August 28, 2019

Raymond Martinez, Administrator
Federal Motor Carrier Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Re: Docket No. FMCSA-2018-0037
Advanced Notice of Proposed Rulemaking request for comments
Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles

Ike is pleased to provide comments on FMCSA's Advanced Notice of Proposed Rulemaking and thanks the agency for its proactive approach to ensuring safe and reliable deployment of automated trucks on our nation's highways.

Ike is an automated trucking technology developer. We believe automation has the capacity to improve everyone's lives if approached thoughtfully and responsibly. Ike is building automation to save lives, increase freight productivity, and create new opportunities for local communities -- technology that helps truck drivers, not replaces them. By focusing our product on highway operation, we believe it's possible to deploy automated trucks that create more and better truck driving jobs, so drivers can sleep in their own beds at night and use their skills and expertise where it matters.

The technology Ike is developing will be deeply integrated onto Class 8 tractor trailer trucks and allow them to navigate the highway without a driver (commonly referred to as a Level 4 system by the SAE automated vehicle framework). Trucks powered by Ike's technology will hand off loads to drivers in manually driven trucks for the more complex and high skill journey to and from the highway.

There are many possible approaches to automating goods movement over long distances, and we are confident that focusing on highway automation is the right technical, commercial, and societal approach. That's why Ike is named after President Dwight D. Eisenhower, paying tribute to his legacy of innovation and his support for the highway network that bears his name today. The Eisenhower Interstate System was one of the most significant contributors to economic growth in the United States over the last 50 years. We believe automation technology has the potential to have a similarly large effect in the coming decades.

We are inspired by the promise of automated trucking, but our team's experience in robotics and transportation also give us unique insight on the challenge of building a real commercial automated truck product at scale. The journey to a commercial solution that exceeds the performance of a highly trained Class A truck driver is a long one, and there is a lot of work ahead. The questions asked by FMCSA in this process are reasonable and important, and our responses in this document are informed by the significance of the challenge and the reality that we cannot yet fully provide all the answers. Ike is committed to working closely with FMCSA, as well as state and local agencies, industry partners, and

other stakeholders to ensure that these questions are answered before automated trucks powered by Ike are deployed without drivers.

In the meantime, as we develop our core technology, Ike applies the highest standards for safety. Our systems engineering-driven development process merges the rigor of safety critical industries like automotive and aerospace with the creativity of a software startup. Our highly trained Automated Vehicle Operators are in the driver's seat of our vehicles at all times during testing. We are in close contact with a number of regulators and other stakeholders as our technology improves and our testing evolves. We look forward to continued engagement and collaboration in the years ahead.

1. *Do the FMCSRs require a human driver?*

We agree with the conclusion that was reached via the Volpe Report,[1] in AV 3.0,[2] and again in this ANPRM, that FMCSA plans "to interpret its regulations to no longer assume that the CMV driver is always a human or that a human is present onboard a commercial vehicle during its operation."[3] We therefore request that FMCSA codify this important conclusion through the upcoming rulemaking process.

We also understand that there are a number of outstanding questions regarding how automated trucks without a driver can satisfy the FMSCRs, many of which are laid out below. We agree with this conclusion, and look forward to working with US DOT, FMCSA, and other stakeholders, including state agencies, law enforcement, and the trucking industry, to clearly articulate and demonstrate the answers to these questions in the coming years, as automated trucking technology approaches commercial viability.

> ***1.1.*** *Should FMCSA establish a rule that would prohibit an ADS-equipped CMV from operating outside its designated ODD? How should FMCSA ensure that an ADS-equipped CMV only operates consistent with the ODD for the ADS equipped on the vehicle?*
>
> The concept of Operational Design Domain (ODD) is an important part of Ike's approach to automation. An ODD has a number of elements, some of which are relatively easy to design and track and some of which are more difficult.
>
> In Ike's case, the geographic ODD for our trucking technology is the controlled-access highway network in the United States. Our vision for automated trucks constrains them to the 47,000 miles of the Eisenhower Interstate System, and the on and off ramps of the system. Automated trucks powered by Ike will not be able to turn right at a stop sign, back up to a dock, open and close doors on a trailer, or many other common functions in many environments on the journey goods take across the United States.
>
> Other ODDs and functions necessary to move goods from one location to another will continue to be handled by truck drivers in conventional trucks, creating more trucking jobs that focus on higher value, more consistent work that keeps drivers closer to home.

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[1] Review of the Federal Motor Carrier Safety Regulations for Automated Commercial Vehicles ("Volpe Report"), March, 2018, p.37.

[2] "[G]oing forward FMCSA regulations will no longer assume that the CMV driver is always a human or that a human is necessarily present onboard a commercial vehicle during its operation." Automated Vehicles 3.0, Preparing for the Future of Transportation, October, 2018, p.9.

[3] 84 FR 24449, 24453, Question 1, FMCSA response.

The early commercial versions of Ike's solution will face additional self-imposed ODD constraints around geography, weather and lighting conditions, road work, and changes to roadway infrastructure. As the provider of the technology that operates the vehicle, Ike will have appropriate restrictions and preventative measures in place to ensure that trucks powered by Ike appropriately enforce operational, environmental, and geographical constraints, and detect and respond to domain departures by achieving a minimal risk condition.

While clearly defining ODD is critical to successful development and deployment of automation technology, it is not the only component of safe and reliable operation. We therefore propose that FMCSA not create a regulatory mechanism that focuses on ODD. A broader and more appropriate approach would be to apply existing regulations to automated vehicles, as currently required for any other actor on the interstate system.

Given the difficulty of evaluating the capability and ODD of any given technology, it is most appropriate for FMCSA and other regulatory agencies to enforce this requirement in the way it does in many other cases today, by observing vehicles in operation and responding to illegal or dangerous behavior as it is detected.

1.2. *What are manufacturers' and motor carriers' plans for when and in what way Level 4 and 5 ADS-equipped CMVs will become commercially available?*

The potential benefits of automation technology for trucking are now well documented. As an industry, we have an opportunity to save lives, increase the productivity of our transportation system, and improve the livelihoods of truck drivers. As a company, Ike is driven by the potential to have this transformative effect on the United States and the world. Our commercial partners are similarly motivated.

But the challenges of building and validating safe and reliable automated truck technology are significant. There is a large body of technical work remaining before a commercially viable automated trucking solution can operate at scale at a level of performance greater than professionally trained truck drivers. The bar is, and should be, extremely high. Ike expects to deploy automated trucks, in collaboration with a number of industry partners, only when we can clearly and transparently demonstrate the performance of our system, and we expect the same of every other manufacturer, technology developer, and fleet. For this and other reasons, we believe the industry is still several years away from reaching commercial availability of automated trucks, even at a very small scale.

Fortunately, that timeframe gives us an opportunity to continue to develop answers to the questions outlined in this document, and to collaborate with FMCSA and others to ensure that automated trucks are developed thoughtfully and responsibly. We are committed to working with regulators to meet the high safety and integrity standard everyone should expect of this critical technology.

1.3. *Should FMCSA consider amending or augmenting the definition of "driver" and/or "operator" provided in 49 CFR 390.5 or define a term such as "ADS driver" to reduce the potential for misinterpretation of the requirements?*

We recommend that FMCSA should amend the definition of "driver"[4] to clarify that human-specific FMCSRs (CDLs, HOS, etc.) continue to apply to humans who "operate" a CMV as defined by SAE J3016,[5] whether from onboard the vehicle or from a remote location. Furthermore, we recommend that FMCSA codify the AV 3.0 guidance that "in the case of vehicles that do not require a human operator, none of the human-specific FMCSRs ... apply."[6]

2. *Commercial Driver's License (CDL) Endorsements*

In addition to the above question regarding definitions of driver/operator, many of the questions in this and subsequent sections explore the possibility of remote driving of automated vehicles. We outline here a general perspective about how Ike is approaching these questions and how to ensure a regulatory framework that allows for a number of technical approaches to automation.

Ike does not expect to use remote drivers in our product under any circumstances. We do expect, however, to have remotely-stationed individuals provide some technology support functions, but not to perform the Dynamic Driving Task (DDT)[7]. Given the variety of roles that remote support staff can play, it will be important to define the term "remote driver" clearly in order to answer questions about the implications for CDL endorsements, Hours of Service, medical requirements, etc. Given that, we propose that FMCSA adopt existing definitions for these terms that have already been scrutinized (e.g. by an automotive standards group) or as FMCSA suggests, through not yet formed private sector voluntary consensus standards,[8] rather than creating a new, and potentially conflicting, set of definitions.

The distinction between remote drivers and remote support staff is important because it has vastly different implications for the skills, training, and attention of the personnel in these roles. As we will describe below, the principles we apply to these different roles are as follows: Remote drivers should be required to meet all of the same requirements as a CDL-holding Class A truck driver. Because remote support staff do not perform the DDT, they should not be required to meet the requirements of a driver. Remote support staff will require some training, but those skills fall outside the boundaries of FMCSA's scope as a regulator and should be covered by technology developers and fleet operators.

Because of that distinction, we leave it to technology developers who do plan to use remote drivers to provide input on how to properly regulate and ensure safe training and behavior for that application. We will answer questions in the subsequent sections in the context of this distinction between remote driving and remote support staff.

2.1. *Should a CDL endorsement be required of individuals operating an ADS-equipped CMV?*

Because Ike's automation technology will not rely on a human for operation, an endorsement is not relevant or necessary in the case of a deployed commercial product.

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[4] The terms "driver" and "operator" are used interchangeably in this document. Going forward we propose a more consistent use of the terms with clear definitions.
[5] SAE International, J3016 June 2018, pg 14., 3.21.
[6] Automated Vehicles 3.0, Preparing for the Future of Transportation, October, 2018, p.9.
[7] Dynamic Driving Task means "[a]ll of the real-time operational and tactical functions required to operate a vehicle in on-road traffic, excluding the strategic functions such as trip scheduling and selection of destinations and waypoints, and including without limitation …" SAE International, J3016 June 2018, pg 6., 3.13.
[8] 84 FR 24457, section IX.

However, as we develop our technology prior to commercial deployment, Ike employs Automated Vehicle Operators (AVOs) with CDLs and provides them with extensive training to operate prototypes and safely test our automation system, as do many other technology developers.

We agree with FMCSA's position that "ADS technology is advancing rapidly, and there will continue to be a range of approaches to automation. At this time, it would be very difficult to establish uniform knowledge and/or skills tests to adequately assess a CDL holder's understanding of the vehicle's ADS and the specific operating scenarios under which human control may be needed, versus those scenarios where relying solely on the ADS is appropriate. Therefore, it is premature for the Agency to consider proposing rules in this regard. Moreover, it is also difficult at this time to estimate the costs and safety benefits of requiring an ADS endorsement for CDL holders."[9] Instead, FMCSA can rely on developers to train AVOs on safe operation of in-development automation technology, and to enforce existing FMCSRs and other laws as it does today for motor carriers.

2.3. *What would be the impacts on SDLAs (State Driver License Agencies)?*

There should be no impact. Any human driving an ADS-equipped vehicle will still need to obtain a CDL as it exists in each state today. However, if a CDL endorsement was required of individuals operating an ADS-equipped CMV, it would add undue burden to already taxed SDLAs. New staff and/or additional training for existing staff would be needed. And given the early state of ADS technologies, the curricula and exams would need constant updating.

2.4. *Should a driver be required to have specialized training for ADS-equipped CMVs?*

Because Ike's technology will not rely on a human for operation, specialized training for operation of the automation system is not relevant or necessary in future commercial operations. There will be cases in which trucks equipped with Ike's technology will be driven manually by truck drivers (to/from maintenance, outside of the system ODD, etc). In those cases, the automation system will disable itself and no additional training or endorsement is necessary.

In our product development process, Ike's AVOs receive extensive training, testing, and real time monitoring.

2.5. *In an operational model that has an individual remotely monitoring multiple CMVs, should the Agency impose limitations on the number of vehicles a remote driver monitors?*

To clarify the language in the question, our view is that an individual is either a remote driver, requiring a CDL, etc., as discussed above, or remote support staff, not requiring a CDL. Therefore, we recommend that FMCSA not use the term "remote driver monitor" because it combines roles with different regulatory implications.

As we indicated above, we leave it to technology developers who plan to use remote drivers to provide input on how to properly regulate and ensure safe training and behavior for that application. However, in addition to the remote driver role, there will be a spectrum of additional roles that will support ADS technology. Given the early stage of technology development, these roles are not yet clearly defined. The number of vehicles each person in these additional roles can manage depends heavily on the type and breadth of responsibilities each person is undertaking. Since these

[9] 84 FR 24449, 24453, Question 2, FMCSA response.

responsibilities will vary widely by technology, we propose that FMCSA not enforce vehicle limits, but allow the technology providers to implement appropriate technology specific protocols.

2.6. *Is there any reason why a dedicated or stand-by remote operator should not be subject to existing driver qualifications?*

No, as stated above, remote drivers should be required to meet all of the same requirements as a trained, CDL-holding, Class A truck driver.

3. *Drivers' Hours of Service (HOS) Rules*

3.1. *Should HOS rule changes be considered if ADS technology performs all the driving tasks while a human is on-duty, not driving; off-duty or in the sleeper berth; or physically remote from the CMV?*

As described above, Ike's technology will not have a driver in the automated vehicle in commercial deployment, and will rely entirely on the automation system to perform the DDT at all times. Therefore, hours of service questions are not relevant in the case of automated trucks powered by Ike.

However, in the course of the development of our technology, Ike will be testing trucks that have trained AVOs operating the prototype automation system, which will bear many similarities to a driver assistance system (commonly referred to as Level 2). In all cases during that testing and development, we expect that it will continue to be the ultimate responsibility of the driver to ensure safe operation of the vehicle. For that reason, we agree with FMCSA "that the basic approach for applying the HOS rules should continue to be used; that is, any time a human is at the controls of an ADS-equipped CMV, either in the driver's seat or operating it remotely, the time should be recorded as on-duty, driving."[10] Ike logs the activity of our AVOs in this way today through our ELDs and will continue to do so for all testing and development.

3.2. *Should the HOS requirements apply to both onboard and remote operators?*

Yes.

3.3. *If so, how should HOS be recorded when an individual is not physically in control of the vehicle?*

As discussed above, we leave it to technology developers who plan to use remote drivers to provide input on how to properly record HOS.

4. *Medical Qualifications for Human Operators*

4.1. *Should some of the physical qualification rules be eliminated or made less stringent for humans remotely monitoring or potentially controlling ADS-equipped CMVs?*

As described above, this an important question for remote drivers, but not relevant for the remote support staff roles. In the development of Ike's technology, we expect that our vehicle operators should meet all the same medical qualifications as drivers of entirely manually-driven vehicles.

[10] 84 FR 24449, 24454, Question 3, FMCSA response.

5. *Distracted Driving and Monitoring*

5.1 *How should the prohibition against distracted driving apply to onboard operators responsible for taking control of the CMV under certain situations, and to remote operators with similar responsibilities?*

In the development of Ike's technology, we have the highest possible standards for our vehicle operators with respect to distracted driving. Ike hires drivers with exceptional driving records and a deep commitment to safety. Those drivers are trained extensively, including on our policies regarding distracted driving. Our system requirements also specify the use of a dash cam that provides driver monitoring and warnings for distraction. We regularly review dash cam footage to ensure that AVOs are operating safely.

In the case of remote operators, as described above, this is an important question for remote drivers, but not relevant for the remote support staff roles.

6. *Safe Driving and Drug and Alcohol Testing*

6.1. *Should FMCSA consider revising its rules to ensure that (1) any human exercising control of an ADS-equipped vehicle must continue to comply with all the rules under Part 392, and (2) a CMV under the control of a Level 4 or Level 5 ADS must satisfy the operational rules?*

The purpose of Ike's automation technology is to increase the safety and productivity of goods movement on the highway interstate system. In that context, we propose two considerations for this question:

As with any new technology, automated vehicles may be able to achieve the same safety and operational goals as laid out in FMCSA's rules, but through different specific means. For example, as FMCSA has itself noted, it is possible that cargo securement could be verified with new technical solutions without adhering to the current specific requirements listed in 392.9(b).[11] For that reason, we believe it is appropriate to explore possible interpretations or updates to the Part 392 rules as truck automation technology approaches commercial viability in the coming years.

In addition, the definition of "exercising control" in the language above is ambiguous and could lead to misunderstandings about various roles. Instead, we propose using "operate," as defined in SAE's J3016 guidance document.[12]

6.2. *For example, should FMCSA require that the ADS be capable of identifying highway-rail grade crossings and stopping the CMV prior to crossing railroad tracks to avoid collisions with trains, or going onto a highway-rail grade crossing without having sufficient space to travel completely through the crossing without stopping?*

In this specific case, there are no highway rail grade crossings in the ODD targeted by Ike's technology, so this should not be required of a system limited to the highway.

[11] 84 FR 24449, 24455, Question 7, FMCSA response.
[12] SAE International, J3016 June 2018, pg 14., 3.21.

6.3. *For scenarios in which the control of the ADS-equipped CMV alternates, or may alternate, between a human and the technology, should FMCSA require that both the human operator and ADS comply with the applicable operational rules?*

In general, while we believe that the spirit of all operational rules should be followed at all times, automated vehicles may be able to achieve the same safety and operational goals as laid out in FMCSA's rules through different specific means.

For these and other questions, we propose that FMCSA focus requirements around *operation* of the vehicle rather than its *capability*.

7. *Inspection, Repair, and Maintenance*

7.1. *What qualifications should be required of the individual performing the pre-trip inspection?*

There are a number of possible approaches for pre-trip inspections. As described above, commercial availability of this technology is still several years away. As we approach that point, Ike will provide information and collaborate with FMCSA and other stakeholders to ensure highly assured solutions.

7.2. *What kind of routine or scheduled inspections should be performed and what types of ADS-related maintenance records should be required?*

Some new maintenance techniques will be needed with commercial operation of automation technology, and new maintenance records will be necessary for the new components installed on automated trucks (including sensors and computing hardware). In the early stages of commercial deployment, automated trucks powered by Ike will likely have a much higher frequency of company inspection and maintenance to ensure high performance. Ike plans to work with FMCSA and industry partners to clearly define a standard for inspections in advance of commercial availability of our technology.

7.3. *Should the inspection period be more or less frequent than annual for an ADS-equipped CMV?*

The same annual schedule of regulatory inspections can be required. However, the transfer hub model will allow for far more frequent company interactions with the vehicle (before and after each trip), and more opportunities for preventative maintenance on the part of the operator of automated trucks powered by Ike.

7.4. *Should inspections be mileage-based or time-based (e.g., 1,000 miles, 3 months or 1,000 hours of operation)?*

As described above, in the early stages of commercial deployment, Ike expects to perform inspections of automated trucks powered by our technology at high frequency. As the technology reaches larger scale, electronic monitoring and other leading indicators of automated truck fleet performance are likely to be more effective at identifying and resolving issues compared to visual inspection. As a result, the concept of "inspecting" an automated system may not be appropriate, because the system will be tracked continuously in real time. For hardware-related reliability and performance, such as with the condition of a braking component or the tread on tires, the same standards for regulatory inspection frequency can continue to be used.

7.5. *Should FMCSA impose general requirements for motor carrier personnel responsible for ADS-related inspection, repair, and maintenance tasks similar to the Agency's brake inspector qualification requirements?*

Given the early stage of ADS technologies, it is too soon for FMCSA to impose general requirements on personnel responsible for ADS-related inspection, repair, and maintenance tasks. In addition, as ADS technologies progress toward commercial availability, a number of computer monitoring functions could eliminate the need for pre-trip or regular inspections (e.g. we will be able to estimate tire pressure accurately and detect air leaks in the brake system with high precision). Ike plans to work with FMCSA and the industry to clearly define those requirements in advance of commercial availability of the technology.

7.6. *How could FMCSA ensure that motor carriers apply safety-critical software updates?*

Software updates to automated truck technology will be extremely valuable and will allow for more rapid expansion of Ike's technology and its benefits. They also pose a number of important challenges for validation and cybersecurity. As described above, commercial availability of this technology is still several years away and a rigorous process to address this challenge will be necessary before real viability is reached. As we approach that point, Ike expects to provide information and collaborate with the industry to ensure a high quality solution to these challenges.

8. *Roadside Inspections*

8.1. *Should motor carriers be required to notify FMCSA that they are operating Level 4 or 5 ADS-equipped CMVs?*

Because the deployment of this technology will have a clearly defined geographic scope (e.g. specific freight lanes, specific states, specific interstate corridors), Ike and our partners expect to inform FMCSA and other relevant stakeholders in advance as to where automated vehicles will operate on the highway system, and provide regular (but not real time) updates about planned expansion of geography and other new capabilities. Whether or not it is required, we believe providing this information is a reasonable part of regulatory engagement. As to any specific notification requirements, Ike looks forward to working with FMCSA and the industry to develop appropriately tailored requirements that work for both industry and the agency.

8.2. *If so, how should the carrier notify FMCSA?*

Changes to the operating profile of Ike's technology will happen when we validate new geographies (e.g. expansion to a new freight lane) and new capabilities (e.g. operating in heavy rain). We anticipate being able to provide this information in regular intervals (but not in real time), likely via electronic communications.

8.3. *Should FMCSA require markings identifying the ADS Level of a vehicle?*

We do not believe that specific markings for automated trucks would serve the public interest at this time. Providing specific markings may make sense once Ike's technology is closer to commercial availability. However, requiring special markings today, prior to a comprehensive education campaign, may suggest to motorists that automated truck prototypes require additional care, concern, or distance, which could lead to erratic driver behavior and increased risk to drivers. We understand

the need for law enforcement and first responders to recognize and interact with ADS equipped vehicles (see answer to question 8.6 below).

8.4. *Should the Agency require motor carriers to utilize ADS-equipped CMVs that have a malfunction indicator?*

The system Ike is building will have many internal malfunction indicators, though few if any of them will be accessible visually to the public or to inspectors. This will include failure of hardware components such as sensors or computing system, software errors, and even typical failures such as tire blowouts. Ike's system is being designed to ensure redundancy and/or a safe fallback condition. In the case of such a malfunction, Ike and our partners will receive a signal from the vehicle indicating the issue and the outcome. Providing an external indicator on the vehicle is unnecessary, as external visual inspection of the automation system is not an effective way to handle malfunctions.

8.5. *Should the Agency require that motor carriers deploying ADS-equipped CMVs ensure the vehicle can pull over in response to Federal and State officials or move out of the way of first-responders?*

Yes.

8.6. *How might that be achieved, and at what cost?*

There are a number of possible approaches to addressing this requirement. As described above, commercial availability of this technology is still several years away, and a rigorous process to address this challenge will be necessary before real viability is achieved. As we approach that point, Ike expects to provide information and collaborate with law enforcement and other stakeholders to ensure highly assured solutions to these challenges.

8.7. *How would roadside enforcement personnel know that a vehicle can no longer operate safely?*

Ike's approach to safety and system operation requires that when vehicles can no longer obey safety constraints, they will be disabled from further automated operation. The system will also send electronic signals regarding the malfunction, as described above. External visual verification by law enforcement is not a sufficient mechanism to ensure safety. A vehicle that is no longer able to operate safely will have stopped and shut down.

As with other law enforcement interactions, Ike looks forward to collaborating with various stakeholders to develop clear guidance on this topic as the technology reaches commercial viability.

8.8. *Absent an FMVSS, how could standard indications be provided to enforcement personnel?*

Because Ike's technology will begin commercial operation in a very constrained geography and at small scale, there is an opportunity to work with specific agencies to design, build, pilot, and validate methods to convey information to law enforcement that can then be applied more broadly as the technology scales. Ike plans to work closely with a number of stakeholders to explore and develop these solutions in the coming years.

9. *Cybersecurity*

9.1. *What types of safety and cargo security risks may be introduced with the integration of ADS-equipped CMVs?*

The security risks of an ADS-equipped CMV vary greatly depending on the technical implementation of the ADS equipment as well as the operational model of the CMV. Of particular concern are vulnerabilities posed by virtual access points that may be gained via remote connection to the vehicle, as well as vulnerabilities introduced by unauthorized users gaining physical access to the system.

Throughout our development, Ike's security posture depends on limiting, and in some cases entirely blocking, remote access points to the system. Additionally, we limit physical access to the system. Maintaining a robust security posture appropriate for widespread deployment of ADS-equipped CMVs will require collaborative partnerships with relevant industry stakeholders.

9.2. *What types of rules should FMCSA consider to ensure that motor carriers safety management practices adequately address cybersecurity?*

The applicable rules to address cybersecurity vulnerabilities will depend heavily on the technical implementation of the ADS equipment (for example, remote operation versus driver assist features). Ike believes in providing a high degree of transparency on our technical strategy and cybersecurity approach, such that appropriate cybersecurity standards, rules, and policies may be properly assessed once we move closer to commercial operation.

10. *Confidentiality of Shared Information*

10.1. *As the development of ADS technology continues, the Agency believes there is a need to learn about the performance limitations of these systems. FMCSA draws a distinction between information about performance limitations (e.g. how well does the ADS keep the vehicle in its lane and under what environmental conditions, etc.) and details about the system design (e.g. the specific types of sensors, or the arrays of sensors and cameras used for input to the central processing unit for the ADS). To what extent do ADS developers believe performance data should be considered proprietary and withheld from the public?*

There are many understandable questions and concerns about automation technology, particularly as it applies to commercial vehicles. Ike's preferred approach to development and deployment of our technology is to be as transparent as possible with FMCSA and other stakeholders about our plans and our technology. There are some aspects of our plans that we consider proprietary and give us a competitive advantage and are therefore not appropriate to share publicly.

In principle, we support a more open and transparent approach to sharing information about the performance of automated systems by the private sector, including detailed metrics. We expect to share more information about our own system development and operations in the near future, and welcome others to do so as well.

Ike looks forward to collaborating with federal and state agencies, industry, and other technology developers to agree on a common standard that accurately represents system performance, aligns incentives for safety outcomes, and allows developers to share more information.

10.2. *Are the Agency's current processes under 49 CFR 389.9 for submission and protection of confidential business information in the context of a rulemaking sufficient to allow ADS developers and motor carriers to communicate essential information to the Agency regarding the operation of ADS?*

No. FMCSA's protections of confidential business information in the context of a rulemaking are not sufficient.

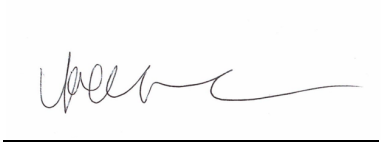
10.3. *If not, how should those processes be modified?*

FMCSA's current rules for protecting confidential business information in the context of a rulemaking state that "if the Administrator finds that information submitted to the Agency … fails to satisfy the requirements … the Agency shall disclose the non-conforming information by placing it in the public docket for the particular rulemaking." The current rules do not provide a clear procedure for granting advance determination of protection under the rule. We welcome a process for advance legal review that guarantees confidentiality during and following that review process.

Conclusion

Thank you for the opportunity to submit these comments. We look forward to continued engagement with FMCSA on these important topics.

Sincerely,



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