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August 28th, 2019

Heidi Renate King  
Deputy Administrator, National Highway Traffic Safety Administration  
U.S. Department of Transportation  
West Building, Ground Floor, Room W12-140  
1200 New Jersey Avenue SE  
Washington, DC

Re: ANPRM on Removing Regulatory Barriers for Vehicles With Automated Driving Systems  
**Docket Number: NHTSA-2019-0036**

Dear Ms. King:

Cognata welcomes the opportunity to provide comment on several of the topics raised by the National Highway Traffic Safety Administration's Advance Notice of Proposed Rulemaking (ANPRM) on Removing Regulatory Barriers for Vehicles With Automated Driving Systems.

Cognata delivers simulation software solutions to automated driving systems (ADS) developers that enable the training and testing of ADS virtually; prior to, and in conjunction with, physical testing. As the provider of a commercially-deployed solution, having worked with well-known developers, Cognata understands the challenges of ADS development and is experienced in the testing and measurement of ADS safety and performance. Cognata appreciates the Agency's ongoing commitment to identifying and removing regulatory challenges relevant to verification, validation, and compliance certification of vehicles with ADS technology.

We ask the Agency to consider the following specific comments:

- Cognata believes that, combined with physical testing, simulation can be a valuable part of a multi-platform assessment of FMVSS compliance. As the Agency is aware, simulation providers are already providing ADS developers the ability to perform virtual validation of specific safety assessment program requirements. These accurate and repeatable virtual tests enable developers to begin testing and issue-identification earlier, efficiently focus limited physical testing resources, and deliver safety systems to the market sooner. We believe that these same tools can be used by regulators and certification bodies for assessment of compliance in a phased-in approach, coupled with existing physical testing.

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- As an initial part of a phased-in approach toward the use of simulation in assessing compliance, Cognata would ask the Agency to consider three practicable applications of simulation:
  - a. The use of simulation for assessing variants of a physically-assessed vehicle. Many vehicles today are built upon common architectures but are introduced into commerce in a number of variant types. Types may include, for example, coupe, sedan, and estate options of a particular vehicle built on a common platform. An approach to assessment which uses traditional physical assessment of one type of the vehicle, combined with virtual assessment of its additional types using simulation, could streamline the assessment process, increase the coverage of vehicle types assessed, reduce overall costs, and deliver compliant vehicles with advanced safety features to the market sooner.
  - b. The use of simulation to identify challenging variations of existing compliance requirements and potentially extend assessment coverage. The virtual world of simulation makes it fast, simple, and efficient to inject variation into (or “fuzz”) existing assessment procedures to both identify new scenarios of interest and cover additional scenarios. The large-scale simulation solutions available today are especially well-suited for these applications, with their ability to ingest standard test protocols, vary them, and efficiently perform thousands of unique simulations in parallel.
  - c. The use of simulation to cover “edge cases” and scenarios that are either dangerous or difficult to perform with physical testing. Particularly, simulation has immediate potential to extend the assessment of ADS behavior in critical situations such as construction areas and densely-populated environments where vulnerable road users (VRU) such as pedestrians and cyclists are most exposed to vehicles.
- Considering the revolutionary and long-lasting impact that ADS stands to have on the motor vehicle industry, Cognata agrees that rulemaking, to amend existing standards and create new standards, *is* the appropriate path forward for addressing the introduction of these new technologies. In the interim, Cognata believes that the exiting process of granting exemptions from existing standards will continue to be a tool well-suited for fostering innovation while safely introducing new technologies in a measured fashion. We further believe that the exemption process can be streamlined to accelerate decision-making while maintaining the current technical and trusted data-driven structure. Cognata urges the Agency to recommend, and consider the

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results of, objective, repeatable, and transparent tests performed in simulation for the measure and assessment of vehicle safety when considering granting exemptions from existing standards.

I hope the foregoing comments are useful to you and the Agency as you continue to develop guidance and activities related to vehicle automation. Cognata stands ready as ever to be a constructive partner in advancing the safe development of these transformative technologies.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Laine".

Heikki Laine  
VP Product  
Cognata Ltd.