GDP, responsible for supporting 11 million jobs, and driving \$1.5 trillion in annual economic activity, the automotive industry is the nation's largest manufacturing sector.

The U.S. is at the forefront of ADS development and deployment. Maintaining that leadership depends in significant part on a regulatory environment that is both rigorous and internationally coherent. Regulatory fragmentation, whether across U.S. states or between nations, increases costs, delays deployment, and risks ceding competitive advantage to jurisdictions that move more quickly

to establish clear and workable frameworks. A well-designed GTR, aligned with U.S. regulatory principles, can serve as a powerful tool for reducing this fragmentation, opening global markets to U.S.-developed technologies, and establishing safety expectations that reflect the best thinking of the international community. We view this GTR as an important step in that direction and are committed to working with NHTSA to ensure its successful development and implementation.

At the same time, international harmonization must complement, not undermine, the U.S. regulatory system. The strength of the U.S. approach lies in its reliance on performance-based requirements, manufacturer self-certification, and a framework that has historically adapted to accommodate new and evolving vehicle technologies. Auto Innovators seeks to support NHTSA in ensuring that the GTR, and any domestic implementation of it, is consistent with these principles, advances U.S. leadership in automated vehicle technology, and delivers meaningful safety outcomes for the public.

We highlight several areas for NHTSA to consider in future implementation:

- I. GTR requirements must be clear and objective and use a performance-based approach.
- II. The GTR must align with consensus standards promulgated by the federal government.
- III. Several new concepts and definitions are overly vague and must be clarified.
- IV. Safety case requirements must be compatible with the U.S. regulatory system.
- V. Overly prescriptive aspects of the Safety Management System must be assessed.
- VI. GTR recommendations may pose inadvertent risks to confidential business information (CBI) and individual privacy, and must be addressed.
- VII. Compliance timelines and costs must be evaluated and accounted for.

I. GTR Requirements Must be Clear and Objective and Use a Performance-Based Approach

Auto Innovators supports international harmonization efforts and recognizes the value of a coordinated global approach to ADS safety. We commend NHTSA's leadership and engagement with the international community through the GRVA process and appreciate that the GTR aspires to be performance-based and technology neutral. We support many of the provisions in this GTR as an important first step that must evolve as ADS technology advances. We encourage NHTSA to continue working with all stakeholders to develop and adapt a standards framework that can be shared with GRVA subgroups and implemented widely.

However, we are concerned that several provisions within the GTR, as currently drafted, fall short of the clarity necessary for compatibility with the U.S. regulatory system. The Motor Vehicle Safety Act¹ requires that Federal Motor Vehicle Safety Standards (FMVSS) be stated in objective, measurable terms that allow manufacturers to determine, through self-certification,² whether their vehicles comply. We urge NHTSA to advocate for modifications that ensure the GTR's requirements are both clear and allow for the flexibility of the U.S. performance-based, cost-benefit balanced, regulatory tradition.

Performance-Based Framework

We strongly support the GTR's stated commitment to a performance-based approach. A performance-based framework allows manufacturers the flexibility to innovate while meeting defined safety outcomes, an approach that has served the public well in the U.S. for decades. To preserve this framework, it is essential that the GTR's requirements be stated in terms that can be assessed and verified, recognizing that the methods of assessment for ADS technology may need to evolve as the technology and the science mature.

We are concerned, however, that the general safety requirement that the ADS perform "at least to the level of a competent and careful human driver" (Section 3.1) lacks objective measurement criteria. This comparative standard does not define the baseline against which ADS performance would be evaluated, nor does it specify how equivalence would be demonstrated or verified. Establishing a measurable human driver benchmark is an active area of research, and premature codification of this standard could introduce ambiguity rather than clarity.

We recommend that NHTSA continue to work with industry and the research community to develop objective, scenario-based performance metrics and acceptance criteria rather than relying on a comparative standard that cannot currently be quantified. The work that the agency has furthered to establish a multi-year research project on modernizing safety standards for automated vehicles³ could inform the development of future standards and implementation.

It is in the interest of US industry to create a basis on which some level of international reciprocity might be achieved in the future between 58 and 98 countries. NHTSA might look to voluntary standards, or to

¹ Title 49, USC Subtitle VI. Motor Vehicle and Driver Programs Part A. General Chapter 301. Motor Vehicle Safety. <https://www.nhtsa.gov/sites/nhtsa.gov/files/mvs01092008.pdf>

² 49 U.S.C. § 30115; AV STEP NPRM, 90 Fed. Reg. 4130 (Jan. 15, 2025)

³ [NHTSA Releases Multi-Year Research Project on Modernizing Safety Standards for Automated Vehicles](#)

the New Car Assessment Program (NCAP), for an opportunity to provide for threshold assessment by the agency, which in turn might serve as the basis for consideration of reciprocal treatment overseas.

Absolute Requirements

The provisions in the GTR that impose absolute requirements which, while aspirational, are technically incompatible with the regulatory standard development under U.S. law. We urge NHTSA to be mindful about how Section 4.1.2.1., which states that “the driving behaviour of the ADS shall not cause collisions” is adapted to U.S. regulatory requirements. While we share the goal of minimizing collisions, the requirement as drafted does not adequately distinguish between the intended dynamic driving task (DDT) and the ADS hardware and software system as a whole. An absolute prohibition on causing collisions does not account for the inherent limitations of any driving system, including sensor obscuration, unpredictable behavior by other road users, force majeure events, and the physics-based realities of stopping distances and reaction times. The GTR acknowledges the complexity of causation analysis, yet the requirement itself remains absolute.⁴ This creates an unachievable standard that may be incompatible with the requirement under the Motor Vehicle Safety Act that FMVSS be stated in terms that allow for objective, repeatable testing.

Similarly, the requirement that the ADS “shall comply with traffic rules” (Section 4.1.2.6), while an appropriate design objective, cannot function as an objective regulatory standard in the U.S. context. Traffic laws are written by states and localities and often require the exercise of judgment and discretion. They cannot be simply incorporated by reference into a federal standard if they are not stated in objective terms. Moreover, no mechanism exists to regulate and codify different software versions for every jurisdiction — the level of granularity and the pace of change make this impracticable.

When developing future regulations, we urge NHTSA to reframe these provisions around an unreasonable risk standard, consistent with the GTR's own stated principle, that the general safety standard is the absence of unreasonable risk. This approach would allow for the reality that some collisions may be unavoidable despite proper ADS functioning, while still establishing a meaningful safety floor. It would also align better with existing international safety frameworks.⁵

Flexibility in Implementation

⁴ Footnote 38 of this GTR

⁵ Amongst these frameworks are: ISO 26262 (functional safety) and ISO 21448 (Safety of the Intended Functionality)

Where the GTR provides requirements that are performance-based and testable, translation to FMVSS may be appropriate. However, requirements that are neither performance-based nor testable should not be forced into a performance standard framework, and we encourage NHTSA to seek greater flexibility in how the GTR's requirements may be satisfied. We support requirements that define the safety objectives to be met, while allowing manufacturers to determine the most effective means of meeting them, consistent with the U.S. self-certification model.

The validation requirements are a case in point. While we support the multi-pillar approach to validation that combines virtual, track, and real-world testing, the requirements for simulation credibility (Section 5.2.1) are extremely prescriptive, extending in some cases to the qualifications of individual personnel in the simulation tool chain. This level of specificity is inconsistent with the GTR's own stated principle that it was "developed on the principal of being performance based and technology neutral" (Paragraph 50), and with the 1998 Agreement's mandate that global technical regulations establish harmonized performance requirements and test procedures, not prescriptive process mandates that extend to the qualifications of individual personnel.⁶ Moreover, these provisions do not provide a clear benchmark for what constitutes "sufficient" validation, risking an open-ended testing obligation with no defined threshold for completion. Overly prescriptive validation requirements will impose significant costs without a commensurate safety benefit, and third-party or witness testing systems may lack the technical capacity to assess ADS performance across the full range of complex, real-world scenarios.

We recommend that NHTSA advocate for validation requirements that are scaled appropriately using a risk-based approach, recognize the diversity of ADS applications and operational design domains, and focus regulatory oversight on safety-critical requirements rather than internal process details.

II. Misalignment with U.S. Regulatory Framework and Consensus Standards

In evaluating the proposals in the GTR, we are concerned that several provisions could conflict with the U.S. regulatory framework in fundamental ways. We would oppose any implementation of the GTR that introduces requirements conflicting with, or divergent from, the FMVSS framework. We urge NHTSA to carefully evaluate the GTR's provisions through the lens of compatibility with the self-certification system and to ensure alignment.

⁶ United Nations [AGREEMENT CONCERNING THE ESTABLISHING OF GLOBAL TECHNICAL REGULATIONS FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FIT](#)

Several of the GTR's performance requirements, while appropriate as design objectives, present significant challenges when evaluated as enforceable regulatory standards within the U.S. legal and jurisdictional context. The following are examples of these discrepancies:

Conflict with U.S. Legal and Jurisdictional Practices

Traffic Rule Compliance (Section 4.1.2.6)

The GTR requires that the ADS "shall comply with traffic rules in accordance with the application of relevant law within the area of operation." We support this as a design objective. However, in the United States, traffic laws are enacted at the state and local level, vary significantly across jurisdictions, and frequently require the exercise of judgment and discretion. These laws cannot be incorporated by reference into a federal performance standard if they are not themselves stated in objective terms. Further, there is no practicable mechanism to regulate and codify different software versions for each jurisdiction; the granularity required and the pace of change make this infeasible. The Safety Management System should support the collection and integration of updated traffic rules, but this is an ongoing operational obligation that does not lend itself to a design-and-verify requirement in the traditional regulatory sense.

Collision Mitigation (Section 4.1.3.2)

We support the principle of collision mitigation. However, the GTR's post-collision requirements including "remaining stationary unless directed by a road safety agent" appear to assume that safety agents will be available immediately and in close proximity following a collision. This does not reflect the reality in many U.S. jurisdictions where emergency response times and protocols vary significantly. We encourage NHTSA to seek clarification on how post-collision protocols would be operationalized across the diverse U.S. jurisdictional landscape.

Real-World Testing (Section 5.2.3)

In the U.S., the framework for on-road testing of ADS-equipped vehicles varies by state, with different permitting requirements, safety driver obligations, and liability frameworks. The GTR does not account for this variability or clearly distinguish between development and validation testing. We recommend that NHTSA seek modifications that accommodate the existing U.S. testing landscape.

Statutory and Regulatory Inconsistency

Compatibility with the Self-Certification System

The GTR includes extensive process requirements, particularly with respect to the Safety Management System (SMS) and Safety Case, that appear to regulate manufacturers' internal processes and mandate the production of specific analyses and documentation. These provisions exceed the traditional scope of FMVSS, which focus on the safety performance of the regulated vehicle rather than internal development processes.⁷ As NHTSA recognized in its 2020 ADS Framework ANPRM, safety assurance is "typically a process controlled and conducted by the manufacturer."⁸ Process regulation does not establish a safety performance floor and is inherently dependent on the personnel and judgment involved, and third-party review does not resolve this subjectivity.

As NHTSA evaluates how to adapt GTR provisions for the U.S. system, we encourage the agency to distinguish between requirements suited to Federal Motor Vehicle Safety Standards (FMVSS) and requirements better suited to regulation, which provide an established mechanism for procedural, documentation, and reporting obligations. We urge NHTSA to ensure that any domestic implementation of any aspect of the GTR is consistent with the existing self-certification model that is adapted to the established requirement frameworks.

Administrative Procedure Act Compliance

If the GTR is to be adopted into U.S. law, it must comply with the requirements of the Administrative Procedure Act,⁹ including notice-and-comment rulemaking, regulatory flexibility analysis, and the requirements of the Paperwork Reduction Act.¹⁰ The scope and complexity of the GTR's requirements particularly with respect to documentation, reporting, and SMS auditing would have significant implications under these statutes, and we encourage NHTSA to begin evaluating these implications early in the process.

Relationship to Existing and Proposed U.S. Rules

We ask NHTSA to provide clarity on how the GTR would interact with existing and proposed domestic regulations, including FMVSS No. 126 (Electronic Stability Control), proposed FMVSS No. 131 (cybersecurity), and any forthcoming ADS-specific rulemakings. Additionally, a thorough preemption

⁷ 49 U.S.C. § 30111(a).

⁸ 85 Fed. Reg. 78058, 78063 (Dec. 3, 2020).

⁹ 5 U.S.C. § 553

¹⁰ 44 U.S.C. § 3501 et seq.

analysis is needed to address the relationship between a federally adopted GTR framework and existing state ADS regulations.

Reporting Harmonization and Vehicle Classification

The GTR establishes detailed post-deployment reporting requirements, including occurrence reporting, periodic reporting, and critical occurrence thresholds. We are concerned that these requirements could create duplicative reporting obligations for manufacturers already subject to the Early Warning Reporting (EWR) system, the TREAD Act, and NHTSA's Standing General Orders (SGO). Duplicative reporting would impose significant administrative burden without a commensurate safety benefit.

We strongly encourage NHTSA to harmonize any GTR-based reporting requirements with existing U.S. reporting frameworks to the greatest extent possible. Where existing U.S. reporting mechanisms already capture the relevant safety data, manufacturers should not be required to report the same or substantially similar information through a parallel system. The reporting framework should also be calibrated to provide meaningful safety information without creating an administrative burden that detracts from safety-focused activities.

III. Clarification of Vague Concepts and Definitions

We appreciate that many of the GTR's core definitions for ADS, Dynamic Driving Task (DDT), and Operational Design Domain (ODD) are aligned with established international standards.¹¹ This alignment is an important foundation for regulatory consistency. However, the GTR also introduces several new concepts, most notably "behavioral competency" and "significant occurrence," that are broad in scope and lack quantitative metrics. Ambiguity in key definitions creates compliance uncertainty, risks inconsistent interpretation across jurisdictions, and may generate reporting obligations that are administratively burdensome without yielding meaningful safety insights. We urge NHTSA to seek clarification of the following concepts and definitions prior to adoption.

Key Definitions Requiring Clarification

"Behavioral Competency" (Section 2.22)

This concept is not widely used in existing regulatory frameworks and lacks a clear methodology for objective measurement. The GTR does not specify how behavioral competencies will be assessed, what

¹¹ For example: SAE J3016:2021, ISO/SAE PAS 22736:2021, and ISO 26262:2018

constitutes a passing or failing demonstration, or which authority would be responsible for making such determinations. Without objective criteria, this concept is susceptible to inconsistent interpretation and could impose obligations that are difficult to verify through self-certification. We recommend that NHTSA work with the international community and industry to develop clear assessment criteria before codification, recognizing that the appropriate methods for evaluating behavioral competency may differ across ADS applications and operational design domains.

"Significant Occurrence" and "Critical Occurrence" (Sections 2.13.1 and 2.13.2)

The definitions of these terms rely on subjective thresholds outlined in Annex 4 that may be over-inclusive and could generate a significant volume of reporting without a corresponding safety benefit. We have two specific concerns:

The injury threshold based on "medical attention" is extremely broad and it could capture incidents involving only minor injuries, such as an individual who seeks a bandage at a pharmacy, and does not distinguish between incidents with genuine safety significance and those that are trivial. The reliance on ambulance detection as a triggering mechanism is technically challenging and potentially unreliable, risking false positives that could distort safety data. The physical damage threshold based on "tow away" may similarly fail to correlate with safety significance. Modern ADS-equipped vehicles may become undrivable due to minor sensor or electronics damage in low-severity incidents that present no meaningful safety concern. We recommend that NHTSA advocate for reporting thresholds that mirror those in the SGO, as manufacturers already have the infrastructure in place to comply with such incident reporting requirements.

Operational Design Domain (Section 2.12)

The ODD definition is foundational, and we support requiring manufacturers to clearly articulate the conditions under which their ADS is designed to operate. However, ODD specification is already in international standards.¹² Therefore, it is unclear the benefit to impose additional specificity beyond what the ISO standard provides. Manufacturers have a strong inherent incentive to define the ODD with precision, as a loosely defined ODD increases the manufacturer's validation burden.

We are concerned about the lack of clarity regarding post-certification ODD change management, particularly given that ODD conditions vary significantly across the United States and the authority to

¹² ISO 34503:2023

define roadway conditions is not consistent across jurisdictions. We encourage NHTSA to seek guidance on ODD change management that is practical and does not require full recertification for incremental adjustments.

"Competent and Careful Human Driver" (Section 3.1)

As discussed in Section I, this comparative standard lacks objective measurement criteria. NHTSA has acknowledged that "the data, methods, and metrics to support [ADS performance] standards do not yet exist."¹³ Premature codification of a comparative standard that cannot currently be quantified risks protracted development timelines and could introduce more ambiguity than it resolves. We recommend that NHTSA encourage continued research while relying in the interim on the GTR's own principle, that the general safety standard is the absence of unreasonable risk, as a more workable and legally defensible foundation.

Subjective Thresholds

We note a broader pattern within the GTR of reliance on subjective thresholds. Safety case scenarios require manufacturers to address "reasonably foreseeable" situations, but the GTR provides no guidance on how many scenarios are "sufficient" or how foreseeability is to be quantified. Without clear benchmarks, manufacturers face open-ended obligations that effectively create an infinite test space. We recommend that NHTSA work with the international community to develop practical guidance on scenario sufficiency and consider addressing this issue via regulation.

Driver Monitoring

Driver Monitoring Requirements for ADSF-1 (Section 4.2.2.1.6)

The GTR requires continuous assessment of whether the fallback-ready user is "awake" and "correctly seated" before initiating a transition to manual driving. We support this principle, but the terms need additional specificity; we understand "awake" to mean not sleeping, and "correctly seated" to mean not reclined or positioned too far from controls, but the GTR does not define these terms with sufficient clarity for consistent implementation.

¹³ 90 Fed. Reg. at 4134.

The privacy implications of continuous monitoring should not be overlooked. Several U.S. states have enacted or are considering biometric privacy legislation¹⁴ that could affect the collection, use, and storage of DMS data such as gaze tracking. Current DMS technology also has known limitations, including performance variability in different lighting conditions and interference from eyewear. We recommend that NHTSA seek greater specificity in availability criteria, allow alternative verification methods, and ensure that privacy considerations, including the patchwork of state data privacy laws, are addressed in any domestic implementation.

IV. Safety case requirements must be compatible with the U.S. Regulatory System.

Auto Innovators supports a structured safety case framework through which manufacturers can articulate claims about ADS safety supported by arguments and evidence. We appreciate the international collaborative effort that produced these provisions and recognize the safety case as a valuable tool for demonstrating that an ADS is free from unreasonable risk.

As a threshold matter, we note that a safety case requirement as a documentation and argumentation obligation, rather than a vehicle performance requirement, may be better suited to regulation than FMVSS. The statutory requirement for FMVSS requires that the standard be stated in objective, practicable terms relating to vehicle performance. These criteria cannot be satisfied through documentation requirements.¹⁵ A regulation, by contrast, can provide a regulatory mechanism for procedural and documentation obligations; this is in line with how NHTSA currently administers reporting and recordkeeping requirements.¹⁶ We encourage NHTSA to consider this distinction as it evaluates how GTR safety case provisions could be adapted for the U.S. regulatory system. A regulatory documentation approach would allow the agency to establish meaningful safety case expectations without the legal and practical challenges of incorporating them into a performance standard.

With this framework in mind, we offer the following specific observations on the GTR's safety case provisions.

Scope and Comprehensiveness (Sections 5.3.1–5.3.3)

¹⁴ Illinois Biometric Information Privacy Act (740 ILCS 14) and the Texas Capture or Use of Biometric Identifier Act (Tex. Bus. & Com. Code § 503.001)

¹⁵ 49 U.S.C. § 30111

¹⁶ This aligns with the recordkeeping requirements under the Early Warning Reporting system and Standing General Orders (SGO).

The safety case requirements span system description, safety concept, and safety case argumentation. We support the general objective in the development of a safety case. However, while the safety demonstration itself is principally contained in Section 5.3.3.2.a, the surrounding sections extend the scope of formal documentation well beyond what is typically required to demonstrate safety compliance. We are concerned that the breadth may consume significant engineering and compliance resources without a commensurate improvement in the safety of the deployed system. Extensive documentation requirements can also freeze specifications, create release management challenges, and slow the iterative development cycles essential to advancing ADS technology particularly for manufacturers seeking to update and improve their systems on a continuous basis.

We also note that the GTR's safety case framework, as currently drafted, entangles the safety case (demonstrating absence of unreasonable risk) with a case for compliance with specific regulatory requirements. Under the U.S. self-certification system, the compliance certification is the manufacturer's responsibility, and the regulatory focus should be on whether the manufacturer can demonstrate that its vehicle meets the applicable performance requirements. We encourage NHTSA to seek language that clearly distinguishes between the safety demonstration and the compliance, which would benefit both manufacturers and the agency.

Claims, Arguments, and Evidence Structure (Section 5.3.3)

While the claims-arguments-evidence structure is a recognized methodology, we are concerned that the prescriptive manner in which it is specified may not align with the development and validation approaches manufacturers have already established. Significant investment in rigorous safety assurance processes are organized differently than the taxonomy prescribed by the GTR. Similarly, manufacturers already designing around UN Regulation requirements would face additional burden from a drastically different structure with new documentation requirements. Retrofitting existing work into this structure would impose substantial costs, without necessarily improving the quality of the safety demonstration. We recommend that NHTSA advocate for requirements that define the safety assurance objectives to be met while providing sufficient flexibility to leverage existing processes and methodologies, including those aligned with ISO 26262 and related standards.

We address the risk of intellectual property exposure through the detailed evidence requirements in Section VI of these comments.

Compliance Assessment Burden

Assessment of Safety Case (Section 6.3)

We appreciate that robust oversight of safety case documentation is important for generating public trust, and we recognize the challenge NHTSA faces in determining the appropriate assessment model for the U.S. context. However, the GTR's assessment provisions contemplate a pre-deployment review and approval process that is fundamentally a type-approval mechanism, one that does not exist in the U.S. regulatory system and that NHTSA does not currently have the statutory authority or technical infrastructure to implement.¹⁷

We are concerned that a pre-deployment review requirement would not serve the Administration's stated goals of accelerating AV leadership and avoiding unnecessary barriers to innovation. No jurisdiction currently possesses the technical capacity to perform safety case assessments at the level of depth contemplated by the GTR. Further, the GTR does not specify the expected timeline from submission to approval, the process for resolving disagreements, or an appeals mechanism. Extended review periods would delay the deployment of safety-improving technology particularly where the manufacturer has already demonstrated compliance with applicable requirements through self-certification.

If NHTSA were to implement safety case requirements through regulation, compliance could be assessed through documentation review and audit processes consistent with existing U.S. regulatory practice rather than the pre-deployment gatekeeping the GTR contemplates. This approach would be more scalable, more consistent with the self-certification model, and would allow NHTSA to focus its oversight resources on post-deployment monitoring and enforcement where safety concerns are identified. We recommend that NHTSA consider this approach as it develops its domestic framework.

Independent Review (Section 5.3.4)

We acknowledge the principle that an independent perspective can strengthen the safety assurance process. However, three aspects of the independent review requirements need clarification before they can be practically implemented, and the fundamental question of whether independent review is appropriate or legally supportable in the U.S. self-certification context must be addressed.

First, the GTR does not specify whether the independent reviewer must be external to the manufacturer's organization. We recommend that internal reviewers with appropriate organizational separation be

¹⁷ See 85 Fed. Reg. at 78063–64 (discussing structural differences between U.S. self-certification and European type approval).

permitted, consistent with how independence is understood under ISO 26262. Requiring fully external review for every safety case would create challenges around proprietary information access and reviewer availability without necessarily improving review quality.

Second, the qualifications required for independent reviewers are not specified. Given the complex and specialized subject matter involved, clear competency requirements are needed to ensure consistency and to prevent a shortage of qualified reviewers from delaying deployment of safety-improving technology.

Third, it is unclear who bears responsibility if an independent reviewer approves a safety case and a safety issue subsequently emerges. Defining the liability framework and addressing costs including reviewer fees and administrative burden would provide certainty for both manufacturers and reviewers and help ensure a sufficient pool of qualified participants.

We note that under the U.S. self-certification system, the manufacturer bears full responsibility for compliance. Any independent review requirement would need to be reconciled with this principle. We encourage NHTSA to seek clarification on each of these points and to evaluate whether the independent review framework, as designed for the type-approval context, can be meaningfully adapted for the U.S. system.

V. Assessment of Overly Prescriptive Aspects of the Safety Management System (SMS) and Compliance

Auto Innovators supports the principle that manufacturers deploying ADS-equipped vehicles should maintain robust safety management processes throughout the vehicle lifecycle. Sound safety governance including organizational accountability, risk management, and continuous improvement is fundamental to the responsible development and deployment of automated driving technology, and we recognize that the GTR's SMS provisions reflect this principle.

However, the SMS framework represents a significant administrative burden that is not a substitute for objective performance requirements establishing a verifiable safety floor. As NHTSA recognized in its 2020 ADS Framework ANPRM, safety assurance is "typically a process controlled and conducted by the manufacturer."¹⁸ Process regulation is inherently dependent on the personnel and judgment involved and does not itself establish a safety performance floor. The safety case should be the meaningful proof of

¹⁸ See 85 Fed. Reg. at 78063–64 (discussing administrative mechanisms and noting differences between U.S. self-certification and European type approval).

safety, and we urge NHTSA to ensure that any domestic implementation is consistent with the self-certification model, under which manufacturers bear responsibility for demonstrating that their vehicles meet applicable requirements.

Safety Management System Prescriptiveness

Overlap with Existing Standards (Section 5.1)

The SMS requirements overlap substantially with obligations manufacturers already satisfy under established international standards.¹⁹ Manufacturers that have invested significantly in safety management systems compliant with these standards would face the burden of demonstrating compliance with a parallel set of GTR requirements addressing substantially the same subject matter using different terminology and structure. This redundancy diverts engineering and compliance resources toward documentation and process reconciliation rather than safety-focused activities.

We also note that the SMS provisions, as drafted, can be difficult to read in the specific context of the ADS and its safety case argumentation. We encourage NHTSA to clearly articulate the relationship between the SMS and the ADS safety case, and to recognize compliance with established international standards as satisfying corresponding GTR requirements where the subject matter aligns.

Risk Management (Section 5.1.3)

The GTR's risk management requirements are largely consistent with ISO 31000:2018 and established industry practice. However, we are concerned that the level of prescriptiveness in certain provisions could limit innovation in risk assessment methodologies. The GTR should define the risk management objectives to be achieved while allowing manufacturers the flexibility to employ the methodologies and tools best suited to their specific systems and operational environments. Prescribing a particular approach to risk assessment could have the unintended effect of discouraging manufacturers from adopting more advanced or tailored methodologies that may produce better safety outcomes.

Supply Chain Management (Section 5.1.4.2)

The GTR includes requirements for managing ADS-related safety requirements through the supply chain. While we support the principle that safety considerations should extend across the supply chain, the

¹⁹ These standards include ISO 26262:2018 (functional safety), ISO 21448:2022 (Safety of the Intended Functionality), ISO/SAE 21434:2021 (cybersecurity engineering), and ISO 31000:2018 (risk management).

automotive supply chain is extraordinarily complex and multi-tiered. Visibility into sub-tier suppliers can be limited, international suppliers may be beyond the jurisdiction of the regulating authority, and the required documentation may implicate contract law and intellectual property constraints. The GTR's documentation requirements for supply chain management also raise competitive and proprietary concerns. Detailed information about supplier relationships, component specifications, and safety allocation decisions constitutes sensitive business information that must be appropriately protected. We encourage NHTSA to seek supply chain requirements that are proportionate to the safety risk and that respect the practical realities of global automotive supply chain management.

Compliance and Testing Burden

Audit of Safety Management System (Section 6.1)

We support appropriate regulatory oversight of SMS implementation. However, the GTR's audit requirements are extensive and would require significant technical service capacity to implement. The qualifications required for auditors are not clearly specified (Section 6.1.4), nor is it clear whether existing audit frameworks under ISO 26262 or IATF 16949:2016 could be leveraged or whether an entirely new audit infrastructure would need to be established. The frequency of audits is not specified, and it is unclear whether audits conducted in one jurisdiction would be recognized in others, a question with significant implications for market access and administrative efficiency.

The U.S. does not have the type approval authority and technical service infrastructure that the UNECE system relies upon.²⁰ Building such infrastructure or contracting with qualified third parties would require substantial investment of time and resources. We recommend that NHTSA evaluate the costs of SMS audits for both manufacturers and the regulatory authority as part of a comprehensive cost-benefit analysis, and consider whether leveraging existing certification and audit frameworks could achieve the same oversight objectives more efficiently.

Assessment of Test Environments (Section 6.2)

We support ensuring the credibility and reliability of virtual testing environments. However, the assessment requirements for virtual testing environments (Section 6.2.1) are extremely detailed and would require regulatory authorities to develop deep expertise in the highly specialized domain of simulation validation. We are particularly concerned about provisions requiring documentation of individual

²⁰ See 85 Fed. Reg. at 78063–64.

personnel qualifications within the simulation tool chain. This level of specificity is inconsistent with the GTR's own stated principle of being performance-based and technology-neutral. The focus of test environment assessment should be on the credibility and reliability of simulation outputs, not the credentials of individual employees. We also note that inconsistent assessments across jurisdictions could create fragmentation in how simulation evidence is evaluated, undermining the harmonization objective of the GTR.

Confirmatory Testing (Section 6.3.3)

We recognize that confirmatory testing can serve a valuable supplementary verification function. However, the GTR provides that confirmatory testing may be conducted "at the option of the Contracting Party," creating uncertainty about whether and how such testing would be applied. The scenarios to be tested are not precisely defined (Section 6.3.3.1), creating the risk that confirmatory testing could duplicate manufacturer testing or fail to recognize existing test results. The provision for real-world confirmatory testing (Section 6.3.3.4) raises additional questions about safety during testing, liability allocation, and what constitutes a sufficient test.

We recommend that NHTSA seek clearer guidance on the scope and purpose of confirmatory testing, and consider whether an audit of the manufacturer's testing processes and results could serve as an effective and less burdensome alternative. Any confirmatory testing framework should be clearly bounded, should not duplicate manufacturer testing, and should include a defined process for recognizing test results across jurisdictions.

VI. GTR Recommendations May Pose Inadvertent Risks to Confidential Business Information (CBI) and Individual Privacy

Auto Innovators recognizes that regulatory oversight of ADS technology necessarily requires access to certain technical information, and that transparency between manufacturers and regulators is essential to building public confidence. However, we wish to raise a cross-cutting concern affecting multiple provisions of the GTR: the interaction between GTR-required documentation and the U.S. legal environment.

The safety case documentation, SMS records, occurrence reports, and DSSAD data collectively create an extensive evidentiary record. The combination of the GTR's absolute requirements and the breadth of U.S. civil discovery could create an unprecedented legal burden on manufacturers, a dynamic that does not exist in most other jurisdictions and that the GTR does not appear to have been designed to account for.

We urge NHTSA to evaluate the liability implications of the GTR's requirements and to ensure that any domestic implementation includes appropriate protections, including clarity on how compliance or non-compliance would affect liability determinations and protections for internal safety analyses from use as admissions in litigation.

Intellectual Property and Confidential Business Information Protection

The GTR requires disclosure of extensive technical information across multiple regulatory touchpoints. Safety case documentation reveals design choices, validation methodologies, and the rationale underlying safety-critical engineering decisions. SMS documentation exposes internal processes, organizational structures, and supplier relationships. Post-deployment reporting requires fleet performance data, occurrence analyses, and root cause determinations. Taken together, these requirements create a comprehensive picture of a manufacturer's technical approach and competitive positioning.

We are particularly concerned about the volume and sensitivity of information exposed through the safety case review and independent assessment process. A well-documented safety case represents years of engineering investment and proprietary development. Subjecting this to detailed review by either government authorities, technical services, or independent reviewers creates multiple points at which proprietary information could be inadvertently disclosed. It is essential that assessments be conducted against the requirements of the regulation and not be influenced by information obtained during assessment of a competitor's system.

The GTR's supply chain documentation requirements (Section 5.1.4.2) raise additional proprietary concerns. Detailed information about supplier selection, component specifications, and safety allocation decisions constitutes highly sensitive competitive information. We urge NHTSA to ensure that supply chain documentation requirements are limited to what is necessary for the safety assessment.

Recommendations for CBI Protection

We urge NHTSA to establish a clear and comprehensive CBI protection framework as part of any domestic implementation of the GTR. This framework should limit disclosure requirements to the minimum information necessary for the safety assessment; require confidentiality agreements for all parties with access to CBI, including government reviewers, technical services, and independent assessors; provide for redacted public versions of submissions where appropriate; and ensure that existing

U.S. legal protections for trade secrets²¹ are clearly applicable to all information submitted under the GTR framework.

Data Access and Privacy

DSSAD Data Access (Section 4.3.1 and Annex 6)

The DSSAD requirements raise significant concerns regarding data access and privacy. The GTR contemplates that DSSAD data would be accessible to "authorized entities," but does not define who constitutes an authorized entity, what legal process is required to obtain access, or what safeguards exist to prevent inappropriate use. In the United States, vehicle data implicates a complex and evolving legal landscape including federal and state privacy laws, biometric data regulations, and Fourth Amendment protections against unreasonable searches.

We are particularly concerned that the GTR contemplates making certain DSSAD data available through the vehicle's infotainment system, including location data. This would effectively elevate infotainment to a regulatory requirement and introduces privacy risks that are not adequately addressed. We urge NHTSA to carefully consider how to address these concerns relating privacy and intellectual property prior to implementing the GTR in the United States.

Driver Monitoring Systems (Section 4.2.2.3.8)

The GTR's requirements for continuous driver monitoring in ADSF-1 vehicles raise privacy concerns that may vary significantly across U.S. jurisdictions. Several states have enacted or are considering biometric privacy legislation that could affect the collection, use, and storage of data generated by gaze monitoring and other DMS technologies.²² This rapidly evolving patchwork of state requirements could significantly affect the collection, use, and storage of data generated by gaze monitoring and other DMS technologies, and underscores the need for any federal implementation to address these jurisdictional complexities.

Beyond the legal landscape, we note that continuous gaze monitoring raises consumer acceptance concerns that could affect the adoption of ADS technology. We support the safety objectives of driver monitoring for systems with user-initiated fallback, but we encourage NHTSA to ensure that privacy

²¹ These include the Defend Trade Secrets Act, Pub. L. 114-153, 18 U.S.C. § 1836 *et seq.*, and FOIA Exemption 4, 5 U.S.C. § 552(b)(4)

²² Including **over 20 states** that now have comprehensive privacy laws that classify biometric data as "sensitive" requiring explicit consent, including New Jersey, Delaware, Oregon, Montana, Colorado, Texas, Illinois, Washington and more taking effect through 2026.

protections are addressed as part of any domestic implementation and that the regulatory framework allows for alternative methods of assessing driver readiness that may present fewer privacy implications.

VII. Implementation Timeline and Cost of Compliance

Auto Innovators recognizes that the development of a global regulatory framework for ADS is necessarily complex and that the GTR represents years of collaborative effort. We appreciate that the GTR acknowledges the challenges inherent in regulating rapidly evolving technology. However, the GTR is largely silent on two issues critical to practical implementation: the timeline for compliance and the costs of meeting the GTR's requirements. We urge NHTSA to address both before any domestic implementation.

Implementation Timeline

The GTR does not specify an implementation timeline, yet the scope of its requirements spanning the SMS, safety case development, multi-pillar validation, post-deployment monitoring, DSSAD implementation, and compliance assessment would require years to fully implement. For systems already in development, the burden of retroactively conforming existing work to the GTR's prescribed structures would be particularly significant.

We are also concerned about timeline implications if NHTSA intends to conduct pre-deployment safety case reviews. As discussed in Section IV, a pre-deployment review and approval process is fundamentally a type-approval mechanism that is inconsistent with the U.S. self-certification system. NHTSA has itself acknowledged that "the data, methods, and metrics to support such standards do not yet exist."²³ Dedicating the substantial investment in personnel, training, and infrastructure that such reviews would require at a time when the underlying evaluation methodologies are still maturing risks delaying the deployment of safety-improving technology without a corresponding safety benefit, and would be inconsistent with the Administration's goal of accelerating U.S. AV leadership. We encourage NHTSA to focus its resources on establishing clear requirements and robust post-deployment oversight, consistent with the regulatory approach we recommend in Section IV.

We strongly recommend that NHTSA adopt a phased implementation approach that prioritizes the most safety-critical requirements, provides adequate lead time, and includes a transition period for systems already in development or deployment. A phased approach would allow NHTSA and industry to identify

²³ See AV STEP NPRM, 90 Fed. Reg. at 4134.

and resolve implementation challenges incrementally, rather than attempting to operationalize the full scope of the GTR simultaneously. Rulemaking with a high level of technical complexity can take years. NHTSA should plan its timeline with these dynamics in mind and build in mechanisms for periodic review and updating.

Economic Impact and Costs

The GTR does not include a detailed cost-benefit analysis, and Paragraph 84 of the GTR's preamble expressly acknowledges the lack of quantitative data on costs. This is a significant gap. U.S. rulemaking requires thorough economic analysis under Executive Order 12866 (Regulatory Planning and Review), Executive Order 14094 (Modernizing Regulatory Review), and the Administrative Procedure Act, 5 U.S.C. § 553.

We are concerned that the costs associated with the GTR's requirements are substantial and have been underestimated. Key cost drivers include development and documentation costs associated with the safety case, SMS, and validation requirements; data management infrastructure for DSSAD, occurrence reporting, and simulation data retention; compliance assessment costs for SMS audits, safety case assessments, and independent review. The U.S. does not currently have the technical service infrastructure contemplated by the GTR; and ongoing reporting and administrative costs that would be additive to obligations manufacturers already satisfy under the EWR system, the TREAD Act, and NHTSA's Standing General Orders.

The cumulative cost of compliance could be disproportionately burdensome for smaller manufacturers and new market entrants, raising concerns about the competitive implications of the GTR and its potential impact on innovation. Beyond direct financial costs, we are concerned about the opportunity costs of diverting engineering resources from safety-focused development to documentation and process compliance. The regulatory framework should be calibrated to ensure that compliance activities contribute meaningfully to safety outcomes.

We urge NHTSA to conduct a thorough and transparent cost-benefit analysis as part of any domestic implementation. This analysis should account for the full range of direct and indirect costs, evaluate costs borne by both industry and the regulatory authority, and assess whether the safety benefits of each requirement justify its associated costs. Where a requirement imposes significant cost without a proportionate safety benefit, NHTSA should consider alternative approaches such as leveraging existing reporting frameworks, recognizing existing certifications, or adopting streamlined documentation that could achieve the same safety objectives more efficiently.

Conclusion

The Alliance for Automotive Innovation appreciates the opportunity to comment on this important initiative and commends the international collaborative effort that produced the draft GTR. We share the goal of ensuring that ADS technology is deployed safely and in a manner that builds public confidence, and we recognize the complexity of the task NHTSA and the international community have undertaken. As such, we urge the United States to vote in favor of ratifying the GTR during the upcoming WP.29 convening.

The concerns raised in these comments reflect our commitment to ensuring that any U.S. implementation of the GTR advances safety while remaining compatible with the regulatory framework that has served the public well for decades. Across the issues we have identified, a consistent theme emerges: the GTR's ambitions are sound, but its implementation must be calibrated to deliver meaningful safety outcomes rather than administrative complexity. To do so, NHTSA must carefully evaluate which provisions are suited to implementation through FMVSS and which are better addressed through regulation or other regulatory mechanisms; ensure that any U.S. approach remains performance-based and flexible enough to accommodate the continued evolution of ADS technology; and continue the robust engagement with stakeholders that has characterized this process to date.

We welcome the opportunity to provide additional information, technical expertise, and collaborative support as NHTSA develops an appropriate framework for ADS safety that protects the public while enabling the innovation necessary to realize the full safety promise of this technology.

Sincerely,

A handwritten signature in black ink, appearing to be 'G. L. P.' followed by a horizontal line.

Vice President, Safety and Technology Policy

Alliance for Automotive Innovation