



**UATC LLC**  
Uber Advanced  
Technologies Group  
1455 Market Street  
San Francisco, CA 94103  
[uber.com/info/atg](http://uber.com/info/atg)

August 28, 2019

Raymond Martinez, Administrator  
Federal Motor Carrier Safety Administration  
1200 New Jersey Avenue SE,  
West Building, Ground Floor, W12-140  
Washington, DC 20590

***Re: Docket No. FMCSA 2018-0037: Safe Integration of Automated Driving  
Systems-Equipped Commercial Motor Vehicles***

Dear Administrator Martinez:

Uber is pleased to submit these comments in response to the Federal Motor Carrier Safety Administration's (FMCSA) advanced notice of proposed rulemaking (ANPRM) on the Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles.<sup>1</sup>

Uber has had and continues to have involvement with the issues discussed in this ANPRM. Our Uber Freight business has created a transparent, on-demand marketplace that seamlessly connects shippers and carriers, serving shippers by enabling them to create and tender shipments with a few clicks, secure capacity on demand with upfront pricing, and track those shipments in real-time from pickup to delivery. Uber's autonomous vehicle efforts have also included development of autonomous CMV technology. Although Uber is not, at this moment, actively pursuing autonomous CMV technology, several of the issues discussed in this ANPRM may affect the treatment of autonomous vehicle development for non-commercial vehicles. As a technology company that designs autonomous driving systems for passenger vehicles, facilitates the movement of millions of people and goods every day, and operates a technology-forward freight brokerage, Uber shares FMCSA's twin goals of promoting safety in the design and operation of CMVs without hampering innovation or discouraging economic growth.

We applaud FMCSA for taking proactive steps to make sure that federal regulations can accommodate the safe integration of autonomous driving systems and highly automated CMVs into the Nation's fleet.

Uber supports the core arguments advanced in this ANPRM, particularly FMCSA's conclusion that federal regulations do not prohibit an ADS from performing the entire dynamic driving task of a CMV on public roads, regardless of whether a human is present in the vehicle.

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<sup>1</sup> Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles, 84 Fed. Reg. 24,449 (proposed May 28, 2019) (to be codified at 49 C.F.R. ch. III, subch. B).

Uber also agrees that the current Federal Motor Carrier Safety Regulations (FMCSRs) provide the appropriate framework for the safe integration of CMVs equipped with autonomous driving technology classified as SAE Levels 1 through 3. When a human is responsible for safety assurance of the dynamic driving task—whether because of the need to constantly monitor system performance (in the case of Level 1 or Level 2 vehicles) or the need to stand ready to provide fallback support for an ADS (in the case of Level 3 vehicles)—that human can reasonably be held to all applicable “driver” rules, even while the ADS is engaged. Accordingly, as the ANPRM recommends, whenever CMVs require a human driver to perform some part of the dynamic driving task, the rules governing commercial driver’s licenses, hours of service, medical qualifications, distracted driving, and safe driving should continue to apply.

However, ADSs will someday be able to perform the entire dynamic driving task with no expectation of any human involvement—whether in specific operational design domains (ODDs) (for a Level 4 vehicle) or across all ODDs (for a Level 5 vehicle). For these Level 4 and Level 5 CMVs (“Highly Automated CMVs”), a human—by definition—would not be expected to serve even as a fallback ready driver. Uber therefore encourages FMCSA to clarify that the FMCSRs covered in this ANPRM apply only to a human who is responsible for performing the dynamic driving task while a CMV is on a public road. These rules should not apply to an ADS or to human personnel who are not—based on the relevant autonomy level—responsible for performing any part of the driving task. Uber’s proposed interpretation is firmly rooted in the texts and purposes of the FMCSRs, and it strikes the right balance between ensuring safety and avoiding unnecessary regulation.

## ***I. Summary of Key Recommendations***

In its ANPRM, FMCSA has asked whether certain adjustments or revisions to existing regulations are needed to ensure that autonomous driving technology can be safely integrated into the Nation’s CMV fleet.<sup>2</sup> FMCSA has correctly observed that the answer to that question depends to some extent on the degree of automation at issue.<sup>3</sup> Because highly automated CMVs are the “primary focus” of FMCSA’s efforts,<sup>4</sup> Uber encourages FMCSA to clarify that the relevant FMCSRs both (a) take appropriate account of the capabilities of highly automated CMVs, and (b) do not create unnecessary burdens in the development and deployment of these vehicles.

As the ANPRM reflects, different levels of autonomy (under the SAE classification scheme) differ (among other things) by the degree of human involvement needed while the

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<sup>2</sup> *Id.* at 24,450-51.

<sup>3</sup> *Id.* at 24,450.

<sup>4</sup> *Id.*

vehicle is operating on the road and how much of the dynamic driving task (or “DDT”) can be performed without human involvement.<sup>5</sup>

For CMVs equipped with technology classified at Levels 1 through 3, Uber agrees that the existing FMCSRs should continue to govern the conduct of human drivers and human fallback drivers. At these lower levels of automation, a CMV will by definition *always* require a human driver to be present and to perform at least *some* part of the dynamic driving task. Even at Level 3, where an ADS can perform the entire dynamic driving task under certain conditions, a human driver must still be present and prepared as a fallback driver to take control at the system’s request.

Highly automated CMVs—like other highly automated vehicles—are different in a crucial way. By definition, autonomous vehicles operating at Level 4 or Level 5 *never* require a human to intervene and perform any part of the dynamic driving task—even in fallback scenarios. If a highly automated CMV exceeds its ODD (in the case of a Level 4 vehicle) or encounters a system failure, the vehicle can revert to a minimal risk condition<sup>6</sup> without—based on the definitions of those autonomy levels—needing a human to take the wheel. The system’s fallback ability—one that does not require human involvement—represents the seminal distinction between Level 3 and Level 4 technology. Put simply, Level 4 and Level 5 CMVs will be capable of operating without human drivers, and Uber maintains that such vehicles therefore need not operate with an expectation that a human in the vehicle (even one sitting behind a steering wheel) would play a role in the dynamic driving task. In such situations, a Level 4 or Level 5 CMV’s autonomous operations will not implicate the core safety rationale behind many of the FMCSRs: ensuring that human drivers safely perform the dynamic driving task.

Uber submits that the FMCSRs can and should be read to reflect this distinction between vehicles operating at Levels 1 through 3, on the one hand, and vehicles operating at Levels 4 or 5, on the other. Moreover, applying the FMCSRs to such Highly Automated CMVs may hinder the deployment of these vehicles unless FMCSA clarifies that the relevant rules apply only to a human who is responsible for performing the dynamic driving task. At times in the ANPRM, FMCSA’s proposals appear to incorporate this limitation.<sup>7</sup> To avoid any confusion, FMCSA

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<sup>5</sup> The following typology excludes SAE Level 0 (“No Driving Automation”) found in conventional vehicles, which requires “the performance by the human driver of all aspects of the dynamic driving task . . . , even when enhanced by active warning or intervention systems.” U.S. Dep’t of Transp., *Preparing for the Future of Transportation: Automated Vehicles 3.0* vi (2018).

<sup>6</sup> *Id.* at 46 (defining “minimal risk condition” as “[a] condition to which a user or an ADS may bring a vehicle after performing the DDT fallback in order to reduce the risk of a crash when a given trip cannot or should not be completed.”).

<sup>7</sup> Safe Integration, 84 Fed. Reg. at 24,452 (“the Agency believes individuals responsible for taking control of an ADS-equipped vehicle on a public road should be subject to the current driver-related rules”), 24,455 (proposing to apply safe-driving rules to “to any human *who is expected to take control of the operation* of the ADS-equipped CMV while it is on a public road” (emphasis added)).

should clarify that the FMCSRs at issue here do not apply to an ADS or to human personnel who are not responsible for performing the dynamic driving task.

Accordingly, Uber recommends that FMCSA, as it moves through this regulatory process, clarify that the FMCSRs covered in the ANPRM apply only to a human who is responsible for performing some part of the dynamic driving task.

To underscore a prior point, Uber's proposed interpretation applies even though a highly automated CMV may sometimes encounter situations that fall outside of its ODD. For Highly Automated vehicles, the ADS is designed to perform the fallback function in this scenario. Therefore, the FMCSRs should be understood as not applying to human personnel (including vehicle occupants) who would not be involved in executing the dynamic driving task.

## **II. Comments on Specific Questions Posed in the ANPRM**

### ***1. Do the FMCSRs Require a Human Driver?***

Uber agrees that the FMCSRs do not require a human driver to be present in a highly automated CMV (either physically or remotely) while the CMV is operating on public roads.<sup>8</sup> As discussed in our previous comments,<sup>9</sup> and as FMCSA has recognized,<sup>10</sup> there is nothing in the text of the FMCSRs that requires a human driver to operate a CMV, nor is there anything in the FMCSRs that prohibits an ADS from performing the dynamic driving task without a human present.

To avoid any confusion on this issue, Uber recommends that FMCSA clarify the specific FMCSRs at issue here as applying only to a human who is responsible for performing the dynamic driving task. For FMCSRs that are less directly linked to the performance of the driving task, like the cargo securement obligations in Part 392,<sup>11</sup> FMCSA can tailor its interpretations to cover carriers or other entities as needed. On this interpretation, when a human is at the controls of a CMV and responsible for executing some part of the dynamic driving task, that person is subject to all of the relevant driver-related rules, even when the ADS is engaged (because of the possible need to serve as a fallback driver). But when a CMV is operating at Level 4 or Level 5 with no human expected to perform any part of the dynamic driving task, these FMCSRs should not apply. This interpretation fully comports with the text and intent of the existing FMCSRs.

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<sup>8</sup> *Id.* at 24,453.

<sup>9</sup> Letter from Justin Kintz, Head of the Americas Public Policy & Communications, Uber Technologies, Inc., to Raymond Martinez, Administrator, FMCSA, at 5-7, Docket No. FMCSA-2018-0037 (May 10, 2018) ("Uber comments").

<sup>10</sup> *See* Safe Integration, 84 Fed. Reg. at 24,452.

<sup>11</sup> *See, e.g.*, 49 C.F.R. § 392.9.

There is no need to amend the general definitions of “driver” or “operator” in section 390.5.<sup>12</sup> First, the Department has already “interpret[ed] and . . . adapt[ed] the definitions of ‘driver’ and ‘operator’ to recognize that such terms do not refer exclusively to a human, but may in fact include an automated system.”<sup>13</sup> Second, many of the FMCSRs that rely on the term “driver” have no logical application to an ADS. To take some obvious examples, the prohibitions on alcohol and controlled substance use and the medical qualifications for drivers would be nonsensical if applied to an ADS. The simpler course—one that is consistent with prior guidance from the Secretary of Transportation—would involve simply clarifying that these FMCSRs do not apply to human personnel who are not expected to execute the dynamic driving task.

The same goes for adding new terms like “ADS driver” to the FMCSRs. So long as there are no ADS-specific rules in the FMCSRs, there is no need to add such terms to the FMCSRs to clarify that the FMCSRs do not apply to an ADS. In fact, the definition of “driver” in section 390.5 applies only to a “person.”<sup>14</sup> And the term “person” is already defined in a way that omits combinations of hardware and software, like an ADS.<sup>15</sup>

However, if FMCSA decides that revising existing definitions or adding new terms is necessary, Uber would recommend adding the term “dynamic driving task” to section 390.5. FMCSA could then revise specific FMCSRs to clarify that a driver is a person who is responsible for performing the dynamic driving task—not an ADS or a person who is performing exclusively non-driving tasks. Linking the FMCSRs more explicitly to the performance of the dynamic driving task would eliminate confusion about the scope of many of the FMCSRs without compromising safety.

## 2. *Commercial Driver’s License (CDL) Endorsements*

Uber agrees with FMCSA that any human operator who is expected to perform some part of the dynamic driving task “must be fully qualified to do so.”<sup>16</sup> In the ANPRM, FMCSA stated that it is inclined to clarify that the CDL endorsement rules apply to “any person who may be relied upon to control *any aspect of operation of the ADS-equipped vehicle on a public road.*”<sup>17</sup> We agree with the spirit of this clarification, but we are concerned that the phrase “any aspect of operation” may sweep too broadly. In particular, the phrase could be misconstrued to cover persons who are in one way or another involved with the “operation” of an ADS-equipped CMV but who have no responsibility for performing any part of *the dynamic driving task*. Uber

<sup>12</sup> See U.S. Dep’t of Transp., *Automated Vehicles 3.0* at iv, ix (recognizing that the terms “driver” and “operator” may in some cases refer to an ADS).

<sup>13</sup> *Id.* at iv.

<sup>14</sup> See 49 C.F.R. § 390.5 (“Driver means any person who operates any commercial motor vehicle.”).

<sup>15</sup> See *id.* (“Person means any individual, partnership, association, corporation, business trust, or any other organized group of individuals.”).

<sup>16</sup> Safe Integration, 84 Fed. Reg. at 24,453.

<sup>17</sup> *Id.* (emphasis added).

respectfully submits that the CDL endorsement rules do not and should not apply to these persons.

For that reason, Uber encourages FMCSA to clarify that the CDL endorsement rules apply to any person *who performs or is responsible for performing some portion of the dynamic driving task* while a CMV is operating on public roads. This is consistent with the current definition of “driver” because performing the dynamic driving task captures the ordinary meaning of the phrase “operate [a] commercial motor vehicle.”<sup>18</sup> Because the CDL requirements are specifically intended to ensure that those who perform the driving task are qualified to do so, we urge FMCSA to clarify that the CDL requirements do not apply to human personnel who do not perform and are not responsible for performing any part of that task (but who may lawfully execute other functions while present in a CMV).

Uber agrees with FMCSA that it is too soon to adopt requirements for a special ADS endorsement,<sup>19</sup> given the continuing pace of innovation in this arena, the variety of possible approaches to automation, the activities of other regulators (including other efforts within the Department of Transportation), and the fact that different ADS-equipped CMVs will be designed for different use cases and different ODDs. Moreover, in light of the overlap between such an ADS endorsement and safety design validation, any such efforts would likely require coordination with other components of the Department (including NHTSA). However, Uber agrees that carriers, developers, and manufacturers should ensure that all operators of ADS-equipped CMVs are fully trained on the capabilities, limitations, and controls of those vehicles. Uber supports FMCSA’s ongoing efforts to engage with stakeholders to reach this goal.

### ***3. Drivers’ Hours of Service Rules***

As with the CDL requirements, Uber agrees that the current approach for applying Hours of Service (HOS) rules can accommodate the integration of ADS-equipped CMVs.<sup>20</sup> However, as discussed above, we urge FMCSA to clarify that the HOS rules apply only to a person who performs or is responsible for performing the driving task. The HOS rules cannot and do not apply to an ADS, and they do not and should not apply to any person who has no responsibility for performing the driving task, even if that person is “at the controls” in the sense of being seated in the cabin or driver’s seat of a Highly Automated CMV operating in autonomous mode.

The purpose of the HOS rules is to reduce the risk of driver fatigue and fatigue-related crashes.<sup>21</sup> But this rationale plainly would not apply to an ADS. And as noted previously,

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<sup>18</sup> See 49 C.F.R. § 390.5 (“*Driver* means any person who operates any commercial motor vehicle. . . . Any other term used in this subchapter is used in its commonly accepted meaning, except where such other term has been defined elsewhere in this subchapter.”).

<sup>19</sup> Safe Integration, 84 Fed. Reg. at 24,453.

<sup>20</sup> *Id.* at 24,454.

<sup>21</sup> *Id.* at 24,453.

Highly Automated CMVs may operate without the expectation of any human involvement in any part of the driving task. The HOS rules are simply not intended to regulate the hours worked by personnel other than the hours when that person is expected to perform (or be prepared to perform) the dynamic driving task.<sup>22</sup>

Accordingly, Uber urges FMCSA to clarify the proposal set forth in the ANPRM. Specifically, Uber opposes interpreting “on-duty, not driving” time to include “[a]ny time [a] human is working without having the responsibility for taking control of the ADS-equipped vehicle.”<sup>23</sup> At a minimum, FMCSA should clarify that this interpretation applies only to a person whose responsibility includes the performance of some part of the dynamic driving task.

#### ***4. Medical Qualifications for Human Operators***

Uber supports FMCSA’s proposed interpretation of the medical qualification requirements in section 391, so long as responsibility for “taking control of an ADS-equipped vehicle” is understood to mean responsibility for performing the dynamic driving task.<sup>24</sup> All of the current medical qualification requirements apply to any person who is responsible for performing the dynamic driving task in any CMV, including CMVs equipped with an ADS.<sup>25</sup> But for the same reasons discussed above, those qualifications cannot and do not apply to the ADS itself, nor do they apply to any person who has no responsibility for performing the dynamic driving task.

#### ***5. Distracted Driving and Monitoring***

Uber fully supports FMCSA’s efforts to prevent distracted driving. In a Level 2 CMV, for example, a driver continues to play a key role in executing the dynamic driving task, and it is critical that the driver not be distracted while performing this role.

However, Level 4 and Level 5 CMVs need not require any person to perform any part of the dynamic driving task. Once these CMVs are ready to be deployed, there will by definition be no one who needs to take responsibility for performing the dynamic driving task while these CMVs travel down the highway.

FMCSA should interpret sections 392.80 and 392.92 in a way that recognizes these possibilities, and it should not impose unnecessary regulatory burdens on personnel arrangements that may prove vital to the efficient deployment of Highly Automated CMVs.

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<sup>22</sup> See 49 C.F.R. §§ 395.3, 395.5 (setting hours of service limits for drivers).

<sup>23</sup> Safe Integration, 84 Fed. Reg. at 24,454.

<sup>24</sup> *Id.*

<sup>25</sup> See 49 C.F.R. § 391.1(a) (“The rules in this part establish minimum qualifications *for persons who drive commercial motor vehicles* as, for, or on behalf of motor carriers.” (emphasis added)).

Accordingly, FMCSA should interpret sections 392.80 and 392.82 to apply only to a person responsible for performing the dynamic driving task.

As an initial matter, sections 392.80 and 392.82 by their own terms do not apply to individuals who are not performing any part of the dynamic driving task. These rules prohibit individuals from texting and using handheld wireless phones “while driving.”<sup>26</sup> Both sections define “driving” exclusively as “operating” a CMV on a highway.<sup>27</sup> And from context, it is clear that “driving” is meant to cover only the performance of the dynamic driving task.<sup>28</sup> Most notably, the term is defined to exclude “operating a commercial motor vehicle . . . when the driver has moved the vehicle to the side of, or off, a highway . . . and has halted in a location where the vehicle can safely remain stationary.”<sup>29</sup> This limitation makes sense only if “driving” is generally understood as performing the dynamic driving task—which drivers are obviously not doing when their CMV is stationary and not in the travel lanes of a highway.

Accordingly, Uber recommends that FMCSA modify its interpretation slightly so that it does not apply to anyone who just happens to be “in the driver’s seat” or involved in some way with the operation of a Level 4 or Level 5 CMV. When it comes to these Highly Automated CMVs, what matters is not *where* a human operator is seated or whether they are somehow involved with the overall operation of a CMV, but whether they are responsible for *driving* the CMV. Human personnel performing only non-driving tasks do not implicate the core safety rationale of these regulations, and so they are not and should not be subject to these prohibitions.

As with the other FMCSRs discussed above, Uber submits that the distracted driving prohibitions have no logical application to an ADS. Accordingly, FMCSA should make clear that sections 392.80 and 392.82 do not apply to an ADS.

## 6. *Safe Driving*

Finally, Uber agrees that the safe driving requirements in sections 382 and 392 should continue to apply to “to any human who is expected to take control of the operation of the ADS-equipped CMV while it is on a public road,”<sup>30</sup> where “take control of the operation” means performing the dynamic driving task. These prohibitions play a vital role in ensuring the safe operation of CMVs on the Nation’s highways, regardless of the level of automation at issue.

## ***III. Conclusion***

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<sup>26</sup> See *id.* §§ 392.80(a) (“No driver shall engage in texting while driving.”), 392.82(a)(1) (“No driver shall use a hand-held mobile telephone while driving a CMV.”).

<sup>27</sup> See *id.* §§ 392.80(c) (“For the purpose of this section only, *driving* means operating a commercial motor vehicle, with the motor running, including while temporarily stationary because of traffic, a traffic control device, or other momentary delays.”); 392.82(b) (same).

<sup>28</sup> See *id.* §§ 392.80(c), 392.82(b).

<sup>29</sup> *Id.* § 392.80(c); see also *id.* § 392.82(b) (same).

<sup>30</sup> Safe Integration, 84 Fed. Reg. at 25,455.





**UATC LLC**  
Uber Advanced  
Technologies Group  
1455 Market Street  
San Francisco, CA 94103  
[uber.com/info/atg](http://uber.com/info/atg)

Uber would like to thank FMCSA for its continued leadership on the future of trucking and the safe integration of self-driving technology. We encourage FMCSA to confirm that the FMCSRs do not require that a CMV be operated by a human driver. We also encourage FMCSA to clarify that the FMCSRs covered in the ANPRM apply only to a person who is responsible for performing some part of the dynamic driving task. We look forward to continued engagement with FMCSA and with the Department on these topics.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

Danielle Burr  
Head of Federal Affairs