

## DEPARTMENT OF TRANSPORTATION

## Federal Motor Carrier Safety Administration

## 49 CFR Parts 385, 386, 390, and 395

[Docket No. FMCSA–2010–0167]

RIN 2126–AB20

## Electronic Logging Devices and Hours of Service Supporting Documents

**AGENCY:** Federal Motor Carrier Safety Administration (FMCSA), DOT.

**ACTION:** Supplemental notice of proposed rulemaking; request for comments.

**SUMMARY:** The Federal Motor Carrier Safety Administration (FMCSA) proposes amendments to the Federal Motor Carrier Safety Regulations (FMCSRs) to establish: Minimum performance and design standards for hours-of-service (HOS) electronic logging devices (ELDs); requirements for the mandatory use of these devices by drivers currently required to prepare HOS records of duty status (RODS); requirements concerning HOS supporting documents; and measures to address concerns about harassment resulting from the mandatory use of ELDs. This rulemaking supplements the Agency's February 1, 2011, Notice of Proposed Rulemaking (NPRM) and addresses issues raised by the U.S. Court of Appeals for the Seventh Circuit in its 2011 decision vacating the Agency's April 5, 2010, final rule concerning ELDs as well as subsequent statutory developments. The proposed requirements for ELDs would improve compliance with the HOS rules.

**DATES:** Comments must be received on or before May 27, 2014. Comments sent to the Office of Management and Budget (OMB) on the collection of information must be received by OMB on or before May 27, 2014. Before publishing a final rule, FMCSA will submit to the Office of the Federal Register publications listed in the rule for approval of the publications' incorporation by reference.

**ADDRESSES:** You may submit comments identified by Docket Number FMCSA–2010–0167 using any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building, Ground Floor, Room W12–140, Washington, DC 20590–0001.

- *Hand Delivery or Courier:* West Building, Ground Floor, Room W12–140, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

- *Fax:* 202–493–2251.

To avoid duplication, please use only one of these four methods. See the “Public Participation and Request for Comments” portion of the **SUPPLEMENTARY INFORMATION** section for instructions on submitting comments, including collection of information comments for the Office of Information and Regulatory Affairs, OMB.

**FOR FURTHER INFORMATION CONTACT:** Ms. Deborah M. Freund, Vehicle and Roadside Operations Division, Office of Bus and Truck Standards and Operations, Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue SE., Washington, DC 20590–0001 or by telephone at 202–366–5370.

**SUPPLEMENTARY INFORMATION:** This supplemental notice of proposed rulemaking (SNPRM) is organized as follows:

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## I. Executive Summary

This SNPRM would improve commercial motor vehicle (CMV) safety and reduce the overall paperwork burden for both motor carriers and drivers by increasing the use of ELDs within the motor carrier industry, which would in turn improve compliance with the applicable HOS rules. Specifically, this SNPRM proposes: (1) Requiring new technical specifications for ELDs that address statutory requirements; (2) mandating ELDs for drivers currently using RODS; (3) clarifying supporting document requirements so that motor carriers and drivers can comply efficiently with HOS regulations, and so that motor carriers can make the best use of ELDs and related support systems as their primary means of recording HOS information and ensuring HOS

compliance; and (4) proposing both procedural and technical provisions aimed at ensuring that ELDs are not used to harass vehicle operators.

In August 2011, however, the United States Court of Appeals for the Seventh Circuit vacated the April 2010 final rule, including the device performance standards. See *Owner-Operator Indep. Drivers Ass'n v. Fed. Motor Carrier Safety Admin.*, 656 F.3d 580 (7th Cir. 2011) available in the docket for this rulemaking. Thus, FMCSA expands the 2011 NPRM significantly. The regulatory text proposed in today's SNPRM supersedes that published in the February 2011 NPRM.

All of the previous rulemaking notices, as well as notices announcing certain Motor Carrier Safety Advisory Committee (MCSAC) meetings and public listening sessions, referred to the devices and support systems used to record electronically HOS RODS as "electronic on-board recorders (EOBRs)." Beginning with this SNPRM, the term "electronic logging device (ELD)" is substituted for the term "EOBR" in order to be consistent with the term used in MAP-21. To the extent applicable, a reference to an ELD

includes a related motor carrier or vendor central support system—if one is used—to manage or store ELD data.

This rulemaking is based on authority in a number of statutes, including the Motor Carrier Act of 1935, the Motor Carrier Safety Act of 1984, the Truck and Bus Safety and Regulatory Reform Act of 1988, the Hazardous Materials Transportation Authorization Act of 1994 (HMTAA), and MAP-21.

This SNPRM follows the NPRM published February 1, 2011 (76 FR 5537). The original NPRM had three components that: (1) Required ELDs to be used by motor carriers and drivers required to prepare handwritten RODS; (2) required motor carriers to develop and maintain systematic HOS oversight of their drivers; and (3) simplified supporting document requirements so motor carriers could achieve paperwork efficiencies from ELDs and their support systems as their primary means of recording HOS information and ensuring HOS compliance. This SNPRM modifies that earlier proposal based on docket comments and other new information received by the Agency. Because the Agency's 2010 final rule providing technical specifications for

ELD was vacated, this SNPRM also proposes new technical specifications for ELDs and addresses the issue of ELDs being used by motor carriers to harass drivers. The SNPRM supersedes the February 1, 2011, NPRM.

This rulemaking examines four options:

- Option 1: ELDs are mandated for all CMV operations subject to 49 CFR part 395.

- Option 2: ELDs are mandated for all CMV operations where the driver is required to complete RODS under 49 CFR 395.8.

- Option 3: ELDs are mandated for all CMV operations subject to 49 CFR part 395, and the ELD is required to include or be able to be connected to a printer and print RODS.

- Option 4: ELDs are mandated for all CMV operations where the driver is required to complete RODS under 49 CFR 395.8, and the ELD is required to include or be able to be connected to a printer and print RODS.

The following table lists the breakdown of regulated entities under FMCSA's regulations:

TABLE 1—REGULATED ENTITIES

	For-hire general freight	For-hire specialized freight	For-hire passenger <sup>1</sup>	Private property	Private passenger	Total
Carriers .....	176,000	139,000	8,000	203,000	6,000	532,000
Percent of Carriers .....	33%	26%	2%	38%	1%	100%
Drivers .....	1,727,000	891,000	216,000	1,442,000	40,000	4,316,000
Percent of Drivers .....	40%	21%	5%	33%	1%	100%
Total CMVs .....	1,717,000	1,003,000	183,000	1,433,000	24,000	4,360,000
Percent of CMVs .....	39%	23%	4%	33%	1%	100%
Herfindahl-Hirschman Index .....	53	5	406	6	15	10
10-Firm Concentration .....	18.0%	.....	38.0%	.....	.....	.....
Single-Truck For-Hire Carriers .....	93,000	65,000	.....	.....	.....	.....

Source: FMCSA, Motor Carrier Management Information System (MCNIS) registration data as of December 14, 2012.

FMCSA evaluated <sup>1</sup> another option for the NPRM prepared in 2011, which would have required ELD use by hazardous materials and passenger carriers that did not use RODS, in addition to all RODS users. This was not the preferred option then and it was not part of this evaluation. The marginal net benefits of including those groups in the rule were negative. When these carrier populations were added to RODS users, estimated net benefits, although they were positive, were 8.5 percent lower than the net benefits calculated using the RODS-only population. Hazardous material carriers and passenger carriers tend to have above average safety

records. This may be because they are subject to many other safety regulations, and are overseen by FMCSA and other Federal agencies. However, neither group will gain paperwork savings from eliminating paper RODS, as costs exceeded benefits for these two groups.

FMCSA gathered cost information from publicly available marketing material and through communication with fleet management systems (FMS) vendors. Although the prices of some models have not significantly declined in recent years, manufacturers have been introducing less expensive FMS in-cab units and support systems with fewer features (for example, they do not include real time tracking and routing), as well as in-cab units that resemble a stand-alone ELD. The Agency bases its

calculations in this RIA on the Mobile Computing Platform (MCP) 50 produced by Qualcomm, which is the largest manufacturer (by market share) of FMS in North America.<sup>2</sup> While this analysis is not an endorsement of Qualcomm's products, the Agency believes that its

<sup>2</sup> Qualcomm Incorporated 2012 Annual Report, Securities and Exchange Commission Form 10K, ([investor.qualcomm.com/annuals.cfm](http://investor.qualcomm.com/annuals.cfm).) The Qualcomm Enterprise Services (QES, recently renamed Omnitracs) reported revenues of \$371 million in fiscal year 2012. Omnitracs currently estimates its active installed base of FMS, which include those with an ELD function, to be 350,000 in North America, most of which are operated in the US (<http://www.qualcomm.com/solutions/transportation-logistics>). FMCSA estimates that about 955,000 CMVs currently use FMS in the US, including those with an ELD function, which indicates that Qualcomm's US market share is as high as 37 percent.

<sup>1</sup> Includes 2,000 carriers with only taxi/limousine services operating in interstate commerce.

large market share makes the MCP 50 FMS an appropriate example of current state-of-the-art, widely available devices with ELD functionality. FMCSA also examined cost information from several other vendors, and found that the MCP 50, when all installation, service, and hardware costs are considered, falls roughly into the middle of the price range of FMSs with ELD capabilities: \$495 per CMV on an annualized basis where the range is from \$165 to \$832 per CMV on an annualized basis. The Agency also carefully considered the VDO RoadLog ELD produced by the Continental Corporation, which, through its VDO subsidiary, has a 90 percent share of the electronic tachograph market in the European Union (EU) and more than 5 million electronic tachographs or ELD devices in use worldwide.<sup>3</sup> Continental has recently begun offering the RoadLog

ELD in the North American market, and the Agency believes that the overall capacity and market share of this corporation may allow it to influence the U.S. ELD market. As discussed below, the Agency has found that basing costs on the MCP 50, the VDO RoadLog, or several other devices, all lead to positive net benefits of this rulemaking. Although carrier preferences and device availability prevent FMCSA from more precisely estimating costs, it is confident that they will be lower than the rule's benefits.

The Agency requests comments on its analysis of the ELD and FMS markets, and, in particular, how prices and availability of units affect motor carriers differently with respect to fleet size. This analysis also evaluates the costs and benefits of improvements in motor carrier compliance with the underlying HOS rules through the use of ELDs. To

evaluate compliance costs, the Agency has updated its assessment of the baseline level of non-compliance with the HOS rules to account for changes in factors such as inflation, changes in the HOS violation rate that preceded the mandate for ELD use, and the vehicle miles traveled by CMVs. To evaluate safety benefits, the Agency examined several types of analysis and has used its judgment to select a conservative result for the number of crashes and fatalities avoided by ELD use. The costs and benefits are detailed in the RIA associated with this rulemaking and the methods by which they were derived are also discussed. The major elements that contribute to the overall net benefits are shown below in Table 1. This table summarizes the figures for the Agency's preferred option, Option 2, which also has the highest net benefits.

TABLE 2—COST AND BENEFIT SUMMARY

Cost element	Annualized total value (\$2011 millions)	Notes
New ELDs .....	955.7	For all long haul (LH) and short haul (SH) drivers that use RODS, to pay for new devices and FMS upgrades.
Automatic On-Board Recording Device (AOBRD) Replacement Costs.	8.7	Carriers that purchased AOBRDs for their CMVs and can be predicted to still have them in 2018 would have to replace them with ELDs.
Equipment for Inspectors .....	2.0	Quick Response Code (QR) scanners to read ELD output. These would be heavily used, and we assume they will be replaced three times during the 10 year period for which we are estimating costs.
Inspector Training .....	1.7	Costs include travel to training sites, as well as training time, for all inspectors in the first year and for the new officers every year after.
CMV Driver Training .....	6.7	Costs of training new drivers in 2016, and new drivers each year thereafter.
Compliance .....	604.0	Extra drivers and CMVs needed to ensure that no driver exceeds HOS limits.
Benefit element	Annualized total value (\$2011 millions)	Notes
Paperwork Savings (Total of three parts below).	1,637.7	
(1) Driver Time .....	1,261.4	Reflects time saved as drivers no longer have to fill out and submit paper RODS.
(2) Clerical Time .....	278.8	Reflects time saved as office staff no longer have to process paper RODS.
(3) Paper Costs .....	97.6	Purchases of paper logbooks are no longer necessary.
Safety (Crash Reductions) .....	394.8	Although the predicted number of crash reductions is lower for SH than LH drivers, both should exhibit less fatigued driving if HOS compliance increases. Complete HOS compliance is not assumed.

This SNPRM also proposes changes to the HOS supporting document requirements. The Agency has attempted to clarify its supporting document requirements, recognizing that ELD records serve as the most robust form of documentation for on-duty driving periods. FMCSA neither increases nor decreases the burden

associated with supporting documents. These proposed changes are expected to improve the quality and usefulness of the supporting documents retained, and would consequently increase the effectiveness and efficiency of the Agency's review of motor carriers' HOS records during on-site compliance reviews, thereby increasing its ability to

detect HOS rules violations. The Agency is currently unable to evaluate the impact the proposed changes to supporting documents requirements would have on crash reductions. Tables 3 and 4 summarize the analysis. The figures presented are annualized using 7 percent and 3 percent discount rates.

<sup>3</sup> [http://www.RoadLog.vdo.com/generator/www/en/en/vdo/RoadLog/about\\_vdo/about\\_vdo\\_en.html](http://www.RoadLog.vdo.com/generator/www/en/en/vdo/RoadLog/about_vdo/about_vdo_en.html). May 9, 2012.

TABLE 3—ANNUALIZED COSTS AND BENEFITS  
[\$2011 millions, 7 percent discount rate]

	Option 1	Option 2	Option 3	Option 4
New ELD Costs .....	\$1,270.0	\$955.7	\$1,722.6	\$1,311.1
AOBRD Replacement Costs .....	8.7	8.7	8.7	8.7
HOS Compliance Costs .....	726.6	604.0	726.6	604.0
Enforcement Training Costs .....	1.7	1.7	1.7	1.7
Enforcement Equipment Costs .....	2.0	2.0	0.0	0.0
Driver Training .....	8.5	6.7	8.5	6.7
Total Costs .....	2,017.4	1,578.7	2,468.0	1,932.1
Paperwork Savings .....	1,637.7	1,637.7	1,637.7	1,637.7
Safety Benefits .....	474.8	394.8	474.8	394.8
Total Benefits .....	2,112.5	2,032.5	2,112.5	2,032.5
Net Benefits .....	95.1	453.8	−355.5	100.4

TABLE 4—ANNUALIZED COSTS AND BENEFITS  
[\$2011 Millions, 3 percent discount rate]

	Option 1	Option 2	Option 3	Option 4
ELD Costs .....	\$1,260.7	\$949.5	\$1,707.4	\$1,300.3
AOBRD Replacement Costs .....	8.0	8.0	8.0	8.0
HOS Compliance Costs .....	726.6	604.1	726.6	604.1
Enforcement Training Costs .....	1.6	1.6	1.6	1.6
Enforcement Equipment Costs .....	2.0	2.0	0.0	0.0
Driver Training .....	7.5	5.9	7.5	5.9
Total Costs .....	2,006.4	1,571.1	2,451.1	1,919.9
Paperwork Savings .....	1,670.2	1,670.2	1,670.2	1,670.2
Safety Benefits .....	474.8	394.8	474.8	394.8
Total Benefits .....	2,145.0	2,065.0	2,145.0	2,065.0
Net Benefits .....	138.6	493.9	−306.1	145.1

The estimated benefits of ELDs do not differ greatly among the options, and the paperwork savings are identical for all four options. The Agency estimates zero paperwork burden from operations exempt from RODS, so ELDs can only reduce the paperwork burden of RODS users, which are included in all four options. Safety benefits are higher when all regulated CMV operations are included in the ELD mandate (Options 1 and 3), but the marginal costs (ELD costs plus compliance costs) of including these operations are about 5½ times higher than the marginal benefits. These options would add short-haul drivers who do not use RODS, have better HOS compliance, and much lower crash risk from HOS non-compliance. For the short-haul non-RODS subgroup, FMCSA's analysis indicates that ELDs are not a cost-effective solution to their HOS non-

compliance problem. This result is consistent with that of past ELD analyses. The requirement for printers with each ELD would increase ELD costs by about 40 percent. This is the first time that FMCSA has explored requiring a printer, and it seeks comment on the feasibility and accuracy of the benefit and cost estimates associated with this requirement. Only Option 2, which would require ELDs similar to those currently being manufactured for paper RODS users, provides positive net benefits. Net benefits for Options 1, 2, and 4 are positive with a 3 percent discount rate, but the net benefits for Option 2 are still much higher than those of other options—about 11 times higher than the net benefits of the next best alternative, Option 4. Non-monetized benefits of the various options are also substantial. The number of crashes avoided ranges from

1,425 to 1,714, and this rule could save between 20 and 24 lives per year. Review of Trucks Involved in Fatal Accidents (TIFA) data from 2005–2009 supports this analysis: Variables indicating that the driver of the CMV was drowsy, sleepy, asleep, or fatigued are coded for crashes that caused an average of 85 deaths per year in that period (<http://www.umtri.umich.edu/our-results/publications/trucks-involved-fatal-accidents-factbook-2008-linda-jarossi-anne-matteson>). An average of nine crashes per year in TIFA was associated with fatigued drivers exceeding drive time limits. Additional factors were at play in most of these events, but the removal of some substantial fraction of fatigued driving should provide some benefit. Estimated crash reductions due to the proposed rule are summarized in Table 5.

TABLE 5—ESTIMATED REDUCTIONS IN CRASHES

	Option 1	Option 2	Option 3	Option 4
Crashes Avoided .....	1,714	1,425	1,714	1,425
Injuries Avoided .....	522	434	522	434

TABLE 5—ESTIMATED REDUCTIONS IN CRASHES—Continued

	Option 1	Option 2	Option 3	Option 4
Lives Saved .....	24	20	24	20

## II. Public Participation and Request for Comments

After the publication of the 2011 NPRM, Congress enacted MAP–21; the Act that mandated that the Agency require the use of ELDs by interstate CMV drivers required to keep RODS. In addition, the Agency gained information as part of its outreach efforts. Because the proposed regulatory text in today's SNPRM supersedes that proposed in the 2011 NPRM, and because of the significance of the changes, FMCSA encourages stakeholders and members of the public—including those who submitted comments previously—to participate in this rulemaking by submitting comments and related materials on the complete proposal. FMCSA will address comments submitted in response to the February 2011 NPRM (76 FR 5537) as part of a final rule, to the extent such comments are relevant given the intervening events since publication of that document and today's SNPRM.

### A. Submitting Comments

If you submit a comment, please include the docket number for this SNPRM (Docket No. FMCSA–2010–0167), indicate the specific section of this document to which each section applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an email address, or a phone number in the body of your document so that FMCSA can contact you if there are questions regarding your submission.

To submit your comment online, go to <http://www.regulations.gov>, put the docket number, FMCSA–2010–0167, in the keyword box, and click “Search.” When the new screen appears, click on the “Comment Now!” button and type your comment into the text box on the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit.

If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit

comments by mail and would like to know that they reached the facility, please enclose a stamped, self-addressed postcard or envelope.

We will consider all comments and material received during the comment period and may change this proposed rule based on your comments. FMCSA may issue a final rule at any time after the close of the comment period.

### B. Viewing Comments and Documents

To view comments, as well as any documents mentioned in this preamble as being available in the docket, go to <http://www.regulations.gov>. Insert the docket number, FMCSA–2010–1067, in the keyword box, and click “Search.” Next, click the “Open Docket Folder” button and choose the document to review. If you do not have access to the Internet, you may view the docket online by visiting the Docket Management Facility in Room W12–140 on the ground floor of the DOT West Building, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., e.t., Monday through Friday, except Federal holidays.

### C. Privacy Act

All comments received will be posted without change to <http://www.regulations.gov> and will include any personal information you provide. Anyone may search the electronic form of comments received into any of our dockets by the name of the individual submitting the comment (or of the person signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** (FR) notice published on January 17, 2008 (73 FR 3316) or you may visit <http://edocket.access.gpo.gov/2008/pdf/E8-785.pdf>.

### D. Comments on the Collection of Information

If you have comments on the collection of information discussed in this SNPRM, you must also send those comments to the Office of Information and Regulatory Affairs at OMB. To ensure that your comments are received on time, the preferred methods of submission are by email to [oira\\_submissions@omb.eop.gov](mailto:oira_submissions@omb.eop.gov) (include docket number “FMCSA–2010–0167” and “Attention: Desk Officer for

FMCSA, DOT” in the subject line of the email) or fax at 202–395–6566. An alternative, though slower, method is by U.S. Mail to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, ATTN: Desk Officer, FMCSA, DOT.

## III. Abbreviations and Acronyms

Automatic On-Board Recording Device.	AOBRD.
Behavior Analysis Safety Improvement Categories.	BASICs.
Commercial Driver's License .....	CDL.
Commercial Motor Vehicle .....	CMV.
Compliance, Safety, Accountability.	CSA.
Department of Transportation ..	DOT.
Electronic Control Module .....	ECM.
Electronic Logging Device .....	ELD.
Electronic On-Board Recorder ..	EOBR.
Extensible Markup Language ....	XML.
Federal Motor Carrier Safety Administration.	FMCSA.
Federal Motor Carrier Safety Regulations.	FMCSRs.
Fleet Management System .....	FMS.
Geographic Names Information System.	GNIS.
Global Positioning System .....	GPS.
Hazardous Materials .....	HM.
Hours of Service .....	HOS.
Mobile Computing Platform 50	MCP50.
Motor Carrier Management Information System.	MCMIS.
Motor Carrier Safety Advisory Committee.	MCSAC.
Motor Carrier Safety Assistance Program.	MCSAP.
National Highway Traffic Safety Administration.	NHTSA.
National Transportation Safety Board.	NTSB.
North American Free Trade Agreement.	NAFTA.
North American Industrial Classification System.	NAICS.
Notice of Proposed Rulemaking	NPRM.
Office of Management and Budget.	OMB.
On-Duty Not Driving .....	ODND.
Personally Identifiable Information.	PII.
Quick Response .....	QR.
Record of Duty Status .....	RODS.
Regulatory Impact Analysis .....	RIA.
Supplemental Notice of Proposed Rulemaking.	SNPRM.
Universal Serial Bus .....	USB.
Vehicle Identification Number	VIN.

## IV. Legal Basis for the Rulemaking

FMCSA's authority for this rulemaking is derived from several statutes.

### A. Motor Carrier Act of 1935

The Motor Carrier Act of 1935 (Pub. L. 74–255, 49 Stat. 543, August 9, 1935), as amended, (the 1935 Act) provides that, “[t]he Secretary of Transportation may prescribe requirements for—(1) qualifications and maximum hours of service of employees of, and safety of operation and equipment of, a motor carrier; and (2) qualifications and maximum hours of service of employees of, and standards of equipment of, a motor private carrier, when needed to promote safety of operation” (49 U.S.C. 31502(b)). Among other things, by requiring the use of ELDs, this SNPRM would require safety equipment that would increase compliance with the HOS regulations and address the “safety of operation” of motor carriers subject to this statute. The SNPRM would do this by ensuring an automatic recording of driving time and a more accurate record of a driver’s work hours.

### B. Motor Carrier Safety Act of 1984

The Motor Carrier Safety Act of 1984 (Pub. L. 98–554, Title II, 98 Stat. 2832, October 30, 1984), as amended, (the 1984 Act) provides authority to the Secretary of Transportation (Secretary) to regulate drivers, motor carriers, and vehicle equipment. It requires the Secretary to prescribe minimum safety standards for CMVs to ensure that—(1) CMVs are maintained, equipped, loaded, and operated safely; (2) responsibilities imposed on CMV drivers do not impair their ability to operate the vehicles safely; (3) drivers’ physical condition is adequate to operate the vehicles safely; (4) the operation of CMVs does not have a deleterious effect on drivers’ physical condition; and (5) CMV drivers are not coerced by a motor carrier, shipper, receiver, or transportation intermediary to operate a CMV in violation of regulations promulgated under 49 U.S.C. 31136 or under chapter 51 or chapter 313 of 49 U.S.C. (49 U.S.C. 31136(a)). The 1984 Act also grants the Secretary broad power in carrying out motor carrier safety statutes and regulations to “prescribe recordkeeping and reporting requirements” and to “perform other acts the Secretary considers appropriate” (49 U.S.C. 31133(a)(8) and (10)).

The HOS regulations are designed to ensure that driving time—one of the principal “responsibilities imposed on the operators of commercial motor vehicles”—does “not impair their ability to operate the vehicles safely” (49 U.S.C. 31136(a)(2)). ELDs that are properly designed, used, and maintained would enable drivers, motor

carriers, and authorized safety officials to more effectively and accurately track on-duty driving hours, thus preventing both inadvertent and deliberate HOS violations. Driver compliance with the HOS rules helps ensure that drivers are provided time to obtain restorative rest and thus that “the physical condition of [CMV drivers] is adequate to enable them to operate the vehicles safely” (49 U.S.C. 31136(a)(3)). Indeed, the Agency considered whether this proposal would impact driver health under 49 U.S.C. 31136(a)(3) and (a)(4), as discussed in the Draft Environmental Assessment, available in the docket for this rulemaking.

By ensuring an electronic RODS is tamper-resistant, this rulemaking would protect against coercion of drivers, (49 U.S.C. 31136(a)(5)). The ELD would decrease the likelihood that driving time, which would be captured automatically by the device, could be concealed and that other duty status information entered by the driver could be inappropriately changed after it is entered. Thus, motor carriers would have limited opportunity to force drivers to violate the HOS rules without leaving an electronic trail that would point to the original and revised records. This SNPRM also expressly proposes to prohibit motor carriers from coercing drivers to falsely certify their ELD records. FMCSA intends to further address the issue of driver coercion in a separate rulemaking.

Because the proposal would increase compliance with the HOS regulations, it would have a positive effect on the physical condition of drivers and help to ensure that CMVs are operated safely (49 U.S.C. 31136(a)(1)). Other requirements in 49 U.S.C. 31136(a)(1) concerning safe motor vehicle maintenance, equipment, and loading are not germane to this SNPRM because ELDs and the SNPRM’s related provisions influence driver operational safety rather than vehicular and mechanical safety.

### C. Truck and Bus Safety and Regulatory Reform Act

Section 9104 of the Truck and Bus Safety and Regulatory Reform Act (Pub. L. 100–690, 102 Stat. 4181, 4529, November 18, 1988) anticipated the Secretary’s promulgating a regulation about the use of monitoring devices on CMVs to increase compliance with HOS regulations. The statute, as amended, requires the Agency to ensure that any such device is not used to “harass a vehicle operator” (49 U.S.C. 31137(a)(2)). This SNPRM would protect drivers from being harassed by motor carriers to violate safety

regulations and would limit a motor carriers’ ability to interrupt a driver’s sleeper berth period. In so doing, the SNPRM also furthers the provisions of 49 U.S.C. 31136(a), protecting driver’s health. The provisions addressing harassment proposed in this SNPRM are discussed in more detail under Part X.

### D. Hazardous Materials Transportation Authorization Act of 1994

Section 113 of the Hazardous Materials Transportation Authorization Act of 1994, Public Law 103–311, 108 Stat. 1673, 16776–16777, August 26, 1994, (HMTAA) requires the Secretary to prescribe regulations to improve compliance by CMV drivers and motor carriers with HOS requirements and the effectiveness and efficiency of Federal and State enforcement officers reviewing such compliance. Specifically, the Act addresses requirements for supporting documents. The cost of such regulations must be reasonable to drivers and motor carriers. Section 113 of HMTAA describes what elements must be covered in regulation, including a requirement that the regulations specify the “number, type, and frequency of supporting documents that must be retained by the motor carrier” and a minimum retention period of at least 6 months.

Section 113 also requires that regulations “authorize, on a case-by-case basis, self-compliance systems” whereby a motor carrier or a group of motor carriers could propose an alternative system that would ensure compliance with the HOS regulations.

The statute defines “supporting document,” in part, as “any document . . . generated or received by a motor carrier or commercial motor vehicle driver in the normal course of business. . . .” This SNPRM does not propose to require generation of new supporting documents outside the normal course of the motor carrier’s business. The SNPRM addresses supporting documents that a motor carrier would need to maintain consistent with the statutory requirements. The provisions addressing supporting documents are discussed in more detail under Part IX.

### E. MAP–21

Section 32301(b) of the Commercial Motor Vehicle Safety Enhancement Act, enacted as part of MAP–21 (Pub. L. 112–141, 126 Stat. 405, 786–788 (July 6, 2012)), mandated that the Secretary adopt regulations requiring that CMVs involved in interstate commerce, operated by drivers who are required to

keep RODS, be equipped with ELDs.<sup>4</sup> The statute sets out provisions that the regulations must address, including device performance and design standards and certification requirements. In adopting regulations, the Agency must consider how the need for supporting documents might be reduced, to the extent data is captured on an ELD, without diminishing HOS enforcement. The statute also addresses privacy protection and use of data. Like the Truck and Bus Safety and Regulatory Reform Act, the amendments in MAP-21 section 32301(b) require the regulations to “ensur[e] that an electronic logging device is not used to harass a vehicle operator.” Finally, as noted above, MAP-21 amended the 1984 Act to add new 49 U.S.C. 31136(a)(5), requiring that FMCSA regulations address coercion of drivers as discussed above.

## V. Background

### A. ELDs: Discussion of the 2010 Final Rule and the 2011 NPRM

#### 1. April 2010 Rule

On April 5, 2010, the Agency issued a final rule (April 2010 rule) that addressed the limited, remedial use of electronic on-board recorders or EOBRs—now termed “ELDs”—for motor carriers with significant HOS violations (75 FR 17208).<sup>5</sup> The rule also contained new performance standards for all ELDs installed in CMVs manufactured on or after June 4, 2012. These standards reflected the significant advances in recording and communications technologies that had occurred since the introduction of the first AOBRDs under a waiver program in 1985 and the publication of 49 CFR 395.15 in 1988 (53 FR 38666). FMCSA would have required ELDs:

- To be integrally synchronized to the engine.
- To provide the same basic information as is required on an AOBRD, including the identity of the driver, the USDOT number, and the CMV’s identification.
- To record the distance traveled and the driver’s duty status.

- To automatically record the date, time, and location of the CMV at each change of duty status and at intervals of no greater than 60 minutes while the CMV was in motion.

- To ensure the security and integrity of the recorded data by conforming to specific information processing standards.

- To meet certain communications interface requirements for hardwired and wireless transfer of information.

- To allow drivers to annotate the ELD record while requiring the ELD or its support system to maintain the original recorded information and track the annotations.

- To be resistant to tampering by protecting both input and output. It would have identified any amendments or annotations of the record, including who made them and when.

- To provide a digital file in a specified format for use by enforcement officials that could be read using non-proprietary software. This would have included the ability to generate a graph-grid on an enforcement official’s computer, rather than on the ELD itself.

- To provide certain self-tests and self-monitoring. It would have identified sensor failures and edited or annotated data. The ELD would also have provided a notification 30 minutes before the driver reached the daily on duty and driving limits.

*Remedial directive.* If a motor carrier were found, during a single compliance review, to have a 10-percent violation rate for any HOS regulation listed in rescinded appendix C of 49 CFR part 385, the 2010 rule would have required motor carriers to install, use, and maintain ELDs on all of the motor carrier’s CMVs for a period of 2 years. By focusing on the most severe violations and the most chronic violators, the Agency sought to achieve the greatest safety benefit by adopting a mandatory installation trigger designed to single out motor carriers that demonstrated poor compliance with the HOS regulations.

*Incentives to promote the voluntary use of ELDs.* In order to increase the number of motor carriers using ELDs in place of paper RODS, the April 2010 rule would have provided incentives for voluntary adoption. The incentives would have included eliminating the requirement to maintain supporting documents related to driving time. Instead, the ELD would record and make available that information. Additionally, if a compliance review of a motor carrier who voluntarily used ELDs showed a 10 percent or higher violation rate based on the initial focused sample, the 2010 rule would

have provided that FMCSA assess a random sample of the motor carrier’s overall HOS records. The HOS part of the safety rating would have been based on this random review. Given that the use of ELDs would be required for most drivers currently required to prepare RODS, today’s SNPRM does not propose any incentives for ELD use.

#### 2. February 2011 NPRM

On February 1, 2011, FMCSA proposed to expand the electronic logging requirements to a much broader population of motor carriers (76 FR 5537). Subject to a limited exception for drivers who would need to keep RODS on an infrequent basis, all motor carriers currently required to document their drivers’ HOS with RODS would have been required to use ELDs meeting the requirements of the April 2010 rule on CMVs manufactured on or after June 1, 2012. Furthermore, within 3 years of the rule’s effective date, motor carriers would have been required to install and use ELDs meeting these technical requirements on CMVs operated by drivers required to keep RODS, subject to a limited exception, regardless of the date of the CMV’s manufacture.

The 2011 NPRM did not alter the ELD technical specifications contained in the April 2010 rule. FMCSA also proposed to address in regulation the requirement that motor carriers—both RODS and timecard users—systematically monitor their drivers’ compliance with the HOS requirements. While this requirement is not novel (see *In the Matter of Stricklin Trucking Co., Inc., Order on Reconsideration* (March 20, 2012)<sup>6</sup>), the proposed rule would have added a specific requirement to part 395 that motor carriers have in place an HOS management system. The Agency proposed to clarify the supporting documents requirements for motor carriers using ELDs by requiring retention of categories of documents and eliminating the need to maintain supporting documents to verify driving time.

#### 3. March 2011 Extension of Comment Period

FMCSA received two requests for extensions of the comment period. The Agency granted these requests and extended the comment period in a notice published on March 10, 2011 (76 FR 13121).

<sup>4</sup> In today’s SNPRM, the term “electronic logging device (ELD)” is substituted for the term “electronic on-board recorder (EOBR),” which was used in the April 2010 final rule and February 2011 NPRM, in order to be consistent with the term used in MAP-21. In this SNPRM, we use the term ELD both generically and specifically. Generically, we use it to describe what has in the past been called an ELD, an EOBR, or a fleet management system (FMS). In referring to the proposed regulation, we use the term specifically to mean a device or technology that complies with proposed subpart B of part 395.

<sup>5</sup> All the documents related to the April 2010 rule can be found in docket FMCSA-2004-18940.

<sup>6</sup> Available in Docket FMCSA-2011-0127, <http://www.regulations.gov> (Document No. FMCSA-2011-0127-0013).

#### 4. April 2011 Notice Requesting Additional Comment on Harassment

In June 2010, the Owner-Operator Independent Drivers Association (OOIDA) filed a petition in the United States Court of Appeals for the Seventh Circuit seeking review of the April 2010 rule (*Owner-Operator Indep. Drivers Ass'n v. Fed. Motor Carrier Safety Admin.*, 656 F.3d 580 (7th Cir. 2011)), in the docket for this rulemaking. OOIDA raised several concerns, including the potential use of ELDs by motor carriers to harass drivers. Oral arguments were held on February 7, 2011, shortly after publication of the February 2011 NPRM. Due to the concurrent litigation on the 2010 final rule, FMCSA supplemented the request for public comments on the 2011 NPRM by publishing a notice on April 13, 2011, seeking comments on the topic of harassment (76 FR 20611).

#### 5. August 2011 Seventh Circuit Decision

On August 26, 2011, the Seventh Circuit vacated the entire April 2010 rule. The court held that, contrary to a statutory requirement, the Agency failed to address the issue of driver harassment.<sup>7</sup>

#### 6. February 2012 Notice of Intent To Publish an SNPRM

On February 13, 2012, FMCSA announced its intent to move forward with an SNPRM on ELDs to propose technical standards, address driver harassment issues, and propose revised requirements on HOS supporting documents (77 FR 7562). Additionally, the Agency stated it would hold public listening sessions and task the MCSAC to make recommendations related to the proposed rulemaking. FMCSA has initiated a survey of drivers, as well as motor carriers, concerning the potential for the use of electronic logging to result in harassment (Notice published May 28, 2013, (78 FR 32001)).

<sup>7</sup> 656 F.3d 580, 589. At the time of the court's decision, 49 U.S.C. 31137(a) read as follows: "Use of Monitoring Devices.—If the Secretary of Transportation prescribes a regulation about the use of monitoring devices on commercial motor vehicles to increase compliance by operators of the vehicles with hours of service regulations of the Secretary, the regulation shall ensure that the devices are not used to harass vehicle operators. However, the devices may be used to monitor productivity of the operators." MAP-21 revised section 31137 and no longer expressly refers to "productivity." However, FMCSA believes that, as long as an action by a motor carrier does not constitute harassment that would be prohibited under this rulemaking, a carrier may legitimately use the devices to improve productivity or for other appropriate business practices.

#### 7. May 2012 Withdrawal of the April 2010 Rule

On May 14, 2012, FMCSA published a final rule (77 FR 28448) to rescind both the April 5, 2010, final rule (75 FR 17208) and subsequent corrections and modifications to the technical specifications (September 13, 2010, 75 FR 55488), in response to the Seventh Circuit's decision.

#### 8. Results of the Vacatur; Subsequent Developments

As a result of the Seventh Circuit's vacatur, the technical specifications that were one of the bases of the 2011 NPRM were rescinded. Because the requirements for AOBRDs were not affected by the Seventh Circuit's decision, motor carriers relying on electronic devices to monitor HOS compliance are currently governed by the Agency's rules regarding the use of AOBRDs in 49 CFR 395.15, originally published in 1988. There are no new standards currently in effect to replace these dated technical specifications. Furthermore, because the entire rule was vacated, FMCSA was unable to grant relief from supporting document requirements to motor carriers voluntarily using ELDs.<sup>8</sup>

In response to the vacatur of the 2010 final rule, recommendations from the MCSAC, and the enactment of MAP-21, FMCSA now proposes new technical standards for ELDs. The Agency also proposes new requirements for supporting documents and ways to ensure that ELDs are not used to harass vehicle operators.

#### 9. MCSAC Meetings

*Technical specifications.* In response to industry and enforcement concern over the technical implementation of the April 2010 final rule, FMCSA held a public meeting on May 31, 2011, and later engaged the MCSAC to assist in developing technical specifications for ELDs. The scope of this task was limited because of the planned June 2012 implementation date for the April 2010 final rule.

At the June 20–22, 2011, MCSAC meeting, FMCSA announced task 11–04, titled "Electronic On-Board Recorders Communications Protocols, Security, Interfaces, and Display of Hours-of-Service Data During Driver/Vehicle Inspections and Safety Investigations." FMCSA tasked the MCSAC to clarify

<sup>8</sup> The Agency's June 2010 guidance, "Policy on the Retention of Supporting Documents and the Use of Electronic Mobile Communication/Tracking Technology," which granted certain motor carriers limited relief from the requirement to maintain certain supporting documents, was not affected by the Seventh Circuit decision.

"the functionality of Part 395 communications standards relating to [ELD] data files." The MCSAC was asked to make recommendations to FMCSA concerning data communication and display technologies with input from stakeholders, including law enforcement, the motor carrier industry, FMCSA information technology/security experts, and technical product manufacturers. A MCSAC Technical Subcommittee was formed to advise the committee at large. The subcommittee met numerous times in late 2011. The MCSAC also held public meetings on August 30–31 and December 5–6, 2011, to discuss the subcommittee's recommendations (76 FR 62496, Oct. 7, 2011).

The Seventh Circuit's August 2011 decision to vacate the April 2010 final rule changed the nature of the MCSAC's report. Instead of presenting comments and recommended changes to the April 2010 final rule regulatory text, the report proposed a new regulation using vacated § 395.16 as the template. The report was delivered to the FMCSA Administrator on December 16, 2011.

*Harassment.* On February 7–8, 2012, the MCSAC considered task 12–01, "Measures To Ensure Electronic On-Board Recorders Are Not Used To Harass Commercial Motor Vehicle Operators." FMCSA tasked the MCSAC to consider a long list of questions concerning the topic of potential harassment as it could stem from the use of ELDs.

Among other issues, the committee asked what constitutes driver harassment and whether electronic HOS recording would change the nature of driver harassment. The MCSAC considered whether ELDs would make drivers vulnerable to harassment or if they might make drivers less susceptible to harassment. The MCSAC asked what types of harassment drivers experience currently, how frequently, and to what extent this harassment happens. The MCSAC also considered the experience motor carriers and drivers have had with carriers currently using ELDs in terms of their effect on driver harassment. The report on harassment was delivered to the FMCSA Administrator on February 8, 2012. The harassment provisions in today's SNPRM respond to many of the MCSAC recommendations in that report.

These meetings, like all MCSAC meetings, were open to the public, and had a public comment component at the end of every day's session. Additional information about both of these tasks and the MCSAC recommendations can

be found at <http://mcsac.fmcsa.dot.gov/meeting.htm>.

#### 10. Public Listening Sessions on Harassment

FMCSA held two public listening sessions focusing on the issue of harassment, subsequent to the Seventh Circuit decision. The first session was in Louisville, Kentucky, on March 23, 2012, at the Mid-America Truck Show; and the second session was in Bellevue, Washington, on April 26, 2012, at the Commercial Vehicle Safety Alliance (CVSA) Workshop. Transcripts of both sessions are available in the docket for this rulemaking, and the Web casts are archived and available at <http://www.tvworldwide.com/events/dot/120323/> and <http://www.tvworldwide.com/events/dot/120426/>, respectively (last accessed May 30, 2013).

#### 11. Regulation Room

DOT enhanced effective public involvement regarding the NPRM by using the Cornell eRulemaking Initiative called "Regulation Room." Regulation Room is not an official DOT Web site; therefore, a summary of discussions introduced in Regulation Room was prepared collaboratively on the site and submitted to DOT as a public comment to the docket. Regulation Room commenters were informed that they could also submit individual comments to the rulemaking docket.<sup>9</sup> Although the comment period has closed, the comments submitted to Regulation Room, as well as the discussion summary, are publicly available through the Regulation Room Web site, <http://regulationroom.org/eobr> (last accessed March 6, 2013).

#### 12. Comments to the 2011 NPRM

FMCSA will address comments submitted in response to the February 2011 NPRM (76 FR 5537) as part of a final rule to the extent such comments are relevant, given the significant intervening events that have occurred since publication of that document and today's SNPRM. Because the proposed regulatory text in today's SNPRM supersedes that in the 2011 NPRM and because of the significance of the changes, FMCSA invites comments on the complete proposal.

#### B. History of the Supporting Documents Rule

A supporting document is a paper or electronic document that a motor carrier generates or receives in the normal

course of business that motor carriers or enforcement officials can use in verifying drivers' HOS compliance.<sup>10</sup>

A fundamental principle of the FMCSRs, stated in 49 CFR 390.11, is that a motor carrier has the duty to require its drivers to comply with the FMCSRs, including the HOS requirements. Current Federal HOS regulations (49 CFR Part 395) limit the number of hours a CMV driver may drive and work. With certain exceptions,<sup>11</sup> motor carriers and drivers are required by 49 CFR 395.8 to use RODS to track driving, on-duty not driving (ODND), sleeper berth, and off duty time. FMCSA and State enforcement personnel use these RODS, in combination with supporting documents and other information, to ensure compliance with the HOS rules. Motor carriers have historically required their drivers—as a condition of employment, for reimbursement, and other business purposes—to provide to the motor carriers supporting documents, such as fuel receipts, toll receipts, bills of lading, and repair invoices. Motor carriers can compare these documents to drivers' entries on the paper RODS to verify the accuracy of the RODS. The FMCSRs require motor carriers to retain all supporting documents, generated in the ordinary course of business, as well as the paper and electronic RODS, for a period of 6 months from the date of receipt (49 CFR 395.8(k)(1)).

Although the FMCSRs have always required a "remarks" section to augment the duty status information contained in the RODS document, it was not until January 1983 that the use of supporting documents was explicitly required (47 FR 53383, Nov. 26, 1982). The rule did not define the term "supporting documents," and questions arose concerning what motor carriers were expected to retain. To resolve several questions, regulatory guidance was published in 1993 and 1997 (November 17, 1993, 58 FR 60734; April 4, 1997, 62 FR 16370, 16425).

In 1994, Congress directed that 49 CFR Part 395 be amended to improve driver and motor carrier compliance with the HOS regulations (section 113 of the HMTAA, Pub. Law 103–311, sec. 113, 108 Stat. 1673, 1676–1677 (August 26, 1994)). Congress defined supporting documents in a manner nearly identical to the Agency's regulatory guidance:

<sup>10</sup> This section briefly summarizes the history of supporting document requirements. For an extensive discussion of the history of the supporting documents requirements, please refer to the February 1, 2011, NPRM (76 FR 5541).

<sup>11</sup> These exceptions are set forth in 49 CFR 390.3(f) and 395.1.

"For purposes of this section, a supporting document is any document that is generated or received by a motor carrier or commercial motor vehicle driver in the normal course of business that could be used, as produced or with additional identifying information, to verify the accuracy of a driver's record of duty status." (Id.)

In response to section 113(a) of HMTAA, the Federal Highway Administration (FHWA), FMCSA's predecessor agency, published an NPRM on supporting documents on April 20, 1998 (63 FR 19457). The FMCSA included further proposals on supporting documents in its proposed rule on HOS published May 2, 2000 (65 FR 25540). On November 3, 2004, FMCSA published an SNPRM proposing language to clarify the duties of motor carriers and drivers with respect to supporting documents and requesting further comments on the issue (69 FR 63997). However, the Agency discovered a long-standing error that had caused it to significantly underestimate the information collection burden attributable to the 2004 SNPRM, and FMCSA therefore withdrew the SNPRM on October 25, 2007 (72 FR 60614).

On January 15, 2010, the American Trucking Associations (ATA) filed a petition for a writ of mandamus in the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Cir. No. 10–1009). ATA petitioned the court to direct FMCSA to issue an NPRM on supporting documents in conformance with section 113 of HMTAA within 60 days after the issuance of the writ and a final rule within 6 months after the issuance of the NPRM. The court granted the petition for writ of mandamus on September 30, 2010, ordering FMCSA to issue an NPRM on the supporting document regulations by December 30, 2010.

FMCSA issued guidance on HOS supporting documents and use of electronic mobile communications/tracking technology on June 10, 2010 (75 FR 32984). In addition to removing certain documents from the list of supporting documents a motor carrier must maintain, that guidance confirmed the Agency's interpretation that motor carriers are liable for the actions of their employees if they have, or should have, the means by which to detect HOS violations.

The April 2010 final rule had provided relief to motor carriers using ELDs on a voluntary basis from the requirement to maintain supporting documents to verify driving time. Those motor carriers would have needed to maintain only those additional

<sup>9</sup> Because FMCSA has completed this effort, comments to this SNPRM will not be sought to Regulation Room.

supporting documents necessary to verify ODN activities and off duty status (75 FR 17208, at 17212, 17233, and 17234, April 5, 2010). However, as discussed above, the April 2010 rule is no longer in effect.

### C. Concurrent Activities

#### 1. Safety Study

FMCSA is engaging in another action, "Evaluating the Potential Safety Benefits of Electronic Onboard Recorders." The study is an effort to further quantify the safety benefits of ELDs.

#### 2. Coordination With the U.S. Department of Labor

FMCSA has worked with the U.S. Department of Labor to clarify and reinforce the procedures of both agencies, specifically concerning harassment. The Department of Labor administers the whistleblower law enacted as part of the Surface Transportation Assistance Act (49 U.S.C. 31105). Although FMCSA and the U.S. Department of Labor have previously consulted on particular cases or referred drivers to the appropriate agency based on the nature of the

concern, the agencies have been in communication concerning their respective authorities and complaint procedures. Several elements in this SNPRM, including the proposed requirement that all drivers have improved access to their HOS compliance records, should provide drivers with better documentation of situations that they believe constitute harassment and would help their case in the event they file complaints with either Department of Labor or FMCSA.

### D. Table Summary

## TIMELINE OF REGULATORY AND JUDICIAL ACTIONS RELATED TO THIS SNPRM

Title	Type of action, RIN	Citation, date	Synopsis
Electronic On-Board Recorders for Hours-of-Service Compliance.	Final rule, 2126-AA89 .....	75 FR 17208, Apr. 5, 2010	Established new performance standards for EOBRs, required EOBRs to be installed in CMVs for motor carriers that have demonstrated serious noncompliance; set incentives for voluntary usage of EOBRs.
Policy on the Retention of Supporting Documents and the Use of Electronic Mobile Communication/ Tracking Technology in Assessing Motor Carriers' and Commercial Motor Vehicle Drivers' Compliance With the Hours of Service Regulations.	Notice of Regulatory Guidance and Policy Change..	75 FR 32984, June 10, 2010.	Provided notice to the motor carrier industry and the public of regulatory guidance and policy changes regarding the retention of supporting documents and the use of electronic mobile communication/tracking technology in assessing motor carriers' and commercial motor vehicle drivers' compliance with the hours of service regulations.
Electronic On-Board Recorders for Hours-of-Service Compliance.	Final rule; Technical amendments, response to petitions for reconsideration, 2126-AA89.	75 FR 55488, Sept. 13, 2010.	Amended requirements for the temperature range in which EOBRs must be able to operate, and the connector type specified for the Universal Serial Bus (USB) interface.
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	NPRM, 2126-AB20 .....	76 FR 5537, Feb. 1, 2011	Required all motor carriers currently required to maintain RODS for HOS recordkeeping to use EOBRs instead; relied on the technical specifications from the April 2010 final rule, and reduced requirements to retain supporting documents.
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	NPRM; extension of comment period, 2126-AB20.	76 FR 13121, Mar. 10, 2011.	Extended the public comment period for the NPRM from April 4, 2011, to May 23, 2011.
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	Notice; request for additional public comment, 2126-AB20.	76 FR 20611, Apr. 13, 2011.	Expanded the opportunity for the public to comment on the issue of ensuring that EOBRs are not used to harass CMV drivers.
Motor Carrier Safety Advisory Committee (MCSAC) Series of Public Subcommittee Meetings.	Notice of meeting, related to 2126-AA89.	76 FR 38268, June 29, 2011.	Announced series of subcommittee meetings on task 11-04, concerning technical specifications for an EOBR as related to the April 2010 final rule.
Owner-Operator Indep. Drivers Ass'n v. Fed. Motor Carrier Safety Admin..	Judicial Decision, United States Court of Appeals, Seventh Circuit, related to 2126-AA89.	<i>Owner-Operator Indep. Drivers Ass'n v. Fed. Motor Carrier Safety Admin.</i> , 656 F.3d. 580 (7th Cir. 2011), Aug. 26, 2011.	Vacated the April 2010 final rule.
MCSAC: Public Meeting Medical Review Board: Joint Public Meeting With MCSAC.	Notice of meeting, related to 2126-AB20.	77 FR 3546, Jan. 24, 2012	Announced meeting on task 12-01, concerning issues relating to the prevention of harassment of truck and bus drivers through EOBRs.
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	Notice of intent, 2126-AB20.	77 FR 7562, Feb. 13, 2012	Announced FMCSA's intent to go forward with an SNPRM; two public listening sessions; an initial engagement of the MCSAC in this subject matter; a survey of drivers concerning potential for harassment; and a survey for motor carriers and vendors concerning potential for harassment.

## TIMELINE OF REGULATORY AND JUDICIAL ACTIONS RELATED TO THIS SNPRM—Continued

Title	Type of action, RIN	Citation, date	Synopsis
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	Notice of public listening session, 2126–AB20.	77 FR 12231, Feb. 29, 2012.	Announced public listening session held in Louisville, Kentucky on March 23, 2012.
Electronic On-Board Recorders and Hours-of-Service Supporting Documents.	Notice of public listening session, 2126–AB20.	77 FR 19589, Apr. 2, 2012	Announced public listening session held in Bellevue, Washington on April 26, 2012.
Electronic On-Board Recorders for Hours-of-Service Compliance; Removal of Final Rule Vacated by Court.	Final rule, 2126–AB45 .....	77 FR 28448, May 14, 2012.	Responded to a decision of the Court of Appeals for the Seventh Circuit that vacated the April 2010 final rule.

## VI. ELD Performance and Design Specifications

Today's SNPRM proposes new technical standards, replacing those in the vacated April 2010 final rule. It also responds to the specific ELD technical requirements in MAP–21; *see* 49 U.S.C. 31137. Although MAP–21 requires that an ELD “accurately record commercial driver [HOS],” there is no current technology that can automatically differentiate between a driver's ODND status versus off duty or sleeper berth status. An ELD, however, would reduce HOS record falsification, especially for driving time, which would be recorded automatically. ELDs facilitate considerably more accurate recording of non-driving activities through the requirement to provide time, location, engine hours, and odometer reading “snapshots” at each change of duty status.

The ELD record, in combination with a driver's supporting documents, is expected to provide a far more accurate record than paper RODS. The detailed performance and design requirements for ELDs proposed in this SNPRM would ensure that providers would be able to develop compliant devices and systems and that motor carriers could better understand which products are compliant and make informed decisions before acquiring them. The requirements would also provide drivers with effective recordkeeping systems, which would provide them control over and access to their records. The technical specifications would also address statutory requirements pertaining to prevention of harassment, protection of driver privacy, compliance certification procedures, and resistance to tampering. Furthermore, they would establish methods for providing authorized safety officials with drivers' ELD data when required. *See* 49 U.S.C. 31137(a)–(f).

For a 2-year period after the compliance date (4 years after the publication of a final rule) for these technical specifications, AOBRDs as described in current § 395.15, installed before that date, could continue to be used in lieu of ELDs to comply with HOS regulations. At that point, all AOBRD-users would be required to update or replace their devices and systems to bring them into conformance with the new 49 CFR Part 395, subpart B requirements. For more about the transition period proposed for this SNPRM, *see* Part VIII.

### A. Terminology

For the reader's convenience, this section describes terms that are used in today's SNPRM.

#### 1. AOBRD

An AOBRD is a device that meets the requirements of 49 CFR 395.15. As described below, a minimally compliant device would need to be replaced. However, many technologies exist today that currently meet or exceed parts of the standards of this proposed regulation, and could be easily and cheaply made to fit the requirements for an ELD. The Agency refers to these as ELD-like devices. The definition of AOBRDs is set out in 49 CFR 395.2; and Table 6, below, shows a comparison of the different kinds of logging devices.

#### 2. ELD

An ELD is a recording-only technology, used to track the time a CMV is operating. An ELD is integrally connected to the CMV's engine, uses location information, and is tamper-resistant. An ELD automatically tracks CMV movement, but allows for annotations by both the driver and the motor carrier's agent to explain or correct records. An ELD is not necessarily a physical device; it is a technology platform, and may be

portable or implemented within a device not permanently installed on a CMV. The definition of ELD is in a proposed amendment to 49 CFR 395.2; and Table 6, below, shows a comparison of the different kinds of logging devices.

#### 3. ELD Data

FMCSA uses the term “ELD data” to mean each data element captured by an ELD that is compliant with the requirements contained in proposed subpart B of part 395. These data would be available to authorized safety officials during roadside inspections and as part of on-site or other reviews.

#### 4. eRODS Software System

eRODS is the software system that FMCSA is currently developing in conjunction with its State partners. During an inspection, the eRODS software system would receive, analyze, and display ELD data in a way that can be efficiently used by authorized safety officials.

#### 5. FMS

A Fleet Management System (FMS) is an asset tracking and business optimization solution which may also accomplish the ELD functionality. Some of these technologies may have functions such as real-time asset monitoring for fleet efficiency, but these capabilities would not be required by this regulation. FMCSA emphasizes that it does not prohibit the integration of ELD functions into other electronic platforms, such as an FMS, already used on CMVs. FMCSA requires only the use of ELDs.

#### 6. Comparison of AOBRD, EOBR, and ELD Specifications

Table 6, below, shows how AOBRDs, as regulated in 49 CFR 395.15, compare to the specifications for EOBRs, published in the 2010 Final Rule, and the ELDs proposed in *this SNPRM*.

TABLE 6—COMPARISON OF SPECIFICATIONS

Feature/function	1988 AOBDR rule	2010 EOBR final rule	2013 ELD SNPRM
Integral Synchronization	Integral synchronization required, but term not defined in the FMCSRs.	Integral synchronization required, defined to specify signal source internal to the CMV.	Integral synchronization with the CMV engine,* to automatically capture engine power status, vehicle motion status, miles driven, engine hours. * For MY 2000 and later, interfacing with engine ECM.
Recording Location Information.	Required at each change of duty status. Manual or automated.	Require automated entry at each change of duty status and at 60-minute intervals while CMV in motion.	Require automated entry at each change of duty status, at 60-minute intervals while CMV is in motion, at engine-on and engine-off instances, and at beginning and end of personal use and yard moves.
Graph Grid Display .....	Not required—"time and sequence of duty status changes".	Not required on EOBR, digital file to generate graph grid on enforcement official's portable computer.	An ELD must be able to present a graph grid of driver's daily duty status changes either on a display unit or on a printout.
HOS Driver Advisory Messages.	Not addressed .....	Requires notification at least 30 minutes before driver reaches 24-hour and 7/8 day driving and on-duty limits.	HOS limits notification <i>not</i> required. "Unassigned driving time/miles" warning provided upon login.
Device "Default" Duty Status.	Not addressed .....	On-duty not driving when the vehicle is stationary (not moving and the engine is off) 5 minutes or more.	On-duty driving, when CMV has not been in-motion for 5 consecutive minutes, and driver has not responded to an ELD prompt within 1 minute. <i>No other non-driver-initiated status change is allowed.</i>
Clock Time Drift .....	Not addressed .....	Absolute deviation from the time base coordinated to UTC shall not exceed 10 minutes at any time.	ELD time must be synchronized to UTC, absolute deviation must not exceed 10 minutes at any point in time.
Communications Methods.	Not addressed—focused on interface between AOBDR support systems and printers.	<i>Wired:</i> USB 2.0 implementing Mass Storage Class 08H for driverless operation. <i>Wireless:</i> IEEE 802.11g, CMRS .....	<i>Primary:</i> Wireless Webservices or Bluetooth 2.1 or Email (SMTP) or Compliant Printout. <i>Backup Wired/Proximity:</i> USB 2.0* and (Scannable QR codes, or TransferJet*) * Except for "printout alternative."
Resistance to Tampering	AOBDR and support systems, must be, to the maximum extent practical, tamperproof.	Must not permit alteration or erasure of the original information collected concerning the driver's hours of service, or alteration of the source data streams used to provide that information.	An ELD must not permit alteration or erasure of the original information collected concerning the driver's ELD records or alteration of the source data streams used to provide that information. An ELD must support data integrity check functions.
Identification of Sensor Failures and Edited Data.	Must identify sensor failures and edited data.	The device/system must identify sensor failures and edited and annotated data when downloaded or reproduced in printed form.	An ELD must have the capability to monitor its compliance (engine connectivity, timing, positioning, etc.) for detectable malfunctions and data inconsistencies. The ELD must record these occurrences.

## B. ELD Function

### 1. Performance and Design Standards

FMCSA created these proposed technical specifications to be performance-based, so as to accommodate evolving technology and standards, allow for more cost-effective adoption of the technical specifications, and afford ELD providers flexibility to offer compliant products that are innovative and meet the needs of drivers and motor carriers. However, FMCSA does propose specific standard data formats and outputs that ELD providers would need to use to transfer, initialize, or upload data between systems or to authorized safety officials.

FMCSA has placed these performance and design standards into the appendix to proposed subpart B of part 395. This SNPRM also would incorporate by reference a number of established technical standards for sub-functions of

an ELD, all of which are readily available at little to no cost. The use of these industry standards would reduce the cost of producing ELDs that meet the technical standards of a final rule. However, FMCSA emphasizes that there are no industry standards for ELDs.

Functional requirements regarding the communications between a vehicle's engine electronic control module (ECM) and the ELD are included in today's SNPRM. The technical requirements proposed in today's SNPRM would be considerably expanded from those in the vacated April 2010 final rule, and provide detail on processes, including security and tamper resistance.

### 2. Recording

In order to minimize compliance costs, today's SNPRM positions the ELD as a recording-only technology with the ability to transfer data to authorized safety officials. This rulemaking would

not require the ELD to analyze or review driver's RODS data for any purpose, including compliance. It would not require the ELD to provide a warning for a driver who may be reaching HOS violation limits or to address other compliance concerns, although motor carriers and ELD providers are not prohibited from using or building an ELD that does so.

The following data elements would be automatically recorded within the ELD dataset and transferred to authorized safety officials when requested: date, time, CMV location, engine hours, vehicle miles, driver or authenticated user identification data, vehicle identification data, and motor carrier identification data.

*CMV location information.* For an ELD, location measurement would be used primarily to automatically populate CMV position at duty status changes and at intervening intervals.

FMCSA proposes that location information remain a part of the technical specifications for an ELD. Without accurate and verifiable CMV location information, a driver's RODS would not be complete. Furthermore, some of the tamper-resistance measures proposed in the SNPRM would use location information in consistency-check algorithms. FMCSA also believes that intermediate location recordings while the CMV is in motion are important to include in the dataset for verification purposes. With this SNPRM, FMCSA also proposes the precision and availability requirements associated with the automatic positioning services to be used as part of an ELD.

FMCSA no longer proposes requiring the ELDs' dataset exchanged with authorized safety officials to include "place name." Instead, latitude and longitude coordinates would be recorded and transmitted to those officials' portable computers. There the eRODS software would resolve the coordinates into a named place and, as necessary, the distance and direction offset from the named place. An ELD would still need to be able to present location information in understandable terms to the driver and motor carriers to allow them to review and certify records. ELDs that print a graph-grid for authorized safety officials would also require understandable location information. Because latitude and longitude information would not be adequately descriptive for them, FMCSA retains the requirement for ELDs to report geo-location information. The Agency also proposes the incorporation by reference of the American National Standards Institute (ANSI) INCITS 446-2008 document, which includes the "USGS GNIS, where Feature Class = Populated Place" list.

Relying on a performance and design standard, FMCSA would not require the use of the satellite-based global positioning system (GPS) for positioning services. Location codes may be obtained from satellite or land-based sources, or a combination of sources. This SNPRM would require the monitoring of engine hours and odometer readings in addition to automatic recording of location information. Interruptions to GPS or other location services would not prevent CMV movement from being detected by the ELD.

Today's SNPRM proposes revised, more detailed technical specifications for standard location information presentation, using geo-location combined with a nearby reference point,

distance, and direction from that reference.

*Driver or authenticated user identification data.* HOS regulations require unique identification of the driver on the ELD, which implies the inclusion of personally identifiable information (PII). The Agency determined that name and use of a partial driver's license number does not lower the security requirements the Agency must establish for handling of the data. However, use of a partial driver's license number complicates the process due to the States' varying methods for assigning drivers' license numbers. Therefore, the Agency determined that including the entire driver's license number and driver's license issuing State would be necessary to ensure a unique identification of each driver and to attain a sufficient level of tamper resistance for the ELDs by preventing the potential creation of multiple aliases for a single driver within a motor carrier.

*When the ELD records the required dataset.* Today's SNPRM proposes to require the ELD to record the dataset, including geographic information as described above, at 60-minute intervals when the vehicle is in motion, at the time of any duty status change the driver inputs, and when a CMV's engine is powered up or shut down. Further, if a motor carrier has allowed drivers to use a CMV for personal conveyance or yard moves, a driver's indication of the start and end of such occurrences will also record a dataset; these are not indicated as separate duty statuses.

The ELD would record the account logged into the ELD at the time of the recording, including a standard identifier when a driver may not be authenticated.

Because FMCSA will continue to allow use of paper RODS in certain operations and temporarily during ELD malfunctions, retaining the same four duty status categories used for paper RODS is necessary: driving, ODN, off duty, and sleeper berth. However, there are situations where it is necessary to annotate or otherwise flag periods where the CMV is moving as a status other than "on-duty driving," including various covered exceptions under 49 CFR 395.1. FMCSA proposes to add a requirement for the ELD to provide the capability for a driver to indicate the beginning and end of two specific categories, namely, personal use of a CMV and yard moves, as allowed by the motor carrier, where the CMV may be in motion but a driver is not necessarily in a "driving" duty status. This would record the necessary information in a consistent manner for the use of drivers,

motor carriers, and authorized safety officials.

*Personal conveyance.* If a CMV is used for personal conveyance, and the driver uses the ELD to electronically indicate the beginning of the event, the ELD would not record that time as on-duty driving. Today's SNPRM provides for selection of a special driving category when a CMV is being driven but the time is not recorded as on-duty driving. FMCSA does not define a specific threshold of distance or time traveled for a driver to be able to use the personal use provision. FMCSA emphasizes that ELDs are HOS-recording technologies. Authorized motor carrier safety personnel and authorized safety officials would use the ELD data to further explore and determine whether the indicated special category was appropriately used by the driver.

*Integral synchronization.* FMCSA would require integral synchronization for engine information to be shared with the ELD. For example, FMCSA proposes that distance traveled be measured by the odometer indication electronically available on the vehicle databus, the engine control module, or other electronic device, when allowed, which would indicate the total distance traveled from a source internal to the CMV. Today's SNPRM describes the underlying requirements associated with engine synchronization in recording the HOS logs of a driver. The proposal provides sufficient flexibility to accommodate engines on older CMVs. However, FMCSA would like to hear more details from the public on the complexity of compliance with a CMV manufactured on or before 2000.

### 3. Resistance to Tampering

MAP-21 defines "tamper resistant" as "resistant to allowing any individual to cause an [ELD] to record the incorrect date, time, and location for changes to on-duty driving status . . . or to subsequently alter the record created by that device" (49 U.S.C. 31137(f)(2)). FMCSA interprets "tamper" in this context as a deliberate action that results in erroneous data or unauthorized changes to ELD data. Tampering could result in the alteration of hardware, software, or stored data. Because of the variety of potential hardware and software solutions and the lack of any published standards that are followed by ELD-like system providers, FMCSA has chosen to focus on establishing requirements that would address many of the known types of tampering. FMCSA would also require additional data elements that would be

used to identify attempts to falsify or tamper with ELD data.

FMCSA acknowledges that there is a possibility that someone might tamper with ELD systems out of curiosity or to avoid or subvert operational or safety oversight. Like the NPRM, this SNPRM would explicitly prohibit motor carriers and drivers from disabling, deactivating, damaging, jamming, or otherwise blocking or degrading a signal transmission or reception, or otherwise tampering with an AOBRD or ELD so that the device would not accurately record the duty status of a driver (§ 395.8(e)(2)).

FMCSA has increased its tamper resistance performance and design specifications in this SNPRM and would require that all ELDs have standard security features, which include recording data that would help indicate tampering. Motor carrier safety oversight personnel and authorized safety officials would be able to use these indicators to review potential inconsistencies, assess their sources, and estimate their effects. However, complete tamper-proofing is neither possible nor practical. The SNPRM would balance tamper-resistance with the cost-effectiveness of available solutions. If ELDs were required to implement military-level security standards, such requirements would likely increase their complexity and cost, and adversely impact their ease of use.

Each captured record would include a code derived from the data itself at the time of recording that eRODS software would use to determine the authenticity of the information. Additionally, the combination of the vehicle mileage, time record, and location coordinates would increase the difficulty of fabricating data and make it more likely to produce inconsistent data that would be evident to authorized safety officials reviewing the ELD records. In addition to instituting strict account management requirements to ensure every driver has only one ELD profile within a motor carrier, FMCSA would also require the capture of data during CMV movement when no driver has logged into an ELD, to provide authorized safety officials with a complete picture of vehicle movement. Finally, the increased number of data elements from the engine would make creating false data a difficult and time-consuming process, even if someone could find a way to introduce such data into an ELD. None of these controls should dissuade ELD providers from adding additional, appropriate hardware and software controls against tampering.

4. Damaged, Outdated, or Malfunctioning ELDs

FMCSA understands that any devices, systems, or enabling technologies might occasionally fail. This SNPRM contains provisions that would allow drivers to continue to operate a CMV in the event of an ELD failure. Drivers would be required to use paper RODS temporarily while the ELD is inoperative. The driver would be required to give the motor carrier written notice of the failure either electronically, for example, by email, or by some other written means, within 24 hours. Owner-operators who lease on with a motor carrier are generally considered employees under the FMCSRs; thus, they would be required to notify that motor carrier. However, owner-operators who operated independently would need to satisfy requirements applicable to both a motor carrier and driver. One option for these owner-operators would be to record a malfunction by documenting it on a paper log used during the period that their ELD was not functioning. Unless the records were already available, the driver would have to reconstruct the RODS for the current 24-hour period and the previous 7 days. Until the ELD was brought back into compliance, the driver would have to continue to manually prepare RODS.

FMCSA has added more details on failure detection to this SNPRM. In a new table of ELD compliance malfunctions and data diagnostic event codes, FMCSA outlines the proposed listing of malfunction types (Table 4 in the appendix to subpart B of part 395). Proposed new table 4 would require data diagnostics self-testing by ELDs. Table 4 expands the categories of data diagnostic consistency checks and establishes consistency with the compliance malfunction detection strategy outlined in this rule. These malfunctions cover many of the detectable and actionable error types. However, the table is structured in terms of “compliance malfunctions,” which refer to more generalized performance compliance elements of this rule across different types of ELD implementation possibilities.

The SNPRM would require the motor carrier to repair the ELD within 8 days of discovering its condition. However, the SNPRM provides a procedure whereby a motor carrier may request an extension of time from FMCSA to repair, replace, or service an ELD. Unless an extension is granted, if a driver is inspected for HOS compliance during a malfunction, the driver would receive a citation for the malfunctioning ELD, and the driver would have to

provide the authorized safety official with manually prepared RODS for further assessment with respect to HOS regulations.

### C. ELD Regulatory Compliance

#### 1. Certification Process

*Compliance test procedures.* The SNPRM would still propose to require ELDs to be certified by the provider, but FMCSA will develop a standard set of compliance test procedures that providers may use in their certification processes. FMCSA anticipates that industry standards for testing and certification of ELDs may emerge and evolve after the publication of the SNPRM, and such standards may use or build upon the compliance test procedures FMCSA establishes.

ELD providers would not be required to follow FMCSA’s compliance test procedures to certify compliance of their product. Their ELDs, however, would need to meet or exceed the performance requirements proposed in the appendix to subpart B of part 395. FMCSA may subject registered ELDs to FMCSA’s compliance test procedures to independently verify their compliance.

FMCSA stresses that it does not have regulatory authority over system providers. FMCSA is not proposing mandating blanket testing and certification criteria, because allowing ELD providers flexibility to meet or exceed the performance requirements of these criteria is consistent with other DOT regulations and would be as effective as existing DOT regulations. FMCSA will continue to monitor the testing and certification activities and may issue guidance on test standards at a future date.

*Registration and Web site.* This SNPRM would require certified ELDs to be registered with FMCSA, and would require motor carriers to use only those ELDs listed on FMCSA’s Web site. FMCSA expects this process to inform motor carriers of all available options through a single resource. FMCSA anticipates ELD providers will be able to meet industry demands in advance of the rule’s compliance date. However, FMCSA seeks comment and information about providers’ ability to meet industry demand.

*Third-party certification.* This SNPRM is not proposing that certification be completed by a third party. While the certification process would not prohibit the use of a third-party testing service, the ELD provider would be the responsible certifying entity. Although not proposed in this SNPRM, FMCSA is seeking information on, and may consider using, a third-party

certification process whereby all ELDs would have to be independently tested, validated, certified, and stamped for listing by, for example, a nationally recognized testing laboratory. The Agency believes that such a requirement would increase costs to the motor carrier industry, but in the absence of robust standards for testing and validation for ELD-like systems in the marketplace today, the Agency was unable to clearly quantify such costs and project their potential impact on the rule's implementation. FMCSA believes that such a process may emerge by market demand even in the absence of a regulation, and this SNPRM does not prohibit such third-party certification. FMCSA requests public comment on industry's preference on a potential third-party certification requirement.

**Original equipment manufacturers.** FMCSA recognizes that, in some cases, ELDs will be made available by the original equipment manufacturers on new CMVs. Many original equipment manufacturers have announced that they are installing, or have plans to install, multifunctional terminals in the instrument panel of some models of CMVs. This would offer a more "application ready" interface for motor carriers, allowing them to use a variety of productivity, safety, and telematics applications. However, the fact that original equipment manufacturers offer those terminals—and the ability of CMV operators to take delivery of CMVs with those terminals installed—does not imply that original equipment manufacturers are subject to ELD regulations, nor that the terminals, by themselves, comply with the definition of ELDs.

This SNPRM would not regulate original equipment manufacturers; that responsibility has been delegated to NHTSA (49 U.S.C. 30111; 49 CFR 1.95(a)). FMCSA may not regulate "the manufacture of commercial motor vehicles for any purpose" under the safety regulation provisions of 49 U.S.C. chapter 311 (49 U.S.C. 31147(b)). The proposed regulations do not distinguish between original equipment manufacturers that install in-cab computer terminals that have ELD capacity and aftermarket providers of ELDs. ELDs installed at the time of vehicle manufacture are currently supplied by ELD providers. Regardless of the manufacturer or integrator of an ELD, a motor carrier may only use an ELD that has been certified and registered with FMCSA.

## 2. User Requirements

**Data entry when the CMV is moving.** The current AOBRD regulation allows

minimal keystroke sequences to be used while the CMV is in motion. This was done to allow drivers to note State-line crossings because AOBRD data is used for fuel tax reporting purposes.

Improved geographic-location technology renders this unnecessary. Today's SNPRM would eliminate the ability of a driver to enter information into an ELD while the vehicle is in motion. An ELD must not allow a driver to access it unless the CMV is stopped.

**Editing and annotating RODS.** FMCSA would take the "ship's log" approach to records. Once a record has been created using the ELD, it must not be erased and driving-time records must not be changed. However, editing a record does not erase the original data captured by the ELD, and records may be edited or annotated to correct inaccuracies or errors. Driving time may not be changed.

As proposed by this SNPRM, both the driver and the motor carrier would need to ensure that the ELD records are accurate. A driver may edit, enter missing information, or annotate the record. The motor carrier may propose changes to the driver. The driver would need to confirm or reject any change, edit the record, then re-certify the record, in order for the motor carrier's proposed change to take effect. This would preserve the driver's responsibility for the driver's records.

**Entering false information.** The 2011 NPRM prohibited entering false information in the ELD, subject to the same penalties as the current regulations apply to instances of falsifying RODS. This SNPRM proposes to retain and expand upon this prohibition.

Although some individuals will attempt to enter false or inaccurate information on ODND time, the possibility of some cheating does not negate the anticipated overall effectiveness of this SNPRM. The Agency is not aware of any reliable sensing technologies that can automatically differentiate between the various non-driving statuses without an unacceptable loss of privacy. ELDs, however, would dramatically reduce HOS record falsification for driving time, which would be recorded automatically, and thus would decrease the level of falsification among HOS records as a whole.

## 3. Enforcement Procedure and Transmitting Data

ELD data would need to be transferred to authorized safety officials at a motor carrier's facility or as part of a roadside inspection or review. Today's SNPRM would provide flexibility by allowing

various options for the transfer of data, while ensuring a driver's privacy would be protected. Based on States' capabilities, FMCSA proposes alternatives for compliance with the use of primary and backup transfer mechanisms.

ELDs would need to incorporate a standardized, single-step, driver interface for the transfer of data to an authorized safety official at roadside. Under this proposal, the enforcement officer would be able to read the ELD data without entering the CMV. The uniform process for the transfer of data would allow standardized review of ELD data by authorized safety officials using eRODS software.

FMCSA currently requires AOBRDs to display the time and sequence of duty status entries, and today's SNPRM proposes the same requirement for ELDs. This SNPRM would require an ELD to provide graph-grids for the current 24-hour period and the previous 7 days, either on a display or on a printout.

FMCSA considered the option to require all ELDs to produce printouts and includes the cost-benefit analysis for this option in the RIA that supports this SNPRM. Such a broad mandate would be comparatively costly to the industry. FMCSA is, therefore, proposing to allow printing as an acceptable form of compliance for ELDs during roadside inspections, but would not require all ELDs to provide printouts. FMCSA also considered regulating details of a compliant ELD screen specification, but decided that this approach would both increase the cost of ELDs and limit innovative solutions, without markedly increasing benefits. In this SNPRM, FMCSA more generally refers to the functional information presentation requirements instead of listing specific screen requirements.

## 4. ELD Specifications To Protect Privacy

The primary Federal statute addressing protection of an individual's PII is the Privacy Act of 1974, as amended (5 U.S.C. 552a). This Act applies to information maintained in a "system of records"—a group of any records under control of the Agency from which information may be retrieved by an individual's name or by some identifying number, symbol, or other identifying particular assigned to an individual. MAP-21 requires that FMCSA "include such measures as [FMCSA] determines are necessary to protect the privacy of each individual whose personal data is contained in an [ELD]." See 49 U.S.C. 31137(d)(2). FMCSA would limit the collection of PII to the driver's name, driver's license

number, location, the co-driver's name, and names of other users of the ELD. Additionally, information provided in driver annotations may contain PII.

To protect the privacy of drivers using ELDs, FMCSA would require a variety of controls. Both drivers and motor carrier support personnel would have to possess proper user authentication credentials (e.g., username and password) to access ELD data. For location information, FMCSA would also limit the detail of captured coordinates to two decimal places and require accuracy only to a radius of approximately 1 mile. Furthermore, when a driver indicates personal use of a CMV on the ELD, recording accuracy for position information would be further reduced to a single decimal place, resulting in an accuracy equivalent to a radius of approximately 10 miles. Finally, as explained in the data transfer section, FMCSA would require data transferred to authorized safety officials to be encrypted or, in the case of a display or print-out, physically protected, reducing the likelihood of the unauthorized capture of ELD data. This requirement addresses the protection of personal data consistent with requirements of MAP-21, 49 U.S.C. 31137(e)(2).

In support of its safety mission, FMCSA has been delegated broad authority to prescribe recordkeeping and reporting requirements (49 U.S.C. 31133(a)(8); 49 CFR 1.87(f)). However, in MAP-21, Congress restricted the way ELD data might be used. Specifically, the statute provides that the Agency "may utilize information contained in an electronic logging device only to enforce. . . motor carrier safety and related regulations, including record-of-duty status regulations" (49 U.S.C. 31137(e)(1)). Furthermore, appropriate measures must be instituted "to ensure any information collected by electronic logging devices is used by enforcement personnel only for the purpose of determining compliance with hours of service requirements" (49 U.S.C. 31137(e)(3)). As explained in the accompanying conference committee report, Congress intended that such data "be used only to enforce federal regulations" (H. Rep. No. 112-557, at 607 (2012)).

FMCSA reads these ELD data-use restrictions in the context of the regulatory structure and longstanding HOS enforcement practices in existence at the time MAP-21 was adopted, and the Agency does not infer from the provisions any congressional intent to diminish the Agency's previous enforcement capabilities. MAP-21 effectively directs the Agency to

substitute the paper RODS requirement with a requirement that the same motor carriers use ELDs. While the primary purpose of drivers' RODS has always been the enforcement of the HOS rules, authorized safety officials use drivers' logs also for additional evidentiary purposes. However, the Agency's HOS regulations apply only to drivers operating in interstate commerce, and the Agency has often relied on drivers' logs to demonstrate interstate commerce as an element of FMCSA jurisdiction. Logs are also used to identify the driver, a function specifically required by 49 U.S.C. 31137(b)(2)(D) and inherent in enforcement of HOS requirements. Once established for purposes of determining compliance with the HOS requirements, such a legally essential predicate fact becomes the law in the case. The established fact may then supply an element of proof of non-HOS violations. FMCSA believes this is a reasonable interpretation of sec. 31137(e), given the Agency's historical multipurpose use of the logbook, which Congress intends to displace through mandatory ELD use, and in light of the reference to the enforcement of "related regulations" in sec. 31137(e)(1).

Although MAP-21 restricts the manner in which FMCSA may use ELD data, the Agency also believes that such data could be employed in future research efforts relating to HOS compliance and highway safety, as this research may ultimately improve compliance with HOS requirements. Although this option is available to the Agency, consistent with current practice, such data would not be retained absent a violation. For more information concerning how FMCSA would use ELD data, please see the Privacy Impact Assessment associated with this rulemaking. In the event that FMCSA elects to retain such data in connection with a future research effort, the Agency would give the public advance notice of its decision.

#### 5. ELD Specifications To Protect Against Harassment

In prescribing regulations on the use of ELDs, the Agency is required by statute to ensure that ELDs are "not used to harass a vehicle operator" (49 U.S.C. 31137(a)(2)). The Agency proposes both procedural and technical provisions to protect drivers of CMVs from harassment resulting from information generated by ELDs. As voiced during public listening sessions and stated in previous comment submissions, drivers' primary harassment-related complaints focused on pressures from motor carriers to break the HOS rules. Not every type of

complaint suggested a technical solution. However, 49 CFR 392.3 prohibits a motor carrier from requiring the driver to drive while ill or fatigued. Proposed § 390.36 prohibits harassment of drivers through the use of data available through an ELD or related technology. Furthermore, in the technical specifications in this SNPRM, the Agency proposes to include several technical requirements aimed, among other things, at protecting the driver from harassment.

The Agency anticipates that some motor carriers would use technology or devices that include both an ELD function and communications function. To protect a driver using such a device from unwelcome communications during rest periods, the proposed rule would require that, if a driver indicates sleeper berth status, the device must either allow the driver to mute or turn down the volume on the communication feature or turn off this feature, or that the device do one of these things automatically.

To protect the driver's data, the rule proposes to require that any changes made by a motor carrier would require the driver's approval. Furthermore, the rule proposes to ensure that a driver has a right to access the driver's ELD data during the period a carrier must keep such records without requesting the data from the motor carrier if those records are on the ELD or can be retrieved through the ELD.<sup>12</sup>

In developing these proposed technical performance requirements, the Agency has taken into account drivers' privacy interests. As explained above, FMCSA would not require vehicle location information to be recorded at the level of precision that could identify street addresses. Further, detailed location information would be required to be recorded only at discrete instances, such as when a driver changes duty status or at 60-minute intervals when the vehicle is in motion. FMCSA believes these privacy protection features also would help ensure that driver harassment does not arise from the use of ELDs.

#### 6. Interoperability

Interoperability refers to the ability of an ELD to share data with ELDs from other systems and providers. FMCSA clarifies that it is proposing technical requirements to facilitate interoperability, principally through the requirement for standardized data

<sup>12</sup> If a driver's records were not available through the ELD, a motor carrier would need to provide the driver with access to and copies of the driver's records, on request.

output formats. FMCSA offers alternative communication interfaces to provide for the transfer of standardized ELD output data to authorized safety officials. This would allow different hardware implementations of ELDs in the market place, so long as the software produces the required data in a specific and consistent format. FMCSA understands that some carriers use more than one provider for HOS and FMS applications, and flexibility provided in the SNPRM would allow ELD providers to use standardized data formats and outputs as necessary to accommodate specific motor carrier needs.

It is FMCSA's belief that output standardization would facilitate voluntary solutions for interoperability for those motor carriers who would need such functions. FMCSA considered requiring full interoperability, but does not propose it in this SNPRM, instead focusing on a minimal compliance standard that includes standardized outputs. FMCSA does not propose full interoperability in this SNPRM because FMCSA believes that there could be additional cost to some vendors by having the government mandate a universal input standard which might create some unevenness among vendors by selecting a certain data format. Additionally, the benefits of such a standard would only be realized by carriers who utilize multiple devices from different vendors.

Though FMCSA is not proposing it, FMCSA would like to know more about the cost and benefits of full interoperability, and request information from the public concerning this topic:

1. Should FMCSA require that every ELD have the capability to import data produced by other makes and brands of ELDs?

2. To what extent would these additional required capabilities for full interoperability increase the cost of the ELDs and the support systems?

3. While full interoperability could lower the cost of switching between ELDs for some motor carriers, are there a large number of motor carriers who operate or plan to operate with ELDs from more than one vendor? How would full interoperability compare to the proposed level of standardized output? If carriers wanted to operate ELDs from more than one vendor, would this be a barrier? Would this issue be impacted by the market-share of the ELD manufacturer?

4. Would motor carriers and individual drivers have broad-based use or need for such capability? Is there a better way to structure standardized output to lower cost or encourage

flexibility without requiring full interoperability?

## VII. Proposed ELD Mandate

Consistent with the requirements of MAP-21, 49 U.S.C. 31137, FMCSA proposes that interstate motor carriers install ELDs in all CMVs operated by drivers who are now required to prepare paper RODS, subject to a limited exception for drivers who are rarely required to keep RODS. If a driver is required to use an ELD, the motor carrier must not require or allow the driver to operate a CMV in interstate commerce without using the device. Drivers engaged in operations that do not require the preparation of RODS may use ELDs to document their compliance with the HOS rules, but are not required to do so. Furthermore, under today's proposal, drivers currently allowed to use timecards could continue to do so under the provisions of 49 CFR 395.1(e).

Drivers who need to use RODS infrequently or intermittently would be allowed to continue using paper RODS, provided they are not required to use RODS more than 8 days in any 30-day period. This proposed provision would accommodate drivers working for motor carriers that keep timecards under 49 CFR 395.1(e)(1) and (2) and who may occasionally operate beyond the parameters of those provisions (for example, by operating outside the specified 100- or 150-air-mile radius). The new threshold of not more than 8 days in any 30-day period would replace the threshold of 2 days out of any 7-day period that was proposed in the February 2011 NPRM in order to provide additional flexibility for this population. The Agency seeks comment on the proposed 8 out of 30-day threshold, how it would impact various segments of the industry, the potential cost savings resulting from this limited exception, and whether a shorter or longer duration would result in a more appropriate balance between the needs of enforcement and carrier flexibility. An eight-day period is the time-frame for current hours-of-service record-keeping requirements. Currently drivers are required to keep the previous seven days' records and the present day's records. Using eight days as the threshold for RODS usage to switch into ELD use keeps this time-frame consistent.

FMCSA evaluated whether ELD usage required by this threshold could reasonably achieve positive net benefits, and concluded that some ELDs fulfill this condition. In addition, vendors have indicated that may produce additional low-cost ELDs that are closer

to the minimally compliant device specifications. See section 6.5 (page 72) of the accompanying RIA for a more detailed discussion.

As with the HOS record-retention provision of § 395.8(k), the period would move with the calendar. For example, a driver who operates beyond the short-haul radius for 8 days in the previous 30-day period would need to use an ELD on the sixth day and any subsequent day when the driver exceeded the short-haul exemption. The 30-day period restarts each day, looking back at the previous 30 days. This is a similar concept to the requirements of 60 hours in 7-day or 70 hours in 8-day limits for on duty time under the HOS regulations.

It is estimated that this proposal would generate benefits that exceed the costs of installing ELDs and the costs associated with increased levels of compliance with the HOS rules. The proposal addresses the segment of the motor carrier industry with the highest safety and HOS compliance gaps. It also acknowledges the operational distinctions between drivers allowed to use timecards under 49 CFR 395.1(e)(1) and (2) exclusively, and the other drivers who would be required to use ELDs. More information concerning the estimated costs and benefits is available in the RIA associated with this rulemaking.

In the 2011 NPRM, the Agency raised a number of issues concerning the scope of the ELD mandate, and today's SNPRM modifies that proposed mandate in some respects. Given the distinction between short-haul and long-haul operations, and the proposed exception for drivers infrequently required to keep RODS, FMCSA is not proposing any additional exceptions addressing specific sectors of the industry, size of operations, or specific types of CMVs at this time. Nor is the Agency any longer proposing to require ELD use by passenger carriers whose drivers are not required to keep RODS, e.g., local operations permitted to rely on timecards under existing 49 CFR 395.1(e)(1). The Agency is also not proposing to include all motor carriers transporting bulk quantities of HM or all carriers subject to part 395 (the "true universal" approach). The estimated compliance costs of the "true universal" approach recommended by NTSB<sup>13</sup> exceed the estimated safety benefits for most short-haul motor carriers; the comprehensive estimated net benefits are negative. The mandated use of ELDs as part of a remedial directive, as in the

<sup>13</sup> NTSB Safety Recommendation H-07-041 issued on December 17, 2007.

vacated April 2010 rule, also is not proposed today. Finally, the Agency is not proposing an exception based on HOS compliance history in today's SNPRM because: (1) It could provide an unfair advantage to motor carriers for whom FMCSA has insufficient data to assess their HOS-related safety status; and (2) the dynamic nature of safety status measurements would present significant challenges to communicating changes in carriers' safety status levels.

## VIII. Proposed Compliance Dates

### A. Effective and Compliance Dates for a Final Rule

#### 1. Technical Specifications

An ELD provider could begin manufacturing ELDs according to the technical specifications of this rulemaking on the effective date of a final rule (30 days after the publication of a final rule in the **Federal Register**). This means that ELDs meeting the requirements of this rulemaking could be both manufactured and used to comply voluntarily with this rule soon after the date of the final rule's publication and establishment of FMCSA's public Web site.

#### 2. ELD Mandate

A driver or motor carrier subject to this proposed regulation would not be required to install or use an ELD until the compliance date (2 years after the effective date of the final rule). However, a motor carrier that required its drivers to use AOBRDs that met the requirements of § 395.15 before the compliance date for the ELD final rule could continue using such devices for 2 years after the rule's compliance date. At that point, a driver subject to the rule would need to use an ELD that met the new specifications. Today's SNPRM would not preclude a driver or motor carrier who chose to voluntarily adopt ELDs in advance of the compliance date from doing so.

#### 3. Supporting Documents

The proposed supporting document requirements in this rulemaking would take effect on the compliance date for the final rule (2 years after the effective date). On that date, the regulatory provisions would supersede the policy on retention of supporting documents and the use of electronic mobile communications/tracking technology issued June 10, 2010 (75 FR 32984).

#### 4. Harassment

Because the harassment provisions are tied to the presence of part 395, subpart B compliant ELDs, there is no specific compliance date. If a driver

worked for a motor carrier that implemented ELDs voluntarily (before the 2-year compliance date), that driver could make a complaint before the ELD compliance date, as noted in Section X, below. However, a driver working for a motor carrier using AOBRDs before the compliance date would be unable to use the complaint process proposed in today's SNPRM until a compliant ELD device was in place. In other words, the harassment language would take effect on the rule's effective date, but, as a practical matter, the provision would be unavailable until an ELD was in use.

The existing avenues to submit complaints remain available to drivers, including the FMCSA complaint process for substantial violations (49 CFR 386.12), the FMCSA National Consumer Complaint Helpdesk, and the complaint process at the U.S. Department of Labor under 49 U.S.C. 31105(b). FMCSA also cooperates with the U.S. Department of Justice in appropriate enforcement cases.

### B. 2-Year Transition Period

The 2011 NPRM proposed a compliance date 3 years after the effective date of the anticipated final rule. Furthermore, motor carriers would have been required to install compliant devices in CMVs manufactured on or after June 4, 2012.

MAP-21, however, requires a compliance date 2 years after publication of a final rule (49 U.S.C. 31137(b)(1)(C)). In implementing the statute, the Agency seeks to balance effective roadside enforcement against the transition costs to motor carriers that installed AOBRDs before the compliance date of the ELD final rule. Thus, the Agency proposes to allow continued use of § 395.15 devices, installed before the compliance date, for 2 years beyond the compliance date. To enhance enforcement, all motor carriers that use RODS—including those who used AOBRDs before the compliance date—would be required to use compliant ELDs by 2 years after the compliance date. The Agency does not propose to require use of ELDs based on a vehicle's manufacture date.

### C. Cost Associated With Replacing AOBRDs

In setting the proposed compliance date, FMCSA considered the costs of replacing voluntarily adopted AOBRDs and addressed those costs in the RIA prepared for this SNPRM. Although the proposed performance specifications for ELDs differ from those published in the April 2010 rule, FMCSA believes that most HOS recording devices and systems manufactured on or after 2010

will be able to comply with this rule with relatively inexpensive software upgrades. To avoid understating costs, FMCSA assumed, however, that all devices and systems manufactured before 2010 would have to be replaced. The compliance date for a final rule that would follow this SNPRM is anticipated to be at the end of the useful life of these devices. FMCSA estimates that annualized costs to all voluntary adopters would be less than \$5 million. The RIA contains more details on how these estimates were derived. FMCSA seeks comments on the assumptions and methodology used.

## IX. Proposed Supporting Document Provisions

Today's SNPRM defines "supporting document" in a manner that generally tracks the definition found in section 113(c) of the HMTAA, i.e., "any document . . . generated or received by a motor carrier . . . in the normal course of business that could be used, as produced or with additional identifying information, to verify the accuracy of a driver's record of duty status." In accordance with HMTAA, sec. 113(b)(2), this SNPRM would limit the supporting documents that a motor carrier must maintain by specifying the number, category, and required elements for a supporting document and, subject to a limited exception, would not require supporting documents that reflect driving time. The reference in the statute to a "commercial motor vehicle driver" is not repeated in today's proposed definition because the specific obligations of the driver are addressed in proposed § 395.11. The supporting document requirements would supersede the June 2010 policy on the retention of supporting documents (75 FR 32984) and would take effect the same date as the ELD compliance date (2 years after the effective date of a final rule).

FMCSA acknowledges that some stakeholders have claimed that the use of ELDs eliminates the need to retain supporting documents. While properly functioning ELDs eliminate the need for supporting documents demonstrating driving time, some supporting documents are still necessary to ensure HOS compliance. In today's SNPRM, FMCSA clearly delineates between the information and data produced by the ELD and what FMCSA considers a supporting document.

FMCSA believes that today's proposal is consistent with both the HMTAA and MAP-21. It balances the need for effective HOS enforcement and the burden on motor carriers to meet their obligation to ensure compliance in a

cost effective manner. It is also consistent with motor carriers' current obligations related to the retention and monitoring of supporting documents.

Among the major changes from the February 2011 NPRM, today's SNPRM would eliminate the former proposals that each motor carrier maintain an HOS Management System and that a motor carrier certify as to the lack of supporting documents showing required elements. Further, today's SNPRM would eliminate the proposal in the 2011 NPRM that a single document, showing the start and end of any ODND period, could satisfy the supporting documents requirement.

#### *A. Applicability*

The motor carrier would need to maintain supporting documents, which are generated or received in the normal course of business, to verify a driver's HOS compliance. The Agency defines "supporting document" to clarify that a document can be "in any medium," that is, either a paper or an electronic document.

The Agency would not require motor carriers to retain supporting documents to verify driving time, because the ELD would capture this information. The Agency's position is that ELDs record driving time more accurately than drivers using paper RODS and supplant the need for paper logs and any supporting documents that would have been generated or received concerning driving time. FMCSA, however, proposes to require motor carriers to retain, for each driver, supporting documents to verify each driver's ODND periods.

The Agency proposes generally to require a single supporting document standard. For drivers who continue to use paper RODS, however, toll receipts would also need to be maintained. An otherwise uniform supporting document requirement will benefit both motor carriers and enforcement personnel by promoting standardized document retention and enforcement practices.

FMCSA's proposal would require motor carriers and CMV drivers to share responsibility for complying with the proposed supporting document requirements. A driver would be required to submit his or her supporting documents to the employing carrier within 8 days. While a driver would not be required to keep all supporting documents in the CMV, a driver would, nonetheless, need to make supporting documents that are in the driver's possession available, on request, during a roadside inspection.

#### *B. Categories*

In today's SNPRM, FMCSA would modify the categories of supporting documents that were proposed in the 2011 NPRM to better accommodate the broad diversity of the motor carrier industry. Specifically, the Agency proposes to alter the number of categories to provide clarification and more detailed descriptions of the supporting documents within each category. For every 24-hour period a driver is on duty, the motor carrier would be required to maintain not more than 10 supporting documents from the following 5 categories:

- Bills of lading, itineraries, schedules, or equivalent documents that indicate the origin and destination of each trip;
  - Dispatch records, trip records, or equivalent documents;
  - Expense receipts;
  - Electronic mobile communication records, reflecting communications transmitted through an FMS for the driver's 24-hour duty day; and
  - Payroll records for the driver's 24-hour duty day, settlement sheets, or equivalent documents that indicate what and how a driver was paid.
- These categories would provide the Agency and motor carriers with the supporting documents necessary to perform their safety oversight functions.

FMCSA acknowledges the view of some stakeholders that supporting documents ought to be limited to a specific, finite list of documents to ease compliance. Given the wide diversity of operations in the CMV industry, however, this approach would not be feasible from an HOS enforcement perspective. The proposed categories are intended to accommodate various sectors of the industry.

#### *C. Data Elements*

In today's SNPRM, FMCSA proposes to clarify the data elements that would need to be included on a document for it to qualify as a supporting document and be counted toward the proposed 10-document retention cap. These proposed elements are: (1) Driver name or carrier-assigned identification number, either on the document or on another document enabling the carrier to link the document to the driver, or the vehicle unit number if that number can be linked to the driver; (2) date; (3) location (including name of nearest city, town, or village); and (4) time. If sufficient documents containing these four data elements were not available, a motor carrier would be required to maintain supporting documents that contain the driver name or motor

carrier-assigned identification number, date, and location.

#### *D. Number*

FMCSA proposes a cap of 10 supporting documents that would need to be maintained for each day a driver is on duty. While a motor carrier may not have 10 supporting documents for a driver's duty day, in establishing a cap, the Agency has attempted to balance the need for adequate enforcement of the HOS regulations against any burden on carrier operations, while applying the requirements of the HMTAA.

To arrive at a total of 10, all electronic mobile communication records involving a driver over the course of the driver's 24-hour period would count as a single document, regardless of the number of individual communications involved. All other types of supporting documents that are relevant to distinct activities—such as a payroll document covering one or several drivers, a bill of lading for a particular delivery, and an expense receipt—would count as individual documents. In instances where there are more than 10 supporting documents available, a motor carrier would need to retain the first and last supporting documents containing an indication of time for each end of a driver's duty day.

The Agency recognizes that, in many cases, fewer than 10 supporting documents would be accumulated for a driver's duty day. If the supporting document cap were not reached, the motor carrier would be required to keep all of the supporting documents for that period. There would be no obligation on a motor carrier to create or annotate documents that it did not otherwise generate or receive in its normal course of business.

#### *E. Submission to Motor Carrier*

In today's SNPRM, FMCSA proposes that a driver who is required to maintain RODS or use an ELD submit supporting documents (and the RODS or the ELD record) to the driver's motor carrier within 8 days of either the 24-hour period to which the documents pertain or the day the document comes into the driver's possession, whichever is later. The SNPRM would extend the time for a driver to submit supporting documents to the motor carrier beyond the 3-day and 1-day periods proposed in the February 2011 NPRM. In addition, unlike the 2011 NPRM, the SNPRM proposes the same submission period for both electronic and paper records: 8 days.

#### F. HOS Enforcement Proceedings

Today's SNPRM does not contain the HOS management system requirement proposed in the 2011 NPRM. Instead, to further HOS enforcement, FMCSA proposes to add procedural provisions that would apply during any proceeding under 49 CFR part 395. Consistent with a motor carrier's existing obligation to require that its drivers comply with the FMCSRs, today's SNPRM would provide that a motor carrier is liable for an employee's act, or failure to act, that violates 49 CFR part 395, provided that the act or omission is within the course of the motor carrier's operations. The burden of proving that the employee was acting outside the scope of the motor carrier's operation would be on the motor carrier. Finally, knowledge of any document, either in a motor carrier's possession or available to the motor carrier, that could be used to ensure compliance with 49 CFR part 395 would be imputed to the motor carrier.

#### G. Carriers Using Paper Logs

Under today's SNPRM, certain drivers who would infrequently need to keep RODS could continue to use paper logs. Any carriers that would be required to maintain supporting documents when their drivers keep paper logs would be required to maintain the same number and types of supporting documents that are required for ELD users. Motor carriers whose drivers use paper logs would also need to maintain toll receipts.

#### H. Self-Compliance Systems

Section 113(b)(4) of the HMTAA requires FMCSA to provide exemptions for qualifying "self-compliance systems," in place of supporting documents retention. In satisfaction of section 113(b)(4), today's SNPRM would add a provision to authorize, on a case-by-case basis, motor carrier self-compliance systems (49 CFR 395.11(h)). Consistent with our 2011 NPRM, under today's SNPRM, a motor carrier could apply for an exemption under existing 49 CFR part 381 provisions for relief from the requirements for retaining supporting documents for RODS. While the authority to exempt self-compliance systems is derived from HMTAA, the Agency relies on existing 49 CFR part 381 provisions to govern exemption requests.

#### X. Ensuring Against Driver Harassment

In accordance with 49 U.S.C. 31137(a)(2), FMCSA proposes both procedural and technical provisions aimed at protecting CMV operators from harassment involving ELDs or

connected technology. The primary focus of the Agency's proposal addresses the problems of: (1) Drivers being pressured to exceed HOS limitations; and (2) inappropriate communications that affect drivers' rest periods. The Agency addresses the related but distinct issue of driver coercion in Part XI, below.

Although the statute provides that regulations relating to ELDs shall "ensur[e] that an electronic logging device is not used to harass a vehicle operator," the Agency notes that it cannot adopt a regulation guaranteeing that every instance and form of harassment, whether real or perceived, is eliminated. Nor does the Agency believe that Congress intended that the Agency interfere with labor/management agreements or disputes not directly related to the required use of ELDs, or duplicate the role Congress has assigned to the U.S. Department of Labor under 49 U.S.C. 31105.

As explained in Part VI of this SNPRM, FMCSA would refine the requirements of an ELD to include only recording functions; anything beyond basic recording of the required data elements would not be required by an ELD. However, the SNPRM would not prohibit motor carriers from employing communication, FMS, and other functions beyond mere recording. Many current systems, which have been on the market for years, go beyond the recording abilities proposed in this SNPRM; and the Agency does not infer from the anti-harassment provision in section 31137(a)(2) a congressional intent that FMCSA ban or impose significant new restrictions on those functionalities in this rulemaking. Therefore, to the extent necessary to address harassment, FMCSA would address use of technology beyond the minimally compliant ELD only if that technology encompassed an ELD function.

##### A. Drivers' Access to Own Records

ELDs meeting the proposed technical requirements in today's SNPRM would help protect drivers from pressures to violate the HOS rules. However, to ensure adequate protection, it is critical that drivers have access to their ELD records. FMCSA proposes to require that drivers be able to obtain copies of their own ELD records available on or through an ELD. On request, a motor carrier must provide its drivers with access to and copies of their ELD records for the 6 months that the motor carrier is required to maintain the records.

#### B. Explicit Prohibition on Harassment

FMCSA proposes to add a new § 390.36 to prohibit a motor carrier from engaging in harassment of a driver. As defined, "harass or harassment" would mean "an action by a motor carrier towards a driver employed by the motor carrier (including an independent contractor while in the course of operating a CMV on behalf of the motor carrier) involving the use of information available through an ELD . . . or through other technology used in combination with and not separate from the ELD, that the motor carrier knew, or should have known, would result in the driver violating § 392.3 or part 395 [of 49 CFR]." This definition recognizes the dire safety consequences that can result when the pressure a motor carrier imposes on a driver results in an HOS violation or in a driver operating when the driver's alertness is impaired through fatigue or illness.

Under today's proposal, however, a driver who believed that a motor carrier required him or her to violate § 392.3 or part 395 in a manner described in the proposed definition could file a complaint alleging harassment with FMCSA.<sup>14</sup>

Although FMCSA's definition of harassment would not require adverse action by the carrier against the driver, it would require an actual violation of § 392.3 or part 395 of the FMCSRs. MAP-21 eliminated the reference to productivity in 49 U.S.C. 31137; however, the Agency would not penalize motor carrier actions aimed at productivity, provided that the action did not constitute harassment as defined in today's proposal.

#### C. Complaint Procedures

The SNPRM proposes to add new §§ 386.12a and 390.36, prescribing a process for filing a harassment complaint. Among other things, the complaint would need to describe the action by the motor carrier that the driver deems harassment, including how the ELD or related technology was used to contribute to the carrier's action. The complaint would also need to identify how the motor carrier's action violated 49 CFR 392.3 or part 395.

The proposals outlined in this SNPRM would give drivers control over their own ELD records and ensure driver access to such records. Furthermore, drivers would be able to annotate their records reflecting concerns such as driver fatigue. These

<sup>14</sup> Currently, drivers can file an informal complaint on any violation of the FMCSRs with FMCSA's National Consumer Complaint Database help desk. This option would not change.

records would provide drivers with better information to substantiate any complaint.

#### *D. Enhanced Penalties To Deter Harassment*

FMCSA proposes a new penalty for a motor carrier that engages in harassment. Because harassment would be considered in cases of alleged HOS violations, the penalty for harassment would supplement the underlying HOS violations of 49 CFR 392.3 and part 395. An underlying violation would have to be found for a penalty for harassment to be assessed. Further, harassment would constitute an acute violation under part 385.

#### *E. Mute Function*

FMCSA acknowledges that some drivers feel their motor carriers inappropriately contact them during rest periods through FMS communication systems—technology frequently used, but not required, as part of a minimally compliant ELD. Thus, if the driver puts the ELD into a sleeper berth status, and, in the case of co-drivers, no other driver has logged into the ELD in an on-duty driving status, the SNPRM specifies that the ELD must automatically mute the ELD's volume, turn off the ELD's audible output, or allow the driver to do so. FMCSA believes this addition is important to allow drivers to obtain adequate rest during sleeper berth periods.

#### *F. Edit Rights*

FMCSA recognizes that some electronic recorders currently in use allow changes to drivers' HOS records by motor carriers or dispatchers without the driver's input. FMCSA proposes to revise the procedures for amendment of electronic records to better protect the integrity of those records and to prevent related instances of driver harassment. In today's SNPRM, the word "edit" means a change to an electronic record that does not overwrite the original record. An example of such a change would be revising a duty status designation from "off duty" to "on-duty not driving." Edits would need to reflect their authorship, and an edit could not convert driving time into non-driving time. In this SNPRM, FMCSA proposes that a driver may edit and the motor carrier may request edits to electronic RODS. Drivers would have a full range of edit abilities and rights over their own records (except for the listed limitations in the rule), while a carrier would be allowed to propose edits for a driver's approval or rejection.

All edits, whether made by a driver or the motor carrier, would have to be

annotated to document the reason for the change. For example, an edit showing time being switched from "off duty" to "on-duty not driving" could be annotated by the carrier to note, "Driver logged training time incorrectly as off duty." This edit and annotation would then be sent to the driver for approval. FMCSA believes this is the most efficient way to capture these data and ensure that HOS violations are not being concealed from either party. FMCSA believes that there are good reasons for both the motor carrier and the driver to be able to view HOS records and understands that there are legitimate reasons that both a motor carrier and a driver might want to edit these records. For example, if a driver were to inadvertently show a 30 minute break as ODN, the record could be annotated to show a mandatory break. It is the Agency's view that these provisions, and additional requirements addressing security of data, would significantly reduce the potential for driver harassment resulting from use of ELDs.

#### *G. Tracking of Vehicle Location*

FMCSA acknowledges that some drivers view the FMS, which often includes ELD functions as well as additional recording capabilities and real-time communication features, as a mechanism for the harassment of drivers or invasion of privacy. Motor carriers counter, however, that companies use this technology to know where their CMVs are at all times and how much time their drivers may continue to operate in compliance with the HOS regulations. The technical specifications in today's SNPRM are intended to address drivers' concerns in terms of the level of data collected for HOS enforcement.

Location recording is a critical component of HOS enforcement. Drivers have always had to record certain location information on paper RODS. Although electronic recording is more accurate, the acquisition of location information for CMV operators is not a novel requirement. Nonetheless, FMCSA does not propose to require real-time tracking of CMVs or the recording of precise location information. Instead, location data would be required to be recorded when the driver changes duty status, when a driver indicates personal use or yard moves, when the CMV engine powers up and shuts down, and at 60-minute intervals when the vehicle is in motion. During on-duty driving periods, FMCSA would limit the location accuracy for HOS enforcement to coordinates of two decimal places, providing an accuracy of approximately a 1-mile radius for

purposes of HOS enforcement. However, when a CMV is operated for personal use, the position reporting accuracy would be even further reduced to an approximate 10-mile radius. Thus, the Agency would not require that an ELD determine or record a CMV's or driver's exact location. Moreover, the SNPRM would not require that the ELD record and transmit any CMV location data in real time, either to the motor carrier or to enforcement officials.

#### *H. FMCSRs Enforcement Proceedings*

MAP-21 requires that the Agency institute appropriate measures to preserve the confidentiality of personal data recorded by an ELD that is disclosed in the course of an FMCSRs enforcement proceeding (49 U.S.C. 31137(e)(2)). To protect data of a personal nature unrelated to business operations, the Agency would redact such information included as part of the administrative record before a document was made available in the public docket.

#### *I. Summary*

In today's SNPRM, FMCSA would provide enhanced procedural protections and remedies intended to protect drivers using ELDs from actions considered harassment. In addition, the proposed technical specifications for the ELD were specifically designed to provide drivers additional protection. By recording the time spent behind the wheel of a CMV accurately, the ELD would make all parties involved aware of the actual time for a driver to make a certain trip. FMCSA believes this increased transparency would lead to reduced pressure on drivers to falsify their RODS. ELDs provide a more reliable and simpler tool for recording drivers' HOS than paper RODS. FMCSA believes the use of ELDs would lead, not only to better compliance with HOS regulations, but also to a clearer understanding of driver schedules. The technical specifications aimed at protecting drivers from harassment are further addressed under Part IV.

#### **XI. MAP-21 Coercion Language**

As a result of section 32911 of MAP-21, FMCSA will publish an NPRM that proposes regulations that would prohibit motor carriers, shippers, receivers, or transportation intermediaries from coercing drivers to operate CMVs in violation of certain provisions of the FMCSRs or the Hazardous Materials Regulations. The coercion NPRM would propose procedures for drivers to report incidents of coercion to FMCSA, rules of practice the Agency would follow in

response to allegations of coercion, and penalties that would be imposed on entities found to have coerced drivers.

The coercion rule will differ from the anti-harassment provisions proposed in this rulemaking. Major differences include that the proposed coercion rule will address shippers, receivers, and transportation intermediaries as well as motor carriers; and its focus is on the loss or potential loss of future business or work. While the term “coercion” will be defined in the coercion rule, today’s SNPRM specifically proposes prohibiting motor carriers from coercing drivers to falsely certify ELD records.

## XII. Section-by-Section Analysis

This SNPRM contains significant changes to the NPRM published February 1, 2011. Today’s proposed regulatory text supersedes the February 2011 NPRM. In light of the vacatur of the April 2010 final rule and the enactment of MAP–21, this SNPRM addresses requirements for technical specifications for ELDs, the use of ELDs, the maintenance of supporting documents, and the potential for harassment of drivers related to ELD technology. This section-by-section analysis describes the revised proposed rule provisions in numerical order.

### A. Part 385—Safety Fitness Procedures

In Section VII of appendix B of part 385, the list of acute and critical regulations would be modified to reflect proposed changes in parts 390 (driver harassment) and 395 (hours of service).

### B. Part 386—Rules of Practice for Motor Carrier, Intermodal Equipment Provider, Broker, Freight Forwarder, and Hazardous Materials Proceedings

#### 1. Section 386.1

This section would be modified to reflect the handling of substantial violations and harassment violations by the appropriate Division Administrator, rather than the Assistant Administrator.

#### 2. Section 386.12

This section would be changed to reflect the handling of substantial violation complaints by the Division Administrator for the State where the incident occurs, rather than the Assistant Administrator. It would prescribe procedures governing these complaints. It would also address how allegations brought to the attention of other officials in the Agency would be handled.

#### 3. Section 386.12a

This section would be added to prescribe procedures for the handling of harassment complaints filed with the

Division Administrator for the State where the incident occurs. It would prescribe the information that a driver would need to include in a written complaint alleging harassment by a motor carrier as well as procedures that the Division Administrator would need to follow in handling complaints. It would also address how allegations brought to the attention of other officials in the Agency would be handled.

#### 4. Appendix B to Part 386

New paragraph (a)(7) would be added to emphasize how the Agency would impose penalties upon a finding of driver harassment.

### C. Part 390—Federal Motor Carrier Safety Regulations; General

FMCSA would add a new § 390.36 to define harassment, prohibit motor carriers from engaging in harassment, and reference the process under which a driver could file a written complaint.

### D. Part 395—Hours of Service of Drivers

Today’s SNPRM would divide part 395 into two subparts. Proposed subpart A, General, would include §§ 395.1 through 395.19. Proposed subpart B, ELDs, would address the design and use of ELDs and would consist of §§ 395.20 through 395.38 and detailed performance specifications applicable to ELDs in the appendix to subpart B.

#### Subpart A—General

##### 1. Section 395.1(e)

This paragraph would be amended to reflect that drivers who qualify to use the short-haul exceptions under 49 CFR 395.1(e)(1) or (2) would not be required to keep supporting documents under proposed § 395.11.

##### 2. Section 395.2

In this section, FMCSA proposes to add the following new definitions.

*Electronic Logging Device (ELD).* FMCSA would add a new definition of “ELD”: A device or technology that meets the requirements of proposed subpart B of part 395.

*Supporting Document.* FMCSA proposes a definition of “supporting document” similar to the definition in the HMTAA. Substantive provisions pertaining to supporting documents are proposed in § 395.11.

##### 3. Section 395.7

This section would add procedural provisions that would apply during any proceeding involving the enforcement of 49 CFR part 395. Specifically, it would provide that a motor carrier would be liable for an employee’s acting or failing to act in a manner that violates part 395

as long as the action was within the course of the motor carrier’s operation. The burden of proving that the employee acted outside the scope of the motor carrier’s operation would be on the motor carrier. Finally, knowledge of any document in the motor carrier’s possession, or available to the motor carrier, that could be used to ensure compliance with part 395 would be imputed to the motor carrier.

#### 4. Section 395.8

This section addresses general requirements for HOS RODS. Subject to limited exceptions, it would require motor carriers to install and use ELDs that comply with the proposed technical specifications no later than 2 years following the rule’s effective date.

Subject to limited exceptions, under paragraph (a)(1), motor carriers would need to require drivers that keep RODS to use ELDs. The rule would allow for continued use of AOBDRs (2-year grandfathering of devices installed prior to compliance date) as well as use of paper RODS by drivers requiring RODS not more than 8 days in a 30-day period after the rule’s compliance date. Paragraph (a)(2) would require drivers to use the recording method required by their motor carrier and to submit their RODS to their carrier within 8 days. The requirement for motor carriers to use ELDs, however, would not apply when an extension is granted by FMCSA to allow a motor carrier to repair, replace, or service one or more malfunctioning ELDs under § 395.34(d).

Paragraph (e) would prohibit a motor carrier or driver from making a false report in connection with duty status and from tampering with, or allowing another person to tamper with, an AOBDR or ELD to prevent it from recording or retaining accurate data.

Paragraph (i), which currently allows submission of records to a motor carrier within 13 days, would be eliminated in light of proposed § 395.8(a)(2)(ii), which would require drivers to submit records to the motor carrier within 8 days.

Paragraph (k)(1) would continue to require a motor carrier to maintain RODS and supporting documents for a 6-month period.

#### 5. Section 395.11

FMCSA would place the detailed requirements concerning supporting documents in § 395.11.

Paragraph (a) provides that the new supporting document provisions would take effect 2 years after the effective date of the final rule. Until this date, the June 2010 policy on the retention of supporting documents and the use of electronic mobile communication/

tracking technology would remain in place (75 FR 32984).

Paragraph (b) would address the drivers' obligation to submit supporting documents to their employers within 8 days. (The term "employer" is defined in § 390.5.)

Paragraph (c) describes five categories of supporting documents generated or received in the normal course of business. These categories would include: (1) Bills of lading, itineraries, schedules, or equivalent documents indicating the origin and destination of a trip; (2) dispatch records, trip records, or equivalent documents; (3) expense receipts related to ODN time; (4) electronic mobile communication records reflecting communications transmitted through an FMS (e.g., text messages, email messages, instant messages, or pre-assigned coded messages); and (5) payroll records, settlement sheets, or equivalent documents reflecting driver payments. Paragraph (c) also would address the data elements that a document must reflect to qualify as a supporting document.

Paragraph (d) generally proposes to require a motor carrier to retain, at most, 10 documents for an individual driver's 24-hour duty day. It also describes how FMCSA would treat electronic mobile communication records in applying the 10-document cap. If a driver were to submit more than 10 documents for a 24-hour period, the motor carrier would need to retain the documents containing earliest and latest time indications. Finally, for drivers that continued to use paper RODS, all toll receipts would also need to be maintained, irrespective of the 10-document requirement. The Agency interprets the reference to "toll receipts" to include electronic records.

Paragraph (e) would require a motor carrier to maintain supporting documents in a way that allows the documents to be matched to a driver's RODS.

Paragraph (f) would prohibit motor carriers and drivers from obscuring, defacing, destroying, mutilating, or altering information in a supporting document.

Paragraph (g) would require that a driver make available, during a roadside inspection, any supporting document in the driver's possession.

Paragraph (h) describes the proposed process for submitting requests for self-compliance systems that FMCSA may authorize on a case-by-case basis, as required by HMTAA.

#### 6. Section 395.15

FMCSA proposes to sunset the authority to use AOBRDs 2 years after

the rule's effective date. However, those motor carriers that have installed AOBRDs prior to the sunset date would be allowed to continue using AOBRDs for an additional 2 years (i.e., up to 4 years after the effective date of the final rule).

#### Subpart B—Electronic Logging Devices (ELDs)

##### 7. Section 395.20

Section 395.20 paragraph (a) would describe the scope of ELDs described in proposed subpart B.

Paragraph (b) would describe the applicability of technical specifications required for ELDs under subpart B, effective 2 years after the rule's effective date.

Paragraph (c) would clarify that, throughout subpart B, the term "ELD" includes an ELD support system, as applicable.

##### 8. Section 395.22

Section 395.22 outlines the proposed responsibilities of the motor carrier related to the ELD.

Paragraph (a) proposes a requirement for motor carriers to use only ELDs registered and certified with FMCSA and listed on the Agency's Web site.

Paragraph (b) outlines the responsibilities of a motor carrier and its support personnel.

Paragraph (c) lists the proposed driver identification data that would be required.

Paragraph (d) details the identification data for motor carrier support personnel.

Paragraph (e) describes the proposed requirement for a motor carrier to require its drivers and support personnel to use the proper log-in process for an ELD.

Paragraph (f) proposes the requirement for a motor carrier to calibrate and maintain ELD systems.

Paragraph (g) proposes requirements for mounting portable ELDs.

Paragraph (h) lists the information a motor carrier would be required to provide to its drivers who are using ELDs in their CMVs.

Paragraph (i) would require a motor carrier to maintain a driver's ELD records so as to protect the driver's privacy in a manner consistent with sound business practices. However, given the diversity of the regulated community and business practices, the Agency declines to require specific record maintenance requirements. It also would require that the motor carrier keep a back-up copy of ELD records in storage.

Paragraph (j) would require a motor carrier to provide 6 months of ELD

records electronically to authorized safety officials as requested during an enforcement activity.

##### 9. Section 395.24

Paragraph (a) would require a driver to provide data as prompted by the ELD and as specified by the motor carrier.

Paragraph (b) lists the duty statuses that a driver may choose from, corresponding to the duty status categories currently listed on paper RODS.

Paragraph (c) lists other data that a driver may sometimes need to enter manually into the ELD, such as annotations, file comments, verification, CMV number, trailer numbers, and shipping numbers, as applicable.

Paragraph (d) would require a driver to produce and transfer the driver's HOS data to an authorized safety official on request.

##### 10. Section 395.26

Paragraph (a) outlines the purpose of the section, namely, to provide an overview of what an ELD accomplishes in accordance with the provisions of the appendix to proposed subpart B of part 395.

Paragraph (b) lists the data elements recorded when an ELD logs an event.

Paragraph (c) describes requirements for data recording during a change of duty status event.

Paragraph (d) describes what an ELD records during an intermediate recording when the CMV is in motion and there has been no change of duty status entered into the ELD and no other intermediate status recorded in an hour.

Paragraph (e) describes what an ELD records when a driver selects a special driving category, i.e., personal use or yard moves.

Paragraph (f) describes what an ELD records when a driver certifies a daily log.

Paragraph (g) describes what an ELD records when there is a login/logoff event.

Paragraph (h) describes what happens when the CMV's engine powers on or off.

Paragraph (i) describes the recording of location information during authorized personal use of a CMV.

Paragraph (j) describes what happens in the case of an ELD malfunction event.

##### 11. Section 395.28

Paragraph (a) lists special driving categories and explains that motor carriers may configure these settings based on company policies. This paragraph also lists driver responsibilities when selecting one of these special driving categories.

Paragraph (b) proposes that a motor carrier may configure an ELD to show that a driver is exempt from the requirement to use an ELD.

Paragraph (c) proposes that a driver excepted under § 390.3(f) or § 395.1 must annotate the record to explain why the driver is excepted.

## 12. Section 395.30

Paragraph (a) proposes that both drivers and motor carriers are responsible for ensuring that drivers' ELD records are accurate.

Paragraph (b) lists the proposed requirements for a driver to review and certify that the driver's RODS are accurate.

Paragraph (c) explains the proposed process for a driver to edit, add missing information to, and annotate RODS to fix information entered in error.

Paragraph (d) explains the proposed process for motor carrier support personnel to request edits of a driver. This paragraph also explains that, under the proposal, edits made to the driver's record by anyone other than the driver would require the driver's approval or rejection.

Paragraph (e) would prohibit a motor carrier from coercing a driver to falsely certify the driver's ELD records. FMCSA plans to define the term "coerce" in a separate rulemaking.

Paragraph (f) would prohibit a motor carrier from manipulating or deleting ELD records or their source data streams.

## 13. Section 395.32

Paragraph (a) describes the concept of "non-authenticated driver logs," an account which is assigned any driving time not associated with an authorized ELD user and driver.

Paragraph (b) describes how a driver would have to review any driving time listed under the "non-authenticated driver log" account upon login to the ELD. If there were driving time listed under this account that belonged to the driver, the driver would be required to add that driving time to the driver's own record.

Paragraph (c) lists the proposed requirements for a motor carrier to explain or assign "non-authenticated driver log" time. This paragraph proposes that the motor carrier retain these records as a part of its HOS ELD records and present them to safety enforcement officials.

## 14. Section 395.34

Paragraph (a) explains what a driver would be required to do should the ELD malfunction. It specifies that the driver would need to notify the motor carrier

of an ELD malfunction in writing within 24 hours. Written notice could be provided by electronic means such as email.

Paragraph (b) explains what a driver would be required to do if the driver's HOS records were inspected during a malfunction.

Paragraph (c) explains that a driver would have to address any data inconsistency in the ELD according to the ELD provider's and motor carrier's procedures.

Paragraph (d) would require a motor carrier to take action to repair any malfunctioning ELD within 8 days of discovery of the malfunction or a driver's notification of the malfunction. If a motor carrier needs additional time to repair, replace, or service one or more ELDs, paragraph (d) also provides a process for requesting an extension of time.

## 15. Section 395.36

Paragraph (a) would require a motor carrier to provide its drivers with access to their own ELD records in a way that does not require requesting them through the motor carrier if those records are available on or retrievable through the ELD.

Paragraph (b) would require a motor carrier to give a driver access to the driver's own ELD records, upon request, if they are unavailable through the ELD.

## 16. Section 395.38

Section 395.38 describes materials that would be incorporated by reference in subpart B and addresses where the materials are available. Whenever FMCSA, or any Federal agency, wants to refer in its rules to materials or standards published elsewhere, it needs approval from the Director of the Office of the Federal Register. The process FMCSA needs to follow is described in this section. For additional information regarding use of technical standards see Section N. of Part XIII.

The following explanations provide a brief description of each standard. In order to provide better access, FMCSA includes Web addresses where more information about each standard can be found. Complete contact information is included as part of § 395.38. These standards are also available for review at FMCSA headquarters.

In paragraph (b)(1), "Standard for Authentication in Host Attachments of Transient Storage Devices" is a standard from the IEEE that describes a trust and authentication protocol for USB flash drives and other storage devices that would be able to be used for a possible transfer of ELD data according to the specifications of this proposed rule. As

of November 25, 2013, this standard was available for \$175, and information about it can be found at <http://standards.ieee.org/findstds/standard/1667-2009.html>.

Paragraph (c)(1) references the "Universal Serial Bus Specification" or USB, which is an industry standard for communication between two computing devices. The USB allows a driver to transfer the record of duty status data to a safety official using a small device commonly called a "flash drive." As of November 18, 2013, this standard was available at no cost, and information about it can be found at <https://www.bluetooth.org/Technical/Specifications/adopted.htm>.

Paragraph (d)(1) describes "ANSI INCITS 446-2008, American National Standard for Information Technology—Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone (10/28/2008)," a standard from the American National Standards Institute (ANSI) that covers geographic names and locations stored in the U.S. Geological Survey (USGS) Geographic Names Information System (GNIS). This information is required to populate the location database of complaint ELDs. As of November 25, 2013, this standard was available for \$30, and information about it can be found at <http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+446-2008>.

Paragraph (d)(2) describes "Information Systems—Coded Character Sets—7-Bit American National Standard Code for Information Interchange (7-Bit ASCII)," a standard from ANSI that describes a character set code to convert digits to alphabet, number, and symbol characters used in computing. This code set is used to create ELD files. As of December 10, 2013, this standard was available for \$30, and information about it can be found at <http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI+INCITS+4-1986+%28R2007%29>.

Paragraph (e)(1) "ISO/IEC 18004:2006 Information technology—Automatic identification and data capture techniques—QR Code 2005 bar code symbology specification," which is an industry standard from the International Standards Organization (ISO) for converting information into two dimensional barcodes that can be read using common tools such as smart phones or hand scanners. This standard would be used to comply with the transfer of ELD data specifications. As of December 10, 2013, this standard was

available from the ANSI at <http://www.webstore.ansi.org/RecordDetail.aspx?sku=ISO%2fIEC+18004%3a200t6> for \$250.

Paragraph (e)(2) describes “ISO/IEC 17568 Information technology—Telecommunications and information exchange between systems—Close proximity electric induction wireless communications,” a standard from the ISO for transmitting a large amount of data at high speed when two devices are held very close together. This standard is used commercially in the TransferJet technology. This standard describes how close proximity transfers of data would take place with a compliant ELD that may elect to support TransferJet. As of December 10, 2013, this standard was available at <http://webstore.ansi.org/RecordDetail.aspx?sku=ISO%2fIEC+17568%3A2013> for \$235.

Paragraph (f)(1) “The Transport Layer Security (TLS) Protocol Version 1.2” describes a standard from the Internet Engineering Task Force (IETF), which describes a security mechanism for information that is being transmitted over a network. This standard is best known for use with Web sites that start with “https://” rather than just “http://”. This standard would be used to secure data if ELD files are transferred using the web. As of December 10, 2013, this standard was available at no cost and it can be found at <https://ietf.org/doc/rfc5246/>.

Paragraph (f)(2) “Simple Mail Transfer Protocol” is an industry standard from the IETF for a computer networking protocol to send and receive electronic mail (email) containing ELD data. As of December 12, 2013, this standard was available at no cost, and can be found at <https://ietf.org/doc/rfc5321/>.

Paragraph (f)(3) “Internet Message Format,” describes an industry standard from the IETF for the format of email, including address, header information, text, and attachments, including those emails containing ELD data. As of December 12, 2013, this standard was available at no cost, and can be found at <https://ietf.org/doc/rfc5322/>.

Paragraph (g)(1) “Federal Information Processing Standards (FIPS) Publication 197, November 26, 2001, Announcing the ADVANCED ENCRYPTION STANDARD (AES)” describes a Federal government standard from the National Institute of Standards and Technology (NIST) for encrypting data to protect its confidentiality and integrity. This standard would be used to encrypt emailed data derived from the ELD. This standard is available at no cost at <http://csrc.nist.gov/publications/fips/fips197/fips-197.pdf>.

Paragraph (g)(2) describes “Special Publication (SP) 800–32, February 26, 2001, Introduction to Public Key Technology and the Federal PKI Infrastructure,” a guidance document from NIST for securely exchanging sensitive information, including some ELD data. This standard is available at no cost at <http://csrc.nist.gov/publications/nistpubs/800-32/sp800-32.pdf>.

Paragraph (h)(1) “Web Services Description Language (WSDL) 1.1, W3C Note 15, March 2001” describes a specification from the World Wide Web Consortium (W3C) that describes the interface to a Web service. This standard would be used if ELD files are transferred using the web. As of December 12, 2013, this standard was available at no cost, and can be found at <http://www.w3.org/TR/wsdl>.

Paragraph (h)(2) describes “Simple Object Access Protocol (SOAP) Version 1.2 Part 1: Messaging Framework (Second Edition), W3C Recommendation 27 April 2007,” a specification from the W3C for a computer networking protocol for Web services. This standard would be used if ELD files are transferred using the web. As of December 12, 2013, this standard was available at no cost, and can be found at <http://www.w3.org/TR/soap12-part1/>.

Paragraph (h)(3) describes “Extensible Markup Language (XML) 1.0 (Fifth Edition), W3C Recommendation 26 November 2008,” a specification from the W3C for annotating data to make it readable by both humans and machines. This standard would be used if ELD files are transferred using the web. As of December 12, 2013, this standard was available at no cost, and can be found at <http://www.w3.org/TR/REC-xml/>.

Paragraph (h)(4) describes “Hypertext Transfer Protocol—HTTP/1.1,” a specification from the W3C for a computer networking protocol that is the foundation for the World Wide Web. This standard would be used if ELD files are transferred using the web. As of December 12, 2013, this standard was available at no cost, and can be found at <http://www.w3.org/Protocols/rfc2616/rfc2616.html>.

Paragraph (i)(1) describes “Specification of the Bluetooth System: Wireless Connections Made Easy,” a standard from the Bluetooth Special Interest Group for short range wireless network communication that would be able to be used as a possible transfer of ELD data according to the specifications of this proposed rule. As of December 24, 2013, this standard was available for free and can be found at [https://](https://www.bluetooth.org/en-us/specification/adopted-specifications)

[www.bluetooth.org/en-us/specification/adopted-specifications](https://www.bluetooth.org/en-us/specification/adopted-specifications).

#### 17. Appendix to Subpart B of Part 395

The proposed appendix to subpart B of part 395 contains the technical requirements for ELDs. It consists of seven sections.

Section 1 contains the scope of the appendix. It outlines the purpose and content of the rest of the appendix.

Section 2 lists the abbreviations used throughout this appendix.

Section 3 provides definitions for terms and notations used in this appendix.

Section 4 lists all the functional requirements for an ELD. This section describes the technical specifications for an ELD, including security requirements, internal engine synchronization, ELD inputs, manual entries of data, and drivers’ use of multiple vehicles, in sufficient detail to allow the ELD provider to know if an ELD would meet the requirements for certification.

Section 5 describes the ELD certification and registration process.

Section 6 lists the cited references throughout this appendix.

Section 7 provides a data elements dictionary for each data element referenced in the appendix.

### XIII. Regulatory Analyses

*A. Executive Order 12866 (Regulatory Planning and Review), Executive Order 13563 (Improving Regulation and Regulatory Review), and DOT Regulatory Policies and Procedures*

FMCSA has determined that this rulemaking is an economically significant regulatory action under Executive Order (E.O.) 12866, Regulatory Planning and Review, as supplemented by E.O. 13563 (76 FR 3821, January 21, 2011). It also is significant under Department of Transportation regulatory policies and procedures because the economic costs and benefits of the rule exceed the \$100 million annual threshold and because of the substantial congressional and public interest concerning the crash risks associated with driver fatigue.

FMCSA is proposing to mandate the installation and use of ELDs for the majority of interstate motor carrier operations.<sup>15</sup> However, the costs and benefits of such a broad mandate are not identical across all options. The Agency

<sup>15</sup> Today’s SNPRM would not require short-haul drivers who would need to keep RODS more than 8 days in any 30-day period to use an ELD. Although FMCSA cannot quantify the costs to carriers, the Agency believes extending the ELD mandate to these drivers would not be cost beneficial.

has chosen to evaluate options that reflect public comments regarding past ELD and HOS rulemakings and the Agency's safety priorities. The RIA associated with this SNPRM examines four options:

- Option 1: ELDs are mandated for all CMV operations subject to 49 CFR part 395.

- Option 2: ELDs are mandated for all CMV operations where the driver is required to complete RODS under 49 CFR 395.8 (this is the FMCSA-preferred option).

- Option 3: ELDs are mandated for all CMV operations subject to 49 CFR part 395, and the ELD is required to include, or be able to be connected to, a printer, and to print RODS.

- Option 4: ELDs are mandated for all CMV operations where the driver is required to complete RODS under 49 CFR 395.8, and the ELD is required to include, or be able to be connected to, a printer, and to print RODS.

Of the four options, Option 2 is preferred by FMCSA. This table summarizes the cost and benefits of this option:

TABLE 7—PREFERRED OPTION (2)  
SUMMARY

	Annualized costs and benefits in millions (2011\$, 7 percent discount rate)
New ELD Costs .....	\$955.7
AOBRD Replacement Costs .....	3.0
HOS Compliance Costs .....	604.1
Enforcement Training Costs .....	1.7
Enforcement Equipment Costs .....	10.0
Total Costs .....	1,574.5
Paperwork Savings .....	1,529.9
Safety Benefits .....	394.8
Total Benefits .....	1,924.7
Net Benefits .....	350.2

## B. Regulatory Flexibility Act

### 1. Introduction

The Regulatory Flexibility Act of 1980, Public Law 96–354, 94 Stat. 1164 (5 U.S.C. 601–612) requires Federal agencies to consider the effects of the regulatory action on small business and other small entities and to minimize any significant economic impact. The term “small entities” comprises small businesses and not-for-profit organizations that are independently owned and operated and are not dominant in their fields and

governmental jurisdictions with populations of less than 50,000. Accordingly, DOT policy requires an analysis of the impact of all regulations on small entities and mandates that agencies strive to lessen any adverse effects on these businesses.

A Regulatory Flexibility Analysis must contain the following:

- A description of the reasons for the action by the Agency.

- A succinct statement of the objectives of, and legal basis for, the rule.

- A description—and, where feasible, an estimate of the number—of small entities to which the rule applies.

- A description of the reporting, recordkeeping, and other compliance requirements of the rule, including an estimate of the classes of small entities that will be subject to the requirement and the types of professional skills necessary for preparation of the report or record.

- Identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the rule.

- A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and minimize any significant economic impact of the proposed rule on small entities.

### 2. Description of Reasons for Action by the Agency

The Agency is required by statute (MAP–21) to adopt regulations requiring that CMVs operated in interstate commerce by drivers required to keep RODS be equipped with ELDs. FMCSA proposes to amend part 395 of the FMCSRs to require the installation and use of ELDs for CMV operations for which RODS are required. CMV drivers are currently required to record their HOS (driving time, on- and off-duty time) in paper RODS, although some carriers have voluntarily adopted an earlier standard for HOS recording devices known as AOBRDs.

The HOS regulations are designed to ensure that driving time, one of the principal “responsibilities imposed on the operators of commercial motor vehicles,” does “not impair their ability to operate the vehicles safely” (49 U.S.C. 31136(a)(2)). Driver compliance with the HOS rules helps ensure that “the physical condition of commercial motor vehicle drivers is adequate to enable them to operate the vehicles safely” (49 U.S.C. 31136(a)(3)). FMCSA believes that properly designed, used, and maintained ELDs would enable motor carriers to track their drivers’ on-duty driving hours accurately, thus

preventing regulatory violations or excessive driver fatigue. Improved HOS compliance, which today’s proposed rule would promote, will prevent commercial vehicle operators from driving for long periods without opportunities to obtain adequate sleep. Sufficient sleep is necessary to ensure that a driver is alert behind the wheel and able to respond appropriately to changes in the driving environment.

Substantial paperwork and recordkeeping burdens are also associated with HOS rules, including time spent by drivers filling out and submitting paper RODS and time spent by motor carrier staff reviewing, filing, and maintaining these RODS. ELDs would eliminate most of the clerical tasks associated with the RODS and significantly reduce the time drivers spend recording their HOS. These paperwork reductions offset most of the costs of the devices.

### 3. Objectives and Legal Basis

The Agency is issuing an SNPRM proposing to mandate the use of ELDs by the majority of interstate CMV operations. The objective is to reduce the number of crashes caused by driver fatigue that could have been avoided had the driver complied with the HOS rules. The legal basis for this proposed rule is described in Part IV.

### 4. Small Entities Affected

FMCSA regulations affect many different industries, and no single Small Business Administration (SBA) threshold for determining whether an entity is a “small business” is applicable to all motor carriers. Most for-hire property carriers operate under North American Industrial Classification System (NAICS) code 484, truck transportation, although some for-hire carriers categorize themselves as “express delivery services” (NAICS 492110), “local delivery” (NAICS 492210), or operate primarily in other modes of freight transportation. As shown in the table below, the SBA “small business” size standard for truck transportation and local delivery services is currently \$25.5 million in revenue per year, and 1,500 employees for express delivery services. For other firms in other modes that may also be registered as for-hire motor carriers, the size standard is 500 or 1,500 employees. As Table 8, below, also shows, for-hire passenger operations that FMCSA regulates have a size standard of \$14 million in annual revenue. This rulemaking also affects other industry sectors, including the industry descriptions reflected in Table 8.

TABLE 8—SBA SIZE STANDARDS FOR SELECTED INDUSTRIES

NAICS codes	NAICS industry description	Annual revenue (millions)	Employees
481112 and 481212 .....	Freight Air Transportation .....	.....	1,500
482111 .....	Line-Haul Railroads .....	.....	1,500
483111 through 483113 .....	Freight Water Transportation .....	.....	500
484110 through 484230 .....	Freight Trucking .....	\$25.5	.....
492110 .....	Couriers and Express Delivery .....	.....	1,500
492210 .....	Local Messengers and Local Delivery .....	25.5	.....
485210 through 485510 .....	Bus Transportation .....	14.0	.....
445110 .....	Supermarkets and Grocery Stores .....	30.0	.....
452111 .....	Department Stores (except Discount Department Stores) .....	30.0	.....
452112 .....	Discount Department Stores .....	27.0	.....
452910 .....	Warehouse Clubs and Superstores .....	27.0	.....
452990 .....	Other General Merchandise Stores .....	30.0	.....
453210 .....	Office Supplies and Stationery Stores .....	30.0	.....
236115 through 236220 .....	Building Construction .....	33.5	.....
237110 .....	Water and Sewer Line and Related Structures Construction .....	33.5	.....
237120 .....	Oil and Gas Pipeline and Related Structures Construction .....	33.5	.....
237130 .....	Power and Communication Line and Related Structures Construction .....	33.5	.....
237210 .....	Land Subdivision .....	7.0	.....
237310 .....	Highway, Street, and Bridge Construction .....	33.5	.....
237990 .....	Other Heavy and Civil Engineering Construction .....	33.5	.....
238110 through 238990 .....	Specialty Trade Contractors .....	14.0	.....
111110 through 111998 .....	Crop Production .....	0.75	.....
112111 .....	Beef Cattle Ranching and Farming .....	0.75	.....
112112 .....	Cattle Feedlots .....	2.5	.....
112120 .....	Dairy Cattle and Milk Production .....	0.75	.....
112210 .....	Hog and Pig Farming .....	0.75	.....
112310 .....	Chicken Egg Production .....	12.5	.....
112320 through 112990 .....	All Other Animal Production .....	0.75	.....
113310 .....	Logging .....	.....	500
211111 through 213111 .....	Oil and Gas Extraction and Mining .....	.....	500

Private motor carriers use the CMVs they own or lease to ship their own goods or in other regulated transportation activities related to their primary business activities. These include, for example, a motor carrier that a retail department store chain operates to distribute goods from its warehouses to its store locations, dump trucks used by construction companies, or passenger transportation services not available to the general public. Separate NAICS codes for entities with private motor carrier operations are not available; and FMCSA, therefore, cannot determine the appropriate size standard to use for each case. As shown, the size standards among industries that contain private motor carrier operations vary widely, from \$0.75 million for many types of farms to \$33.5 million for building construction firms.

For for-hire motor carriers, FMCSA examined data from the 2007 Economic Census to determine the percentage of firms that have revenue at or below SBA's thresholds. Although boundaries for the revenue categories used in the

Economic Census do not exactly coincide with the SBA thresholds, FMCSA was able to make reasonable estimates using these data. According to the Economic Census, about 99 percent of trucking firms had annual revenue less than \$25 million; the Agency concluded that the percentage would be approximately the same using the SBA threshold of \$25.5 million. For passenger carriers, the \$14 million SBA threshold falls between two Economic Census revenue categories, \$10 million and \$25 million. The percentages of passenger carriers with revenue less than these amounts were 96.7 percent and 98.9 percent, respectively. Because the SBA threshold is closer to the lower of these two boundaries, FMCSA has assumed that the percent of passenger carriers that are small will be closer to 96.7 percent, and is using a figure of 97 percent.

For private carriers, the Agency constructed its estimates under the assumption that carriers with more CMVs than the 98.9 percentile of for-hire passenger carriers or the 97

percentile of for-hire passenger carriers will also be large. That is, any company large enough to maintain a CMV fleet large enough to be considered a large truck or bus company will be large within its own industry. Because of NAICS classifications, this methodology could overestimate the number of small, private carriers. Under this conservative analysis, however, the Agency is confident that no small private carrier would be excluded. The Agency found that for property carriers, the threshold was 194 CMVs, and for passenger carriers, it was 89 CMVs. FMCSA identified 201,725 small private property carriers (99.4 percent of this group), and 6,000 small private passenger carriers (100.0 percent of this group).

Table 9 below shows the complete estimates of the number of small carriers. All told, FMCSA estimates that 99.1 percent of regulated motor carriers are small businesses according to SBA size standards.

TABLE 9—ESTIMATES OF NUMBERS OF SMALL ENTITIES

	For-hire general freight	For-hire specialized freight	For-hire passenger	Private property	Private passenger	Total
Carriers .....	176,000	139,000	8,000	203,000	6,000	532,000
Percentage of Small Carriers .....	98.9%	98.9%	97.0%	99.4%	100.0%	99.1%
Number of Small Carriers .....	174,064	137,471	7,760	201,725	6,000	527,020

#### 5. Reporting, Recordkeeping, and Other Compliance Requirements

FMCSA believes that implementation of the SNPRM would not require additional reporting, recordkeeping, or other paperwork-related compliance requirements beyond what are already required in the existing regulations. In fact, the SNPRM is estimated to result in paperwork savings, particularly from the elimination of paper RODS. Furthermore, the carriers would experience compensatory time-saving or administrative efficiencies as a result of using ELD records in place of paper RODS. The level of savings would vary with the size of the carrier implementing the systems (larger carriers generally experience greater savings).

Under current regulations, most CMV drivers are required to fill out RODS for every 24-hour period. The remaining population of CMV drivers is required to fill out time cards at their workplace (reporting location). Motor carriers must retain the RODS (or timecards, if used) for 6 months. FMCSA estimates the annual recordkeeping cost savings from this proposed rule to be about \$705 per driver. This comprises \$487 for a reduction in time drivers spend completing paper RODS and \$56 submitting those RODS to their employers; \$120 for motor carrier clerical staff to handle and file the RODS; and \$42 for elimination of expenditures on blank paper RODS for drivers. Two of the options discussed in the SNPRM extend the ELD mandate to carrier operations that are exempt from the RODS. Paperwork savings will not accrue to drivers engaged in these operations.

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501 et seq.), Federal agencies must obtain approval from the OMB for each collection of information they conduct, sponsor, or require through regulations. This SNPRM proposes regulatory changes to several parts of the FMCSRs, but only those applicable to part 395, “Hours of Service of Drivers,” would alter or impose information collection requirements. The information collection requirements of this NPRM would affect OMB Control Number

2126–0001, which is currently approved through December 31, 2014, at 184,380,000 burden hours.

OMB requires agencies to provide a specific, objective estimate of the burden hours imposed by their information collection requirements (5 CFR 1320.8(a)(4)). This SNPRM proposes a compliance date 2 years after the date of publication of the final rule to allow regulated entities a reasonable opportunity to satisfy its requirements. The reduction in the burden hours resulting from this SNPRM will take effect in the third year of the ICR connected with OMB Control Number 2126–0001. The reduction in the annual burden is estimated to be 22,093,000 hours. This is an average over the 3 years of this ICR: There will be no reduction in the first 2 years, and a reduction of 66,280,000 hours in the third. This estimated burden reduction includes CMVs that voluntarily had ELDs installed in them.

#### 6. Federal Rules That May Duplicate, Overlap, or Conflict With the Rule

The Agency did not identify any Federal rules that duplicate, overlap, or conflict with the rule.

#### 7. Steps To Minimize Adverse Economic Impacts on Small Entities

Of the population of motor carriers that FMCSA regulates, 99 percent are considered small entities under the SBA’s definition. Because small businesses constitute a large part of the demographic the Agency regulates, providing exemptions to small business to permit noncompliance with safety regulations is not feasible and not consistent with good public policy. The safe operation of CMVs on the Nation’s highways depends on compliance with all of FMCSA’s safety regulations. Accordingly, the Agency will not allow any motor carriers to be exempt from coverage of the proposed rule based solely on a status as a small entity.

FMCSA analyzed an alternative 5-year implementation schedule in the previous NPRM that would have provided a longer implementation period for small businesses. However, the estimated cost of compliance for motor carriers, including small

businesses, did not decrease from the 3-year “baseline” proposed implementation period. Furthermore, a considerably longer implementation period could compromise the consistency of compliance-assurance and enforcement activities, and thereby diminish the rule’s potential safety benefits. Therefore, the Agency’s proposal includes a single compliance date for all motor carriers that would be subject to the new rule’s requirements.

The Agency recognizes that small businesses may need additional information and guidance in order to comply with the proposed regulation. To improve their understanding of the proposal and any rulemaking that would result from it, FMCSA proposes to conduct outreach aimed specifically at small businesses. FMCSA would conduct Webinars and other presentations upon request as needed and at no charge to the participants. These would be held after the final rule has published and before the rule’s compliance date. To the extent practicable, these presentations would be interactive. Their purpose would be to describe in plain language the compliance and reporting requirements so they are clear and readily understood by the small entities that would be affected.

ELDs can lead to significant paperwork savings that can offset the costs of the devices. The Agency, however, recognizes that these devices entail an up-front investment that can be burdensome for small carriers. At least one vendor, however, provides free hardware and recoups the cost of the device over time in the form of higher monthly operating fees. The Agency is also aware of lease-to-own programs that allow carriers to spread the purchase costs over several years. Nevertheless, the typical carrier would likely be required to spend about \$800 per CMV to purchase and install ELDs. In addition to purchase costs, carriers would also likely spend about \$25 per month per CMV for monthly service fees.

### *C. Unfunded Mandates Reform Act of 1995*

Title II of the Unfunded Mandates Reform Act of 1995 requires Agencies to evaluate whether an Agency action would result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$143.1 million or more (as adjusted for inflation) in any 1 year, and, if so, to take steps to minimize these unfunded mandates. As Table 10 shows, this rulemaking would result in private

sector expenditures in excess of the \$143.1 million threshold for each of the proposed options. Gross costs, however, are expected to be more than offset in savings from paperwork burden reductions. The savings will be realized by the same entities that are required to employ ELDs.

The Agency is required by statute to adopt regulations requiring that CMVs operated in interstate commerce, operated by drivers required to keep RODS, be equipped with ELDs. 49

U.S.C. 31137. To the extent this rule implements the direction of Congress in mandating the use of ELDs, a written statement under the Unfunded Mandates Reform Act is not required. However, the Agency has provided an analysis of the costs to the private sector in the Preliminary Regulatory Evaluation available in the docket referenced above. Additionally the Agency's proposed option provides the lowest cost and highest net benefits of the options considered.

TABLE 10—ANNUALIZED NET EXPENDITURES BY PRIVATE SECTOR  
[millions]

	Option 1	Option 2	Option 3	Option 4
Total ELD Cost .....	\$1,270.0	\$955.7	\$1,722.6	\$1,311.1
Total Paperwork Savings .....	1,637.7	1,637.7	1,637.7	1,637.7
Net ELD Cost .....	–367.7	–682.0	84.9	–326.6

### *D. Executive Order 12988 (Civil Justice Reform)*

This SNPRM would meet applicable standards in sections 3(a) and 3(b)(2) of E.O. 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

### *E. Executive Order 13045 (Protection of Children)*

FMCSA analyzed this action under E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks. FMCSA determined that this SNPRM would not pose an environmental risk to health or safety that might affect children disproportionately.

### *F. Executive Order 12630 (Taking of Private Property)*

This rulemaking would not effect a taking of private property or otherwise have takings implications under E.O. 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

### *G. Executive Order 13132 (Federalism)*

A rulemaking has implications for Federalism under E.O. 13132, Federalism, if it has a substantial direct effect on State or local governments and would either preempt State law or impose a substantial direct cost of compliance on State or local governments. FMCSA analyzed this action in accordance with E.O. 13132. The rule would not have a substantial direct effect on States or local governments, nor would it limit the policymaking discretion of States. Nothing in this rulemaking would preempt any State law or regulation.

### *H. Executive Order 12372 (Intergovernmental Review)*

The regulations implementing E.O. 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this action.

### *I. Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments)*

FMCSA analyzed this rulemaking in accordance with the principles and criteria in E.O. 13175, Consultation and Coordination with Indian Tribal Governments. This rulemaking is required by law and does not significantly or uniquely affect the communities of the Indian tribal governments or impose substantial direct compliance costs on tribal governments. Thus, the funding and consultation requirements of E.O. 13175 do not apply and no tribal summary impact statement is required.

### *J. Paperwork Reduction Act*

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501, *et seq.*) requires Federal agencies to obtain OMB approval of each collection of information they conduct, sponsor, or require through agency regulations. On December 11, 2011, OMB approved the information collection (IC) requirements of part 395 and the Agency's estimate of the annual IC burden of 184.38 million burden hours (OMB Control Number 2126–0001, “Hours of Service of Drivers”). OMB's approval expires December 31, 2014.

OMB's regulations require agencies to provide a specific, objective estimate of the burden hours imposed by their IC requirements [5 CFR 1320.8(a)(4)]. The

IC requirements of part 395 would change when the amendments proposed by this SNPRM become final; the IC requirements of other parts of the FMCSRs would not be affected by this SNPRM.

The Agency in this subsection J is estimating the paperwork burden of part 395 as amended by the proposals of this SNPRM. The Agency is also in this subsection J incorporating revised Agency estimates of the population of CMV drivers subject to the recordkeeping requirements of part 395. The Agency recently analyzed data in FMCSA's Motor Carrier Management Information System<sup>16</sup> (MCMIS) and revised the Agency's estimate of the CMV driver population from the estimate approved by OMB in 2011. Customarily, FMCSA provides a separate **Federal Register** notice explaining revised Agency estimates derived solely from updated Agency data and inviting public comment. However, to avoid confusion, the Agency is presenting a single estimate of the IC burden of part 395 as affected by both the changes in Agency data and the proposals of this SNPRM.

The net effect of updated Agency data on the CMV driver population is that the Agency now estimates that 2.84 million CMV drivers are subject to the IC requirements of the HOS rules. In 2011, the Agency provided OMB a baseline estimate of 7 million CMV drivers subject to the FMCSRs. Current data indicate that this baseline population is 4.32 million drivers. The Agency reduces this figure to exclude

<sup>16</sup> Source: FMCSA, Motor Carrier Management Information System (MCMIS) registration data as of April 27, 2012.

short-haul drivers. Short-haul drivers are subject to most of the on-duty and off-duty requirements of the HOS rules, but are exempt from the requirement to maintain an HOS record, or log, on the vehicle. All the IC requirements of part 395 are associated with the log, so these drivers experience no IC burden under the HOS rules. In 2011, FMCSA estimated the population of these short-haul CMV drivers to be 2.4 million, and derived its estimate of 4.6 million CMV drivers subject to the IC requirements of the HOS rules (7 million less 2.4 million). The Agency's data indicates that .64 million interstate CMV drivers currently qualify for the short-haul exception; accordingly, the Agency reduces its baseline estimate of 4.32 million CMV drivers to 3.68 million (4.32 million less .64 million). The Agency further revises its estimate to exclude drivers who operate exclusively in intrastate commerce. In 2011, FMCSA included all CMV drivers in its estimate of the driver population. However, drivers who operate exclusively in intrastate commerce are not subject to part 395. FMCSA has analyzed its data and estimates that .84 million CMV drivers operate exclusively in intrastate commerce. Consequently, the Agency reduces its baseline estimate of the population of CMV drivers by .84 million, to 2.84 million (3.68 million less .84 million). The Agency estimates that 2.84 million CMV drivers are subject to the recordkeeping requirements of the HOS rules. Though this change is unrelated to this rulemaking and not an OMB-approved figure, FMCSA uses these populations in its analysis of the rule for simplicity, and will be updating the ICR to reflect this change.

This SNPRM proposes a transition period of 2 years following publication of a final ELD rule after which drivers and motor carriers would be required to have ELDs in place. OMB regulations require that Agencies estimate IC burdens over a period of 3 years after a rule becomes final. In the third year after publication of a final ELD rule, the Agency estimates the IC burden of part 395 would be reduced by 66,280,000.00 burden hours; thus, the average reduction in the annual burden over the 3-year period would be approximately 22,093,000.00 burden hours. This estimate incorporates the Agency's estimate of the voluntary use of ELDs in years 1 and 2.

#### *K. National Environmental Policy Act and Clean Air Act*

FMCSA analyzed this SNPRM for the purpose of the National Environmental Policy Act of 1969 (42 U.S.C. 4321, et

seq.) and determined under DOT environmental procedures Order 5610.1, issued March 1, 2004 (69 FR 9680), that this action would have a minor impact on the environment. The Environmental Assessment is available for inspection or copying at the *Regulations.gov* website listed under **ADDRESSES**.

FMCSA also analyzed this action under section 176(c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7506(c)), and the U.S. Environmental Protection Agency's implementing regulations, 40 CFR part 93. Pursuant to 40 CFR 93.153, a conformity determination is required "for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs (b)(1) or (2) of this section." FMCSA recognizes that the action taken in this rulemaking could slightly affect emissions of criteria pollutants from CMVs. FMCSA discusses the air emissions analysis in section 3.2.1. of the draft Environmental Assessment for this rule.

As discussed in section 3.1.2 of the Environmental Assessment, the CAA requires additional analysis to determine if this proposed action impacts air quality. In determining whether this action conforms to CAA requirements in areas designated as nonattainment under section 107 of the CAA and maintenance areas established under section 175A of the CAA, FMCSA is required (among other criteria) to determine if the total direct and indirect emissions are at or above de minimis levels. In the case of the alternatives proposed in this SNPRM, as discussed in section 3.2.1 (except for the No-Action Alternative), FMCSA considers the change in emissions to be an indirect result of the rulemaking action. FMCSA is requiring drivers and motor carriers to use ELDs that would lead to greater compliance with the HOS regulations, which does not directly result in additional emissions releases.

Although emissions from idling are foreseeable and an indirect result of the rulemaking, in order for the idling emissions to qualify as 'indirect emissions' pursuant to 40 CFR 93.152, they must meet all four criteria in the definition: (1) The emissions are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action; (2) they are reasonably foreseeable; (3) FMCSA can practically control them; and (4) FMCSA has continuing program responsibility for them. FMCSA does

not believe the increase of emissions of some criteria pollutants or their precursors from this proposed rulemaking meet two of the criteria: That FMCSA can practically control the emissions, and that FMCSA has continuing program responsibility. FMCSA's statutory authority limits its ability to require drivers to choose alternatives to idling while taking a rest period. If FMCSA had authority to control CMV emissions, the Agency could prohibit idling or require drivers to choose an alternative such as electrified truck stops or use of auxiliary power units, both of which reduce idling emissions. Moreover, based on FMCSA's analysis, it is reasonably foreseeable that the SNPRM would not significantly increase total CMV mileage, nor would it change the routing of CMVs, how CMVs operate, or the CMV fleet mix of motor carriers. Therefore, because the idling emissions do not meet the definition of direct or indirect emissions in 40 CFR 93.152, FMCSA has determined it is not required to perform a CAA general conformity analysis, pursuant to 40 CFR 93.153.<sup>17</sup>

#### *L. Executive Order 12898 (Environmental Justice)*

FMCSA evaluated the environmental effects of this SNPRM in accordance with E.O. 12898 and determined that there are neither environmental justice issues associated with its provisions nor any collective environmental impact resulting from its promulgation. Environmental justice issues would be raised if there were "disproportionate" and "high and adverse impact" on minority or low-income populations. None of the alternatives analyzed in the Agency's deliberations would result in high and adverse environmental justice impacts.

#### *M. Executive Order 13211 (Energy Effects)*

FMCSA analyzed this action under E.O. 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. FMCSA determined that it is not a "significant energy action" under that E.O. because, although this rulemaking is economically significant, it is not likely to have an adverse effect on the supply, distribution, or use of energy.

<sup>17</sup> Additionally, the EPA General Conformity regulations provide an exemption for rulemaking activities. See 40 CFR 93.153(c)(2)(iii).

### *N. National Technology Transfer and Advancement Act*

The National Technology Transfer and Advancement Act (15 U.S.C. 272 note) requires agencies to “use technical standards that are developed or adopted by voluntary consensus standards bodies” to carry out policy objectives determined by the agencies, unless the standards are “inconsistent with applicable law or otherwise impractical.” This requirement pertains to “performance-based or design-specific technical specifications and related management systems practices.” MAP-21 also requires that the Agency adopt a “standard security level for an electronic logging device and related components to be tamper resistant by using a methodology endorsed by a nationally recognized standards organization” (49 U.S.C. 31137(b)(2)(C)).

FMCSA is not aware of any technical standards addressing ELDs. However, in today’s SNPRM, the Agency employs several publicly-available consensus standards consistent with these statutory mandates, including standards adopted by the World Wide Web Consortium to facilitate secure Web based communications, American National Standards Institute (ANSI) codes for identification of geographic locations and for standard information display, Institute of Electrical and Electronic Engineers (IEEE) Standards Association standards addressing secure transfer of data with a portable storage device, International Standards Organization standards concerning QR codes, Bluetooth Special Interest Group (SIG) standards addressing short-range wireless information transfer, and the USB Specification (Revision 2.0). In addition, although not developed by a private sector consensus standard body, FMCSA also employs the National Institute of Standards and Technology (NIST) standards concerning data encryption. A complete list of standards that FMCSA proposes for adoption is found in proposed 49 CFR 395.38 of this SNPRM.

### *O. E-Government Act of 2002*

The E-Government Act of 2002, Public Law 107-347, § 208, 116 Stat. 2899, 2921 (Dec. 17, 2002), requires Federal agencies to conduct a privacy impact assessment (PIA) for new or substantially changed technology that collects, maintains, or disseminates information in an identifiable form. FMCSA has completed a PIA in connection with today’s SNPRM addressing the handling of PII. The PIA is a documented assurance that privacy issues have been identified and

adequately addressed, ensures compliance with laws and regulations related to privacy, and demonstrates the DOT’s commitment to protect the privacy of any personal information we collect, store, retrieve, use, and share. Additionally, the publication of the PIA demonstrates DOT’s commitment to provide appropriate transparency in the ELD rulemaking process. A copy of the PIA is available in the docket for this rulemaking.

### **List of Subjects**

#### *49 CFR Part 385*

Administrative practice and procedure, Highway safety, Mexico, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

#### *49 CFR Part 386*

Administrative practice and procedure, Brokers, Freight forwarders, Hazardous materials transportation, Highway safety, Motor carriers, Motor vehicle safety, Penalties.

#### *49 CFR Part 390*

Highway safety, Intermodal transportation, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

#### *49 CFR Part 395*

Highway safety, Incorporation by reference, Motor carriers, Reporting and recordkeeping requirements.

In consideration of the foregoing, FMCSA proposes to amend 49 CFR chapter III, parts 385, 386, 390, and 395 to read as follows:

### **PART 385—SAFETY FITNESS PROCEDURES**

■ 1. The authority citation for part 385 continues to read as follows:

**Authority:** 49 U.S.C. 113, 504, 521(b), 5105(e), 5109, 13901–13905, 14701, 31133, 31135, 31136, 31137(a), 31144, 31148, and 31502; Sec. 113(a), Pub. L. 103–311; Sec. 408, Pub. L. 104–88; Sec. 350, Pub. L. 107–87; and 49 CFR 1.87.

■ 2. Amend Appendix B to part 385—Explanation of Safety Rating Process section VII by removing the entries for §§ 395.8(a), 395.8(e), and 395.8(i), and the two entries for § 395.8(k)(1) and adding the following violations § 390.36(b)(1), § 395.8(a)(1), § 395.8(e)(1), § 395.8(e)(2), § 395.8(k)(1), § 395.11(b) or (c), § 395.11(d), § 395.11(e), and § 395.30(e) in numerical order to read as follows:

### **Appendix B to Part 385—Explanation of Safety Rating Process**

\* \* \* \* \*

### **VII. List of Acute and Critical Regulations**

\* \* \* \* \*

§ 390.36(b)(1) Engaging in harassment of a driver (acute).

\* \* \* \* \*

§ 395.8(a)(1) Failing to require a driver to make a record of duty status using appropriate method (critical).

§ 395.8(e)(1) Making a false report (critical).

§ 395.8(e)(2) Disabling, deactivating, disengaging, jamming, or otherwise blocking or degrading a signal transmission or reception; tampering with an automatic on-board recording device or ELD; or permitting or requiring another person to engage in such activity (acute).

§ 395.8(k)(1) Failing to preserve a driver’s record of duty status or supporting documents for 6 months (critical)

§ 395.11(b) or (c) Failing to maintain a supporting document as required by § 395.12(b) or (c) (critical).

§ 395.11(d) Failing to maintain supporting documents in a manner that permits the effective matching of the documents to the driver’s record of duty status (critical).

§ 395.11(e) Altering, defacing, destroying, mutilating, or obscuring a supporting document (critical).

§ 395.30(e) Failing to maintain ELD information (acute).

\* \* \* \* \*

### **PART 386—RULES OF PRACTICE FOR MOTOR CARRIER, INTERMODAL EQUIPMENT PROVIDER, BROKER, FREIGHT FORWARDER, AND HAZARDOUS MATERIALS PROCEEDINGS**

■ 3. The authority citation for part 386 is revised to read as follows:

**Authority:** 49 U.S.C. 113, chapters 5, 51, 59, 131–141, 145–149, 311, 313, and 315; Sec. 204, Pub. L. 104–88, 109 Stat. 803, 941 (49 U.S.C. 701 note); Sec. 217, Pub. L. 106–159, 113 Stat. 1748, 1767; Sec. 206, Pub. L. 106–159, 113 Stat. 1748, 1763; subtitle B, title IV of Pub. L. 109–59, 119 Stat. 1144, 1751–1761; and 49 CFR 1.81 and 1.87.

■ 4. Amend § 386.1 by revising paragraph (a) and adding paragraph (c) to read as follows:

#### **§ 386.1 Scope of rules in this part.**

(a) Except as provided in paragraph (c) of this section, the rules in this part govern proceedings before the Assistant Administrator, who also acts as the Chief Safety Officer of the Federal Motor Carrier Safety Administration (FMCSA), under applicable provisions of the Federal Motor Carrier Safety Regulations (FMCSRs) (49 CFR parts 350–399), including the commercial regulations (49 CFR parts 360–379), and the Hazardous Materials Regulations (49 CFR parts 171–180).

\* \* \* \* \*

(c)(1) The rules in § 386.12 govern the filing of a complaint of a substantial violation and the handling of the

complaint by the Division Administrator for the State where the incident occurs.

(2) The rules in § 386.12a govern the filing of a complaint of a harassment violation under § 390.36 and the handling of the complaint by the Division Administrator for the State where the incident occurs.

■ 5. Revise § 386.12 to read as follows:

**§ 386.12 Complaint of substantial violation.**

(a) *Complaint.* Any person alleging that a substantial violation of any regulation issued under the Motor Carrier Safety Act of 1984 is occurring or has occurred within the preceding 60 days may file a written complaint with the FMCSA Division Administrator for the State where the incident is occurring or has occurred. A substantial violation is one which could reasonably lead to, or has resulted in, serious personal injury or death. Allegations brought to the attention of other officials of the Agency through letter, email, social media, phone call, or other means will be referred to the Division Administrator for the State where the incident occurred. Delays in transferring the allegations to the appropriate Division Administrator do not stay the 60-day period for filing a written complaint. Each complaint must be signed by the complainant and must contain:

- (1) The name, address, and telephone number of the person who files it;
- (2) The name and address of the alleged violator and, with respect to each alleged violator, the specific provisions of the regulations that the complainant believes were violated; and
- (3) A concise but complete statement of the facts relied upon to substantiate each allegation, including the date of each alleged violation.

(b) *Action on complaint.* Upon the filing of a complaint of a substantial violation under paragraph (a) of this section, the Division Administrator shall determine whether the complaint is non-frivolous and meets the requirements of paragraph (a) of this section. If the Division Administrator determines the complaint is non-frivolous and meets the requirements of paragraph (a), the Division Administrator shall investigate the complaint. The complainant shall be timely notified of findings resulting from such investigation. The Division Administrator shall not be required to conduct separate investigations of duplicative complaints. If the Division Administrator determines the complaint is frivolous or does not meet the requirements of paragraph (a), the

Division Administrator shall dismiss the complaint and notify the complainant in writing of the reasons for the dismissal. If after investigation the Division Administrator determines that a violation has occurred, the Division Administrator may issue a Notice of Violation under § 386.11(b) or a Notice of Claim under § 386.11(c) of this part.

(c) *Protection of complainant.* Notwithstanding the provisions of section 552 of title 5, United States Code, the Division Administrator shall not disclose the identity of complainants unless it is determined that such disclosure is necessary to prosecute a violation. If disclosure becomes necessary, the Division Administrator shall take every practical means within the Division Administrator's authority to ensure that the complainant is not subject to harassment, intimidation, disciplinary action, discrimination, or financial loss as a result of such disclosure.

■ 6. Add § 386.12a to read as follows:

**§ 386.12a Complaint of harassment.**

(a) *Complaint.* (1) A driver, as defined in § 390.5, alleging harassment prohibited by § 390.36 by a motor carrier is occurring or has occurred within the preceding 60 days may file a written complaint with the FMCSA Division Administrator for the State where the incident is occurring or has occurred. Allegations brought to the attention of other officials in the Agency through letter, email, social media, phone call, or other means will be referred to the Division Administrator for the State where the incident occurred. Delays in transferring the allegations to the appropriate Division Administrator do not stay the 60-day period for filing a written complaint.

(2) Each complaint must be signed by the driver and must contain:

- (i) The name, address, and telephone number of the driver who files it;
- (ii) The name and address of the alleged violator; and
- (iii) A concise but complete statement describing the alleged action taken by the motor carrier that the driver claims constitutes harassment, including:

(A) How the ELD or other technology used in combination with and not separable from the ELD was used to contribute to harassment; and

(B) How the motor carrier's action violated either § 392.3 or part 395.

(3) Each complaint may include any supporting evidence that will assist the Division Administrator in determining the merits of the complaint.

(b) *Action on complaint.* Upon the filing of a complaint of a substantial violation under paragraph (a) of this

section, the Division Administrator shall determine whether the complaint is non-frivolous and meets the requirements of paragraph (a) of this section. If the Division Administrator determines the complaint is non-frivolous and meets the requirements of paragraph (a), the Division Administrator shall investigate the complaint. The complainant shall be timely notified of findings resulting from such investigation. The Division Administrator shall not be required to conduct separate investigations of duplicative complaints. If the Division Administrator determines the complaint is frivolous or does not meet the requirements of paragraph (a), the Division Administrator shall dismiss the complaint and notify the complainant in writing of the reasons for the dismissal. If after investigation the Division Administrator determines that a violation has occurred, the Division Administrator may issue a Notice of Violation under § 386.11(b) or a Notice of Claim under § 386.11(c) of this part.

(c) *Protection of complainant.* Notwithstanding the provisions of section 552 of title 5, United States Code, the Division Administrator shall not disclose the identity of complainants unless it is determined that such disclosure is necessary to prosecute a violation. If disclosure becomes necessary, the Division Administrator shall take every practical means within the Division Administrator's authority to ensure that the complainant is not subject to harassment, intimidation, disciplinary action, discrimination, or financial loss as a result of such disclosure.

■ 7. Amend appendix B to part 386 by adding paragraph (a)(7) to read as follows:

**Appendix B to Part 386—Penalty Schedule; Violations and Monetary Penalties**

\* \* \* \* \*

(a) \* \* \*

(7) *Harassment.* In instances of a violation of § 390.36(b)(1) the Agency may consider the "gravity of the violation," for purposes of 49 U.S.C. 521(b)(2)(D), sufficient to warrant imposition of penalties up to the maximum permitted by law.

\* \* \* \* \*

**PART 390—FEDERAL MOTOR CARRIER SAFETY REGULATIONS; GENERAL**

■ 8. The authority citation for part 390 continues to read as follows:

**Authority:** 49 U.S.C. 504, 508, 31132, 31133, 31136, 31144, 31151, 31502; sec. 114, Pub. L. 103–311, 108 Stat. 1673, 1677–1678; sec. 212, 217, 229, Pub. L. 106–159, 113 Stat.

1748, 1766, 1767; sec. 229, Pub. L. 106–159 (as transferred by sec. 4114 and amended by secs. 4130–4132, Pub. L. 109–59, 119 Stat. 1144, 1726, 1743–1744); sec. 4136, Pub. L. 109–59, 119 Stat. 114, 1745; sections 32101(d) and 34934, Pub. L. 112–141, 126 Stat. 405, 778, 830; and 49 CFR 1.87.

■ 9. Add § 390.36 to read as follows:

**§ 390.36 Harassment of drivers prohibited.**

(a) *Harass or harassment defined.* As used in this section, harass or harassment means an action by a motor carrier toward a driver employed by the motor carrier (including an independent contractor while in the course of operating a commercial motor vehicle on behalf of the motor carrier) involving the use of information available to the motor carrier through an ELD, as defined in § 395.2 of this chapter, or through other technology used in combination with and not separable from the ELD, that the motor carrier knew, or should have known, would result in the driver violating § 392.3 or part 395 of this chapter.

(b) *Prohibition against harassment.* (1) No motor carrier may harass a driver.

(2) Nothing in paragraph (b)(1) of this section shall be construed to prevent a motor carrier from using technology allowed under this subchapter to monitor productivity of a driver provided that such monitoring does not result in harassment.

(c) *Complaint process.* A driver who believes he or she was the subject of harassment by a motor carrier may file a written complaint under § 386.12a of this subchapter.

**PART 395—HOURS OF SERVICE OF DRIVERS**

■ 10. The authority citation for part 395 continues to read as follows:

**Authority:** 49 U.S.C. 504, 31133, 31136, 31137, and 31502; sec. 113, Pub. L. 103–311, 108 Stat. 1673, 1676; sec. 229, Pub. L. 106–159 (as transferred by sec. 4115 and amended by secs. 4130–4132, Pub. L. 109–59, 119 Stat. 1144, 1726, 1743, 1744); sec. 4133, Pub. L. 109–59, 119 Stat. 1144, 1744; sec. 108, Pub. L. 110–432, 122 Stat. 4860–4866; sec. 32934, Pub. L. 112–141, 126 Stat. 405, 830; and 49 CFR 1.87.

■ 11. In Part 395 redesignate § 395.1 through § 395.19 as subpart A, and add a new subpart heading to read as follows:

**Subpart A—General**

■ 12. Amend § 395.1 by revising introductory text paragraphs (e)(1) and (e)(2) to read as follows:

**§ 395.1 Scope of rules in this part.**

\* \* \* \* \*

(e) \* \* \* (1) *100 air-mile radius driver.* A driver is exempt from the requirements of § 395.8 and § 395.11 if:

(2) *Operators of property-carrying commercial motor vehicles not requiring a commercial driver's license.* Except as provided in this paragraph, a driver is exempt from the requirements of § 395.3(a)(2), 395.8, and 395.11 and ineligible to use the provisions of § 395.1(e)(1), (g), and (o) if:

■ 13. Amend § 395.2 by adding the definitions for *Electronic logging device (ELD)* and *Supporting document*, in alphabetical order, to read as follows:

**§ 395.2 Definitions.**

*Electronic logging device (ELD)* means a device or technology that automatically records a driver's driving time and facilitates the accurate recording of the driver's hours of service, and that meets the requirements of subpart B of this part.

*Supporting document* means a document, in any medium, generated or received by a motor carrier in the normal course of business as described in § 395.11 that can be used, as produced or with additional identifying information, by the motor carrier and enforcement officials to verify the accuracy of a driver's record of duty status.

\* \* \* \* \*

■ 14. Add § 395.7 to read as follows:

**§ 395.7 Enforcement proceedings.**

(a) *General.* A motor carrier is liable for any act or failure to act by an employee, as defined in § 390.5, that violates any provision of part 395 if the act or failure to act is within the course of the motor carrier's operations. The fact that an employee may also be liable for a violation in a proceeding under this subchapter based on the employee's act or failure to act does not affect the liability of the motor carrier.

(b) *Burden of proof.* Notwithstanding any other provision of this subchapter, the burden of proof is on a motor carrier to prove that the employee was acting outside the scope of the motor carrier's operations when committing an act or failing to act in a manner that violates any provision of this part.

(c) *Imputed knowledge of documents.* A motor carrier shall be deemed to have knowledge of any document in its possession and any document that is available to the motor carrier and that the motor carrier could use in ensuring compliance with this part. "Knowledge

of any document" means knowledge of the fact that a document exists and the contents of the document.

■ 15. Amend § 395.8 by:

- a. Removing and reserving paragraph (i),
- b. Revising paragraphs (a) and (e), and
- c. Revising the heading of paragraph (k), and paragraph (k)(1) to read as follows:

**§ 395.8 Driver's record of duty status.**

(a)(1) Except for a private motor carrier of passengers (nonbusiness), as defined in § 390.5, a motor carrier subject to the requirements of this part must require each driver used by the motor carrier to record the driver's duty status for each 24-hour period using the method prescribed in paragraphs (a)(1)(i) through (iv) of this section, as applicable.

(i) Subject to paragraphs (a)(1)(ii) and (iii) of this section, a motor carrier operating commercial motor vehicles must install and require each of its drivers to use an ELD to record the driver's duty status in accordance with subpart B of this part no later than [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE].

(ii) A motor carrier that installs and requires a driver to use an automatic on-board recording device in accordance with § 395.15 before [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE] may continue to use the compliant automatic on-board recording device no later than [DATE FOUR YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE].

(iii) A motor carrier may require a driver who must complete a record of duty status not more than 8 days within any 30-day period to record the driver's duty status manually, in accordance with this section. The record of duty status must be recorded in duplicate for each 24-hour period for which recording is required. The duty status shall be recorded on a specified grid, as shown in paragraph (g) of this section. The grid and the requirements of paragraph (d) of this section may be combined with any company form.

(iv) Subject to paragraph (a)(1)(i) through (iii) of this section, until [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE], a motor carrier operating commercial motor vehicles shall require each of its drivers to record the driver's record of duty status:

- (A) Using an ELD that meets the requirements of subpart B of this part;
- (B) Using an automatic on-board recording device that meets the requirements of § 395.15; or

(C) Manually, recorded on a specified grid as shown in paragraph (g) of this section. The grid and the requirements of paragraph (d) of this section may be combined with any company form. The record of duty status must be recorded in duplicate for each 24-hour period for which recording is required.

(2) A driver operating a commercial motor vehicle must:

(i) Record the driver's duty status using one of the methods under paragraph (a)(1) of this section and

(ii) Submit the driver's record of duty status to the motor carrier within 8 days of the 24-hour period to which the record pertains.

(3) Unless an extension of time has been granted under § 395.34(d), a motor carrier required to use an ELD is in violation of paragraph (a)(1)(i) of this section during any period in which the motor carrier is operating a commercial motor vehicle while the ELD is malfunctioning.

\* \* \* \* \*

(e)(1) No driver or motor carrier may make a false report in connection with a duty status.

(2) No driver or motor carrier shall disable, deactivate, disengage, jam, or otherwise block or degrade a signal transmission or reception, or reengineer, reprogram, or otherwise tamper with an automatic on-board recording device or ELD so that the device does not accurately record and retain required data.

(3) No driver or motor carrier shall permit or require another person to disable, deactivate, disengage, jam, or otherwise block or degrade a signal transmission or reception, or reengineer, reprogram, or otherwise tamper with an automatic on-board recording device or ELD so that the device does not accurately record and retain required data.

\* \* \* \* \*

(i) [Reserved]

\* \* \* \* \*

(k) *Retention of driver's record of duty status and supporting documents.* (1) A motor carrier shall retain and maintain records of duty status and supporting documents required under this part for each of its drivers for a period of not less than 6 months from the date of receipt.

\* \* \* \* \*

■ 16. Add § 395.11 to read as follows:

#### § 395.11 Supporting documents.

(a) *Applicability.* The supporting document provisions under this section take effect [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF FINAL RULE].

(b) *Submission of supporting documents to motor carrier.* Except for a private motor carrier of passengers (nonbusiness), a driver must submit to the driver's employer the driver's supporting documents required to be maintained under this section within 8 days of either the 24-hour period to which the documents pertain or the day the document comes into the driver's possession, whichever is later.

(c) *Supporting document retention.* (1) Subject to paragraph (d) of this section, a motor carrier must maintain each supporting document generated or received in the normal course of business in the following categories for each of its drivers for every 24-hour period to verify on-duty not driving time in accordance with § 395.8(k):

(i) Each bill of lading, itinerary, schedule, or equivalent document that indicates the origin and destination of each trip;

(ii) Each dispatch record, trip record, or equivalent document;

(iii) Each expense receipt related to any on-duty not driving time;

(iv) Each electronic mobile communication record, reflecting communications transmitted through a fleet management system; and

(v) Each payroll record, settlement sheet, or equivalent document that indicates what and how a driver was paid.

(2)(i) A supporting document must include each of the following data elements:

(A) On the document or on another document that enables the carrier to link the document to the driver, the driver's name or personal identification number (PIN) or a unit (vehicle) number if the unit number can be associated with the driver operating the unit;

(B) The date, which must be the date at the location where the date is recorded;

(C) The location, which must include the name of the nearest city, town, or village to enable Federal, State, or local enforcement personnel to quickly determine a vehicle's location on a standard map or road atlas; and

(D) Subject to paragraph (c)(2)(ii) of this section, the time, which must be convertible to the local time at the location where it is recorded.

(ii) If a driver has fewer than 10 supporting documents containing the four data elements under paragraph (c)(2)(i) of this section for a 24-hour period, a document containing the data elements under (c)(2)(i)(A)–(C) of this section is considered a supporting document for purposes of paragraph (d) of this section.

(d) *Maximum number of supporting documents.* (1) Subject to paragraphs (d)(3) and (4) of this section, a motor carrier need not maintain more than 10 supporting documents for an individual driver's 24-hour period under paragraph (c) of this section.

(2) In applying the limit on the number of documents required under paragraph (d)(1) of this section, each electronic mobile communication record applicable to an individual driver's 24-hour period shall be counted as a single document.

(3) If a driver submitted more than 10 supporting documents for a 24-hour period, a motor carrier must retain the supporting documents containing earliest and latest time indication among the 10 supporting documents maintained.

(4) In addition to other supporting documents required under this section, and notwithstanding the maximum number of documents under paragraph (d)(1) of this section, a motor carrier that requires a driver to complete a paper record of duty status under § 395.8(a)(1)(iii) must maintain toll receipts for any period when the driver kept paper records of duty status.

(e) *Link to driver's record of duty status.* A motor carrier must maintain supporting documents in such a manner that they may be effectively matched to the corresponding driver's record of duty status.

(f) *Prohibition of destruction.* No motor carrier or driver may obscure, deface, destroy, mutilate, or alter existing information contained in a supporting document.

(g)(1) On request during a roadside inspection, a driver must make available to an authorized Federal, State, or local official for the official's review any supporting document in the driver's possession.

(2) A driver need not produce a supporting document under paragraph (g)(1) of this section in a format other than the format in which the driver possesses it.

(h) *Self-compliance systems.* (1) FMCSA may authorize on a case-by-case basis motor carrier self-compliance systems.

(2) Requests for use of a supporting document self-compliance system may be submitted to FMCSA under the procedures described in 49 CFR part 381, subpart C (Procedures for Applying for Exemptions).

(3) FMCSA will consider requests concerning types of supporting documents maintained by a motor carrier under § 395.8(k)(1) and the method by which a driver retains and maintains a copy of the record of duty

status for the previous 7 days and makes it available for inspection while on duty in accordance with § 395.8.

■ 17. Amend § 395.15 by revising paragraph (a) to read as follows:

**§ 395.15 Automatic on-board recording devices.**

(a) *Authority to use.* (1) A motor carrier that installs and requires a driver to use an automatic on-board recording device in accordance with this section before [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE] may continue to use the compliant automatic on-board recording device no later than [DATE FOUR YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]. Otherwise, the authority to use automatic on-board recording devices (AOBRDs) under this section ends on [DATE TWO YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE].

(2) A motor carrier may require a driver to use an automatic on-board recording device to record the driver's hours of service.

(3) Every driver required by a motor carrier to use an automatic on-board recording device shall use such device to record the driver's hours of service.

\* \* \* \* \*

**§§ 395.16–395.19 [Reserved]**

■ 18. Add and reserve §§ 395.16 through 395.19.

■ 19. Amend part 395 by adding a new subpart B, consisting of §§ 395.20 through 395.38, and Appendix to Subpart B of Part 395, to read as follows:

**Subpart B—Electronic Logging Devices (ELDs)**

- § 395.20 ELD applicability and scope.
- § 395.22 Motor carrier responsibilities—In general.
- § 395.24 Driver responsibilities—In general.
- § 395.26 ELD data automatically recorded.
- § 395.28 Special driving categories; other driving statuses.
- § 395.30 ELD record submissions, edits, annotations, and data retention.
- § 395.32 Non-authenticated driver logs.
- § 395.34 ELD malfunctions and data diagnostic events.
- § 395.36 Driver access to records.
- § 395.38 Incorporation by reference.
- Appendix to Subpart B of Part 395—Functional Specifications for All Electronic Logging Devices (ELDS)

**Subpart B—Electronic Logging Devices (ELDs)**

**§ 395.20 ELD applicability and scope.**

(a) *Scope.* This subpart applies to ELDs used to record a driver's hours of service under § 395.8(a).

(b) *Applicability.* An ELD used after [DATE TWO YEARS AFTER THE

EFFECTIVE DATE OF FINAL RULE] must meet the requirements of this subpart.

(c) *ELD system.* Throughout this subpart, a reference to an ELD includes, to the extent applicable, an ELD support system.

**§ 395.22 Motor carrier responsibilities—In general.**

(a) *Registered ELD required.* A motor carrier required to use an ELD must use only an ELD that is listed on the Federal Motor Carrier Safety Administration's registered ELDs list, accessible through the Agency's Web site.

(b) *User rights management.* (1) This paragraph (b) of this section applies to a motor carrier whose drivers use ELDs and to the motor carrier's support personnel who have been authorized by the motor carrier to access ELD records and make or suggest authorized edits.

(2) A motor carrier must:

(i) Actively manage ELD accounts, including creating, deactivating, and updating accounts, and ensure that properly authenticated individuals have ELD accounts with appropriate rights;

(ii) Assign a unique ELD username to each user account with the required user identification data;

(iii) Ensure that a driver's license used in the creation of an ELD driver account is valid and corresponds to the intended driver; and

(iv) Ensure that information entered to create a new account is accurate.

(c) *Driver identification data.* (1) The ELD user account assigned by the motor carrier to a driver requires the following data elements:

(i) A driver's first and last name, as reflected on the driver's license;

(ii) A unique ELD username selected by the motor carrier;

(iii) The driver's valid driver's license number; and

(iv) The State or jurisdiction that issued the driver's license.

(2) The driver's license number or Social Security number must not be used as, or as part of, the username for the account created on an ELD.

(d) *Motor carrier support personnel identification data.* The ELD user account assigned by a motor carrier to support personnel requires the following data elements:

(1) The individual's first and last name, as reflected on a government issued identification; and

(2) A unique ELD username selected by the motor carrier.

(e) *Proper log-in required.* The motor carrier must require that its drivers and support personnel log into the ELD system using their proper identification data.

(f) *Calibration.* A motor carrier must ensure that an ELD is calibrated and maintained in accordance with the provider's specifications.

(g) *Portable ELDs.* If a driver uses a portable ELD, the motor carrier shall ensure that the ELD is mounted in a fixed position during the operation of the commercial motor vehicle and visible to the driver when the driver is seated in the normal driving position.

(h) *In-vehicle information.* A motor carrier must ensure that its drivers possess onboard a commercial motor vehicle an ELD information packet containing the following items:

(1) A user's manual for the driver describing how to operate the ELD;

(2) An instruction sheet for the driver describing the data transfer mechanisms supported by the ELD and step-by-step instructions for the driver to produce and transfer the driver's hours-of-service records to an authorized safety official;

(3) An instruction sheet for the driver describing ELD malfunction reporting requirements and recordkeeping procedures during ELD malfunctions; and

(4) A supply of blank driver's records of duty status graph-grids sufficient to record the driver's duty status and other related information for a minimum of 8 days.

(i) Record backup and security. (1) A motor carrier must maintain for 6 months a back-up copy of the ELD records on a device separate from that on which the original data are stored.

(2) A motor carrier must maintain a driver's ELD records so as to protect a driver's privacy in a manner consistent with sound business practices.

(j) *Record production.* When requested by an authorized safety official, a motor carrier must produce ELD records in an electronic format either on request or, if the motor carrier has multiple offices or terminals, within the time permitted under § 390.29.

**§ 395.24 Driver responsibilities—In general.**

(a) *In general.* A driver must provide the information the ELD requires as prompted by the ELD and required by the motor carrier.

(b) *Driver's duty status.* A driver must input the driver's duty status by selecting among the following categories available on the ELD:

- (1) "Off duty" or "OFF" or "1";
- (2) "Sleeper berth" or "SB" or "2", to be used only if sleeper berth is used;
- (3) "Driving" or "D" or "3"; or
- (4) "On-duty not driving" or "ON" or "4".

(c) *Miscellaneous data.* (1) A driver must manually input the following information in the ELD:

- (i) Annotations, when applicable;
- (ii) Driver's location description, when prompted by the ELD; and
- (iii) Output file comment, when directed by an authorized safety officer.

(2) A driver must manually input or verify the following information on the ELD:

- (i) Commercial motor vehicle power unit number;
- (ii) Trailer number(s), if applicable; and
- (iii) Shipping document number, if applicable.

(d) *Driver use of ELD.* On request by an authorized safety official, a driver must produce and transfer from an ELD the driver's hours-of-service records in accordance with the instruction sheet provided by the motor carrier.

#### **§ 395.26 ELD data automatically recorded.**

(a) *In general.* An ELD provides the following functions and automatically records the data elements listed in this section in accordance with the requirements contained in the appendix to subpart B of part 395.

(b) *Data automatically recorded.* The ELD automatically records the following data elements:

- (1) Date;
- (2) Time;
- (3) CMV geographic location information;
- (4) Engine hours;
- (5) Vehicle miles;
- (6) Driver or authenticated user identification data;
- (7) Vehicle identification data; and
- (8) Motor carrier identification data.

(c) *Change of duty status.* When a driver indicates a change of duty status under § 395.24(b), the ELD records the data elements in paragraphs (b)(1) through (8) of this section.

(d) *Intermediate recording.* (1) When a commercial motor vehicle is in motion and there has not been a duty status change or another intermediate recording in the previous 1 hour, the ELD automatically records an intermediate recording that includes the data elements in paragraphs (b)(1) through (8) of this section.

(2) If the intermediate recording is created during a period when the driver indicates authorized personal use of a commercial motor vehicle, the data elements in paragraphs (b)(4) and (b)(5) of this section (engine hours and vehicle miles) will be left blank and paragraph (b)(3) of this section (location) will be recorded with a single decimal point resolution (approximately within a 10-mile radius).

(e) *Change in special driving category.* If a driver indicates a change in status under § 395.28(a)(2), the ELD records

the data elements in paragraphs (b)(1) through (8) of this section.

(f) *Certification of the driver's daily record.* The ELD provides a function for recording the driver's certification of the driver's records for every 24-hour period. When a driver certifies or recertifies the driver's records for a given 24-hour period under § 395.30(b)(2), the ELD records the date, time and driver identification data elements in paragraphs (b)(1), (2), and (6) of this section.

(g) *Log in/log out.* When an authorized user logs into or out of an ELD, the ELD records the data elements in paragraphs (b)(1) and (2) and (b)(4) through (8) of this section.

(h) *Engine power up/shut down.* When a commercial motor vehicle's engine is powered up or powered down, the ELD records the data elements in paragraphs (b)(1) through (8) of this section.

(i) *Authorized personal use.* If the record is created during a period when the driver has indicated authorized personal use of a commercial motor vehicle, the data element in paragraph (a)(3) of this section is logged with a single decimal point resolution (approximately within a 10-mile radius).

(j) *Malfunction and data diagnostic event.* When an ELD detects or clears a malfunction or data diagnostic event, the ELD records the data elements in paragraphs (b)(1) and (2) and (b)(4) through (8) of this section.

#### **§ 395.28. Special driving categories; other driving statuses.**

(a) *Special driving categories.* (1) *Motor carrier options.* A motor carrier may configure an ELD to authorize a driver to indicate that the driver is operating a commercial motor vehicle under any of the following special driving categories:

- (i) Authorized personal use; and
- (ii) Yard moves.

(2) *Driver's responsibilities.* A driver operating a commercial motor vehicle under one of the authorized categories listed in paragraph (a)(1) of this section:

- (i) Must select on the ELD the applicable special driving category before the start of the status and deselect when the indicated status ends; and
- (ii) When prompted by the ELD, annotate the driver's ELD record describing the driver's activity.

(b) *Drivers exempt from ELD use.* A motor carrier may configure an ELD to designate a driver as exempt from ELD use.

(c) *Other driving statuses.* A driver operating a commercial motor vehicle under any exception under § 390.3(f) or § 395.1 who is not covered under

paragraph (a) or (b) of this section must annotate the driver's ELD record explaining the applicable exemption.

#### **§ 395.30 ELD record submissions, edits, annotations, and data retention.**

(a) *True and correct record keeping.* A driver and the motor carrier must ensure that the driver's ELD records are accurate.

(b) *Review of records and certification by driver.* (1) A driver must review the driver's ELD records, edit and correct inaccurate records, enter any missing information, and certify the accuracy of the information.

(2) Using the certification function of the ELD, the driver must certify the driver's records by affirmatively selecting "Agree" immediately following a statement that reads, "I hereby certify that my data entries and my record of duty status for this 24-hour period are true and correct." The driver must certify the record immediately after the final required entry has been made or corrected for the 24-hour period.

(3) The driver must submit the driver's certified ELD records to the motor carrier in accordance with § 395.8(a)(2).

(4) If any edits are necessary after the driver submits the records to the motor carrier, the driver must recertify the record after the edits are made.

(c) *Edits, entries, and annotations.* (1) Subject to the edit limitations of an ELD, a driver may edit, enter missing information, and annotate ELD recorded events. When edits, additions, or annotations are necessary, a driver must use the ELD and respond to the ELD's prompts.

(2) The driver or support personnel must annotate each change or addition to a record.

(3) In the case of team drivers, if there was a mistake resulting in the wrong driver being assigned driving-time hours by the ELD, and if the team drivers were both indicated in each other's records for that period as co-drivers, driving time may be edited and reassigned between the team drivers following the procedure supported by the ELD.

(d) *Motor carrier-proposed edits.* (1) On review of a driver's submitted records, the motor carrier may request edits to a driver's records of duty status to ensure accuracy. A driver must confirm or reject any proposed change, implement the appropriate edits on the driver's record of duty status, and recertify and resubmit the records in order for any motor carrier-proposed changes to take effect.

(2) A motor carrier may not request edits to the driver's electronic records

before the records have been submitted by the driver.

(3) Edits requested by any system or by any person other than the driver must require the driver's electronic confirmation or rejection.

(e) *Coercion prohibited.* A motor carrier may not coerce a driver to make a false certification of the driver's data entries or record of duty status.

(f) *Motor carrier data retention requirements.* A motor carrier must not alter or erase, or permit or require alteration or erasure of, the original information collected concerning the driver's hours of service, the source data streams used to provide that information, or information contained in any ELD support system that uses the original information and source data streams.

#### **§ 395.32 Non-authenticated driver logs.**

(a) *Tracking non-authenticated operation.* The ELD must associate the non-authenticated operation of a commercial motor vehicle with a single account labeled "Unidentified Driver" as soon as the vehicle is in motion, if no driver has logged into the ELD.

(b) *Driver.* When a driver logs into an ELD, the driver must review any unassigned driving time when prompted by the ELD and must:

(1) Assume any records that belong to the driver under the driver's account; or

(2) Indicate that the records are not attributable to the driver.

(c) *Motor carrier.* (1) A motor carrier must ensure that records of unidentified driving are reviewed and must:

(i) Annotate the record, explaining why the time is unassigned; or

(ii) Assign the record to the appropriate driver to correctly reflect the driver's hours of service.

(2) A motor carrier must retain unidentified driving records for each ELD for a minimum of 6 months from the date of receipt.

(3) During a safety inspection, audit or investigation by an authorized safety official, a motor carrier must make available unidentified driving records from the ELD corresponding to the time period for which ELD records are required.

#### **§ 395.34 ELD malfunctions and data diagnostic events.**

(a) *Recordkeeping during ELD malfunctions.* In case of an ELD malfunction, a driver must do the following:

(1) Note the malfunction of the ELD and provide written notice of the malfunction to the motor carrier within 24 hours;

(2) Reconstruct the record of duty status for the current 24-hour period

and the previous 7 consecutive days, and record the records of duty status on graph-grid paper logs that comply with § 395.8, unless the driver already possesses the records or the records are retrievable from the ELD; and

(3) Continue to manually prepare a record of duty status until the ELD is serviced and brought back into compliance with this subpart.

(b) *Inspections during malfunctions.* When a driver is inspected for hours of service compliance during an ELD malfunction, the driver must provide the authorized safety official the driver's records of duty status manually maintained as specified under paragraphs (a)(2) and (3) of this section.

(c) *Driver requirements during ELD data diagnostic events.* If an ELD indicates that there is a data inconsistency that generates a data diagnostic event, the driver must follow the motor carrier's and ELD provider's recommendations in resolving the data inconsistency.

(d) *Motor carrier requirements for repair, replacement, or service.* (1) If a motor carrier receives or discovers information concerning the malfunction of an ELD, the motor carrier must take corrective actions to correct the malfunction of the ELD within 8 days of discovery of the condition or a driver's notification to the motor carrier, whichever occurs first.

(2) A motor carrier seeking to extend the period of time permitted for repair, replacement, or service of one or more ELDs shall notify the FMCSA Division Administrator for the State of the motor carrier's principal place of business within 5 days after a driver notifies the motor carrier under paragraph (a)(1) of this section. Each request for an extension under this section must be signed by the motor carrier and must contain:

(i) The name, address, and telephone number of the motor carrier representative who files the request;

(ii) The make, model, and serial number of each ELD;

(iii) The date and location of each ELD malfunction as reported by the driver to the carrier; and

(iv) A concise statement describing actions taken by the motor carrier to make a good faith effort to repair, replace, or service the ELD units, including why the carrier needs additional time beyond the 8 days provided by this section.

(3) If FMCSA determines that the motor carrier is continuing to make a good faith effort to ensure repair, replacement, or service to address the malfunction of each ELD, FMCSA may allow an additional period.

(4) FMCSA will provide written notice to the motor carrier of its determination. The determination may include any conditions that FMCSA considers necessary to ensure hours-of-service compliance. The determination shall constitute a final agency action.

(5) A carrier providing a request for extension that meets the requirements of paragraph (d)(2) of this section is deemed in compliance with § 395.8(a)(1)(i) and (a)(2) until FMCSA makes an extension determination under this section, provided the motor carrier and driver continue to comply with the other requirements of this section.

#### **§ 395.36 Driver access to records.**

(a) *Records on ELD.* Drivers must be able to access their own ELD records. A motor carrier must not introduce a process that would require a driver to go through the motor carrier to obtain copies of the driver's own ELD records if such records exist on or are automatically retrievable through the ELD operated by the driver.

(b) *Records in motor carrier's possession.* On request, a motor carrier must provide a driver with access to and copies of the driver's own ELD records unavailable under paragraph (a) of this section during the period a motor carrier is required to retain the records under § 395.8(k).

#### **§ 395.38 Incorporation by reference.**

(a) *Incorporation by reference.* Certain materials are incorporated by reference in part 395, with the approval of the Director of the Office of the Federal Register under 5 U.S.C. 552(a), and 1 CFR part 51. To enforce any edition other than that specified in this section, the Federal Motor Carrier Safety Administration must publish notice of change in the **Federal Register**, and the material must be available to the public. All approved material is available for inspection at the Federal Motor Carrier Safety Administration, Office of Bus and Truck Standards and Operations (MC-PS), (202) 366-4325, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(b) Institute of Electrical and Electronic Engineers (IEEE) Standards Association. 445 Hoes Lane, Piscataway, NJ 08854-4141. Web page is <http://standards.ieee.org/index.html>. Telephone is (732) 981-0060.

(1) “Standard for Authentication in Host Attachments of Transient Storage Devices,” IEEE Standards Association: 2009 (IEEE Std. 1667–2009).

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## **Appendix to Subpart B of Part 395—Functional Specifications for All Electronic Logging Devices (ELDs)**

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## 1. Scope and Description

This appendix specifies the minimal requirements for an electronic logging device (ELD) necessary for an ELD provider to build and certify that its technology is compliant with this appendix.

Throughout this appendix, a reference to an ELD includes, to the extent applicable, an ELD support system.

### 1.1. ELD Function

The ELD discussed in this appendix is an electronic module capable of recording the electronic records of duty status for CMV drivers using the unit in a driving environment within a CMV and meets the compliance requirements in this appendix.

### 1.2. System Users

Users of ELDs are:

- (1) CMV drivers employed by a motor carrier; and
- (2) Support personnel who have been authorized by the motor carrier to:
  - (a) Create, remove and manage user accounts;
  - (b) Configure allowed ELD parameters; and
  - (c) Access, review and manage drivers' ELD records on behalf of the motor carrier.

### 1.3. System Architecture

An ELD may be implemented as a stand-alone technology or within another electronic module. It may be installed in a CMV or may be implemented on a handheld unit that may be moved from vehicle to vehicle. The functional requirements are the same for all types of system architecture that may be used in implementing the ELD functionality.

### 1.4. System Design

An ELD is integrally synchronized with the engine of the CMV such that driving time can

be automatically recorded for the driver operating the CMV and using the ELD.

An ELD allows for manual inputs from the driver and the motor carrier support personnel and automatically captures date and time, vehicle position, and vehicle operational parameters.

An ELD records a driver's electronic RODS and other supporting events with the required data elements specified in this appendix and retains data to support the performance requirements specified in this appendix

An ELD generates a standard data file output and transfers it to an authorized safety official upon request.

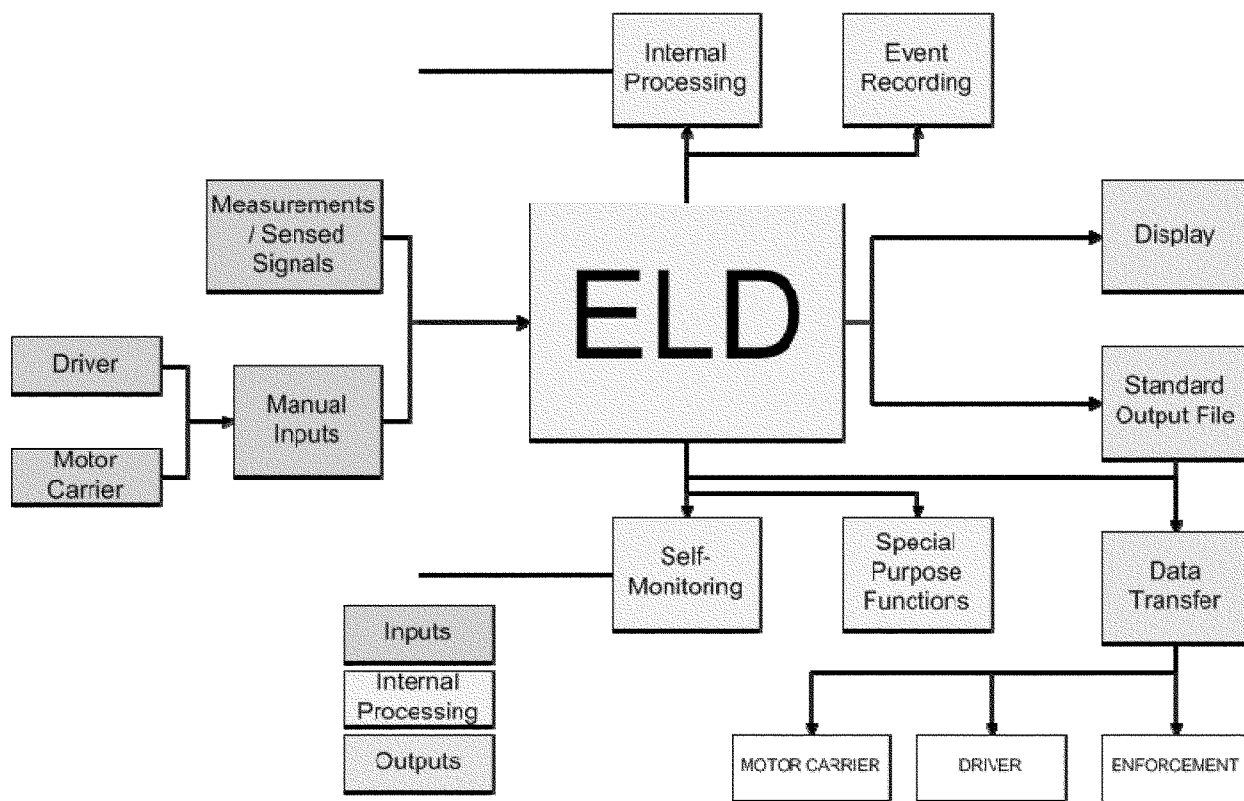
This appendix specifies minimally required data elements that must be part of an event record such that a standard ELD output file can be produced by all compliant ELDs.

Figure 1 provides a visual layout of how this appendix is generally organized to further explain the required sub-functions of an ELD.

**BILLING CODE 4910-EX-P**

**Figure 1**

## A Pictorial Overview of an ELD's Inputs, Outputs, and Other Sub-Functions



**BILLING CODE 4910-EX-C**

### 1.5. Sections of Appendix

Section 2 lists the abbreviations used throughout this appendix.

Section 3 provides definitions for terms and notations used in this document.

Section 4 lists functional requirements for an ELD. More specifically, section 4.1 describes the security requirements for account management within an ELD system and introduces the term "Unidentified Driver" account. Section 4.2 explains internal engine synchronization requirements and its applicability when used in recording a driver's record of duty status in CMVs built before and after a threshold model year.

Section 4.3 describes the inputs of an ELD which includes automatically measured signals by the ELD as covered in section 4.3.1, and manual entries by the authenticated driver as covered in section 4.3.2 and by the motor carrier as covered in section 4.3.3. The ELD requirements for internal processing and tracking of information flow are described in section 4.4 which includes conditions for and prohibitions against automatic setting of duty-status in section 4.4.1, required geo-location and date and time conversion functions in sections 4.4.2 and 4.4.3, respectively, use of event attributes for tracking of edit and entry history in section 4.4.4, and the use of data check functions in

the recording of ELD logs in section 4.4.5 as standard security measures for all ELDs. Section 4.5 describes the events an ELD must record and the data element each type of an event must include. Section 4.6 introduces device self-monitoring requirements and standardizes the minimal set of malfunctions and data diagnostic events an ELD must be able to detect. Section 4.7 introduces technical functions that are intended to guard a driver against harassment and introduces a privacy preserving provision when a driver operates a CMV for personal purposes. Section 4.8 explains ELD outputs, which are the information displayed to a user and the standard data output file an ELD must produce. Sections 4.9 and 4.10, respectively,

describe the data reporting requirements and the communications protocols.

Section 5 describes the ELD certification and registration process.

Section 6 lists the cited references throughout this appendix.

Section 7 provides a data elements dictionary for each data element referenced in this appendix.

## 2. Abbreviations

3pDP Third-party Developers' Partnership  
 ASCII American Standard Code for Information Interchange  
 CAN Control Area Network  
 CMV Commercial Motor Vehicle  
 ECM Electronic Control Module  
 ELD Electronic Logging Device  
 FMCSA Federal Motor Carrier Safety Administration  
 HOS Hours of Service  
 HTTP Hypertext Transfer Protocol  
 HTTPS Hypertext Transfer Protocol Secure  
 ICD Interface Control Document  
 SAFER Safety and Fitness Electronic Records  
 QR Quick Response  
 RFC Request for Comments  
 RODS Records of Duty Status  
 TLS Transport Layer Security  
 UCT Coordinated Universal Time  
 USB Universal Serial Bus  
 WSDL Web Services Definition Language  
 XML Extensible Markup Language  
 XOR Exclusive Or {bitwise binary operation}

## 3. Definitions; Notations

### 3.1. Definitions

#### 3.1.1. Databus

A vehicle databus refers to an internal communications network that interconnects components inside a vehicle and facilitates exchange of data between subsystems typically using serial or control area network protocols.

#### 3.1.2. ELD Event

An ELD event refers to a discrete instance in time when the ELD records data with the data elements specified in this appendix. The discrete ELD events relate to the driver's duty status and ELD's operational integrity. They are either triggered by input from the driver (driver's duty status changes, driver's login/logout activity, etc.) or triggered by ELD's internal monitoring functions (ELD malfunction detection, data diagnostics detection, intermediate logs, etc.). ELD events and required data elements for each type of ELD events are described in detail in section 4.5.1.

#### 3.1.3. Exempt Driver

As specified in further detail in section 4.3.3.1.2, an ELD must allow a motor carrier to configure an ELD for a driver who may be exempt from the use of ELD. Examples of an exempt driver would be a 100 air-mile radius driver and non-CDL 150-air mile radius driver. Even though exempt drivers do not have to use an ELD, in operations when an ELD equipped CMV may be shared between exempt and non-exempt drivers, motor carriers can use this allowed configuration to avoid issues with unidentified driver data diagnostics errors.

### 3.1.4. Geo-Location

Geo-location is the conversion of a position measurement in latitude/longitude coordinates into a description of the distance and direction to a recognizable nearby location name. Geo-location information is used in ELD's displayable outputs such as on a screen.

#### 3.1.5. Ignition Power Cycle, Ignition Power On Cycle, Ignition Power Off Cycle

An ignition power cycle refers to the engine's power status changing from "on to off" or "off to on", typically with driver controlling ignition power by switching the ignition key positions.

An ignition power on cycle refers to the engine power sequence changing from "off to on and then off". This refers to a continuous period when a CMV's engine is powered.

An ignition power off cycle refers to the engine power sequence changing from "on to off and then on". This refers to a continuous period when a CMV's engine is not powered.

#### 3.1.6. Unidentified Driver

"Unidentified Driver" refers to the operation of a CMV featuring an ELD without an authenticated driver logging in the system. Functional specifications in this appendix require an ELD to automatically capture driving time under such conditions and attribute such records with the unique "Unidentified Driver" account, as specified in section 4.1.5, until they are reviewed and assigned to the true and correct owner of these records.

### 3.2. Notations

Throughout this appendix the following notations are used when data elements are referenced.

<.> indicates a parameter an ELD must track.

For example ELD username refers to the unique <ELD username> or identifier specified during the creation of an ELD account with the requirements set forth in section 7.1.17.

{.} indicates which of multiple values of a parameter is being referenced. For example ELD username {for the co-driver} refers specifically the ELD username for the co-driver.

<CR> indicates a carriage return or new line or end of current line. This notation is used in section 4.8.2 which describes the standard ELD output file and in section 4.10.2.4 which describes a standard printout report.

## 4. Functional Requirements

### 4.1. ELD User Accounts

#### 4.1.1. Account Types

An ELD must support a user account structure that separates drivers and motor carrier's support personnel (i.e. non-drivers).

#### 4.1.2. Account Creation

Each user of the ELD must have a valid active account on the ELD with a unique identifier assigned by the motor carrier.

Each driver account must require the entry of the driver's license number and the State or jurisdiction that issued the driver's license into the ELD during the account creation process. The driver account must securely store this information on the ELD.

An ELD must not allow creation of more than one driver account associated with a driver's license for a given motor carrier.

A driver account must not have administrative rights to create new accounts on the ELD.

A support personnel account must not allow recording of ELD data for its account holder.

An ELD must reserve a unique driver account for recording events during non-authenticated operation of a CMV. This appendix will refer to this account as unidentified driver account.

#### 4.1.3. Account Security

An ELD must provide secure access to data recorded and stored on the system by requiring user authentication during system login.

Driver accounts must only have access to data associated with that driver, protecting the authenticity and confidentiality of the collected information.

#### 4.1.4. Account Management

An ELD must be capable of separately recording and retaining ELD data for each individual driver using the ELD.

An ELD must provide for and require concurrent authentication for team drivers.

If more than one ELD unit is used to record a driver's electronic records within a motor carrier's operation, the ELD in the vehicle the driver is operating most recently must be able to produce a complete ELD report for that driver, on demand, for the current 24-hour period and the previous 7 consecutive days.

#### 4.1.5. Non-Authenticated Operation

An ELD must associate all non-authenticated operation of a CMV with a single ELD account labeled unidentified driver.

If a driver does not log onto the ELD, as soon as the vehicle is in motion, the ELD must:

(a) Provide a visual or visual and audible warning reminding the driver to stop and login to the ELD;

(b) Record accumulated driving and on-duty, not-driving, time in accordance with the ELD defaults described in section 4.4.1 under the unidentified driver profile; and

(c) Not allow entry of any information into the ELD other than a response to the login prompt.

### 4.2. ELD-Vehicle Interface

An ELD must be integrally synchronized with the engine of the CMV. Engine synchronization for purposes of ELD compliance means the monitoring of the vehicle's engine operation to automatically capture engine's power status, vehicle's motion status, miles driven value, and engine hours value. Furthermore, an ELD used while operating a CMV that is a model year 2000 or later model year, as indicated by the vehicle identification number, that has engine electronic control module (ECM), must establish a link to the engine ECM and receive this information automatically through the serial or Control Area Network communication (CAN) protocols supported by the vehicle's engine ECM. Otherwise, an ELD may use alternative sources to obtain or

estimate these vehicle parameters with the listed accuracy requirements under section 4.3.1.

#### 4.3. ELD Inputs

##### 4.3.1. ELD Sensing

###### 4.3.1.1. Engine Power Status

An ELD must be powered within 15 seconds of the vehicle's engine receiving power and must remain powered for as long as the vehicle's engine stays powered.

###### 4.3.1.2. Vehicle Motion Status

An ELD must automatically determine whether a CMV is in motion or stopped by comparing the vehicle speed information with respect to a set speed threshold as follows:

(1) Once the vehicle speed exceeds the set speed threshold, it must be considered in motion.

(2) Once in motion, the vehicle must be considered in motion until its speed falls to 0 miles per hour and stays at 0 miles per hour for 3 consecutive seconds. Then, the vehicle will be considered stopped.

(3) An ELD's set speed threshold for determination of the in-motion state for the purpose of this section must not be configurable to greater than 5 miles per hour.

If an ELD is required to have a link to the vehicle's engine ECM, vehicle speed information must be acquired from the engine ECM. Otherwise, vehicle speed information must be acquired using an independent source apart from the positioning services described under section 4.3.1.6 and must be accurate within  $\pm 3$  miles per hour of the CMV's true ground speed for purposes of determining the in-motion state for the CMV.

###### 4.3.1.3. Vehicle Miles

An ELD must monitor vehicle miles as accumulated by a CMV over the course of an ignition power on cycle (accumulated vehicle miles) and over the course of CMV's operation (total vehicle miles). Vehicle miles information must use or must be converted to units of whole miles.

If the ELD is required to have a link to the vehicle's engine ECM as specified in section 4.2:

(1) The ELD must monitor the engine ECM's odometer message broadcast and use it to log total vehicle miles information; and

(2) The ELD must use the odometer message to determine accumulated vehicle miles since engine's last power on instance.

Otherwise, the accumulated vehicle miles indication must be obtained or estimated

from a source that is accurate to within  $\pm 10\%$  of miles accumulated by the CMV over a 24-hour period as indicated on the vehicle's odometer display.

###### 4.3.1.4. Engine Hours

An ELD must monitor engine hours of the CMV over the course of an ignition power on cycle (elapsed engine hours) and over the course of the CMV's operation total engine hours. Engine hours must use or must be converted to hours in intervals of a tenth of an hour.

If an ELD is required to have a link to the vehicle's engine ECM, the ELD must monitor engine ECM's total engine hours message broadcast and use it to log total engine hours information. Otherwise, engine hours must be obtained or estimated from a source that monitors the ignition power of the CMV and must be accurate within  $\pm 0.1$  hour of the engine's total operation within a given ignition power on cycle.

###### 4.3.1.5. Date and Time

The ELD must obtain and record the date and time information automatically without allowing any external input or interference from a motor carrier, driver, or any other person.

The ELD time must be synchronized to Coordinated Universal Time (UCT) and the absolute deviation from UCT must not exceed 10 minutes at any point in time.

###### 4.3.1.6. CMV Position

An ELD must have the capability to automatically determine the position of the CMV in standard latitude/longitude coordinates with the accuracy and availability requirements of this section.

ELD must obtain and record this information without allowing any external input or interference from a motor carrier, driver, or any other person.

CMV position measurement must be accurate to  $\pm 0.5$  mile of absolute position of the CMV when an ELD measures a valid latitude/longitude coordinate value.

Position information must be obtained in or converted into standard signed latitude and longitude values and must be expressed as decimal degrees to hundreds of a degree precision (i.e., a decimal point and two decimal places).

Measurement accuracy combined with the reporting precision requirement implies that position reporting accuracy will be in the order of  $\pm 1$  mile of absolute position of the CMV during the course of a CMV's commercial operation.

During periods of a driver's indication of personal use of the CMV, measurement

reporting precision requirement is further reduced to be expressed as decimal degrees to tenths of a degree (i.e. a decimal point and single decimal place) as further specified in section 4.7.3.

An ELD must be able to acquire a valid position measurement at least once every 5 miles of driving; however, CMV location information is only recorded during ELD events as specified in section 4.5.1.

###### 4.3.1.7. CMV VIN

The vehicle identification number (VIN) for the power unit of a CMV must be automatically obtained from the engine ECM and recorded if it is available on the vehicle database.

##### 4.3.2. Driver's Manual Entries

An ELD must prompt the driver to input information into the ELD only when the CMV is stationary and driver's duty status is not on-duty driving, except for the condition specified in section 4.4.1.2.

If the driver's duty status is driving, an ELD must only allow the driver who is operating the CMV to change the driver's duty status to another duty status.

A stopped vehicle must maintain zero (0) miles per hour speed to be considered stationary for purposes of information entry into an ELD.

An ELD must allow an authenticated co-driver who is not driving, but who has logged into the ELD prior to the vehicle being in motion to make entries over his or her own records when the vehicle is in motion. The ELD must not allow co-drivers to switch driving roles when the vehicle is in motion.

###### 4.3.2.1. Driver's Entry of Required Event Data Fields

An ELD must provide a means for a driver to manually enter information pertaining to driver's ELD records such as CMV power unit number as specified in section 7.1.4, trailer number(s) as specified in section 7.1.41 and shipping document number as specified in 7.1.38.

If these fields are populated automatically by motor carrier's ELD system, the ELD must provide means for the driver to review such information and make corrections as necessary.

###### 4.3.2.2. Driver's Status Inputs

###### 4.3.2.2.1. Driver's Indication of Duty Status

An ELD must provide a means for the authenticated driver to select a driver's duty status. The ELD must use the ELD duty status categories listed in Table 1.

TABLE 1—DUTY STATUS CATEGORIES

Duty status	Abbreviation	Data coding
Off Duty .....	OFF .....	1
Sleeper Berth .....	SB .....	2
Driving .....	D .....	3
On-duty Not Driving .....	ON .....	4

#### 4.3.2.2.2. Driver's Indication of Situations Impacting Driving Time Recording

An ELD must provide means for a driver to indicate the beginning and end of a period

when the driver may use the CMV for authorized personal use, or for performing yard moves. The ELD must acquire this status in a standard format from the category list in

Table 2. This list must be supported independent of the duty status categories described in section 4.3.2.2.1.

**TABLE 2—CATEGORIES FOR DRIVER'S INDICATION OF SITUATIONS IMPACTING DRIVING TIME RECORDING**

Category	Abbreviation	Data coding
Authorized Personal Use of CMV .....	PC .....	1
Yard Moves .....	YM .....	2
Default: None .....	.....	0

An ELD must allow a driver to only select categories that a motor carrier enables by configuration for that driver, as described in section 4.3.3.1.1.

An ELD must only allow one category to be selected at any given time and use the latest selection by the driver.

The ELD must prompt the driver to enter an annotation upon selection of a category from Table 2 and record driver's entry.

A driver's indication of special driving situation must reset to none if the ELD or CMV's engine goes through a power off cycle (ELD or CMV's engine turns off and then on) except if the driver has indicated authorized personal use of CMV, in which case, the ELD must require confirmation of continuation of the authorized personal use of CMV condition by the driver. If not confirmed by the driver and the vehicle is in motion, the ELD must default to none.

#### 4.3.2.3. Driver's Certification of Records

An ELD must include a function whereby a driver can certify the driver's records at the end of a 24-hour period. This function, when selected, must display a statement that reads "I hereby certify that my data entries and my record of duty status for this 24-hour period are true and correct." Driver must be prompted to select "Agree" or "Not ready." Driver's affirmative selection of "Agree" must be recorded as an event.

An ELD must only allow the authenticated driver to certify records associated with that driver.

If any edits are necessary after the driver certifies the records for a given 24-hour period, the ELD must require and prompt the driver to re-certify the updated records.

If there are any past records on the ELD (excluding the current 24-hour period) that requires certification or re-certification by the driver, the ELD must indicate the required driver action on the ELD's display and prompt the driver to take the necessary action during the login and logout processes.

#### 4.3.2.4. Driver's Data Transfer Initiation Input

An ELD must provide a standardized single-step driver interface for compilation of driver's ELD records and initiation of the data transfer to authorized safety officials when requested during a roadside inspection.

The ELD must input the data transfer request from the driver, require confirmation, present and request selection of the supported data transfer options by the ELD, and prompt for entry of the output file comment as specified in section 4.3.2.5. Upon confirmation, the ELD must generate

the compliant output file and perform the data transfer.

The supported single-step data transfer initiation mechanism (such as a switch or an icon on a touch-screen display) must be clearly marked and visible to the driver when the vehicle is stopped.

#### 4.3.2.5. Driver's Entry of an Output File Comment

An ELD must accommodate the entry of an output file comment up to 60 characters long. If an authorized safety official provides a key phrase or code during an inspection to be included in the output file comment, it must be entered and embedded into the electronic ELD records in the exchanged dataset as specified in section 4.8.2.1.1. The default value for the output file comment must be blank. This output file comment must be used only for the creation of the related data files for the intended time, place, and ELD user.

#### 4.3.2.6. Driver's Annotation of Records

An ELD must allow for a driver to add annotations in text format to recorded, entered, or edited ELD events.

The ELD must require annotations to be 4 characters or longer, including embedded spaces if driver annotation is required and driver is prompted by the ELD.

#### 4.3.2.7. Driver's Entry of Location Information

An ELD must allow manual entry of a CMV's location by the driver in text format in support of the driver edit requirements described in section 4.3.2.8.

Driver's manual location entry must be available as an option to a driver only when prompted by the ELD under allowed conditions as described in section 4.6.1.4.

A manual location entry must show "M" in the latitude/longitude coordinates fields in ELD records.

#### 4.3.2.8. Driver's Record Entry/Edit

An ELD must provide a mechanism for a driver to review, edit, and annotate the driver's ELD records when a notation of errors or omissions is necessary or enter the driver's missing ELD records subject to the requirements specified in this section.

An ELD must not permit alteration or erasure of the original information collected concerning the driver's ELD records or alteration of the source data streams used to provide that information.

#### 4.3.2.8.1. Mechanism for Driver Edits and Annotations

If a driver edits or annotates an ELD record or enters missing information the act must not overwrite the original record.

The ELD must use the process outlined in section 4.4.4.2 to configure required event attributes to track the edit history of records.

Driver edits must be accompanied by an annotation. The ELD must prompt the driver to annotate edits.

#### 4.3.2.8.2. Driver Edit Limitations

An ELD must not allow or require the editing or manual entry of records with the following event types, as described in section 7.1.24:

Event Type	Description
2 .....	An intermediate log,
5 .....	A driver's login/logout activity,
6 .....	CMV's engine power up/shut down, or
7 .....	ELD malfunctions and data diagnostic events.

An ELD must not allow automatically recorded driving time to be shortened. An ELD must not allow the ELD username associated with an ELD record to be edited or reassigned, except under the following circumstances:

(1) *Assignment of Unidentified Driver records.* ELD events recorded under the "Unidentified Driver" profile may be edited and assigned to the driver associated with the record; and

(2) *Correction of errors with team drivers.* In the case of team drivers, the driver account associated with the driving time records may be edited and reassigned between the team drivers if there was a mistake resulting in a mismatch between the actual driver and the driver recorded by the ELD and if the team drivers were both indicated in each other's records as a co-driver. The ELD must require each co-driver to confirm the change for the corrective action to take effect.

#### 4.3.3. Motor Carrier's Manual Entries

An ELD must restrict availability of motor carrier entries outlined in this subsection only to authenticated "support personnel" account holders.

#### 4.3.3.1. ELD Configuration

If an ELD or a technology that includes an ELD function offers configuration options to the motor carrier or the driver that are not otherwise addressed or prohibited in this appendix, the configuration options must not

affect the ELD's compliance with the requirements of this rule for each configuration setting of the ELD.

#### 4.3.3.1.1. Configuration of Available Categories Impacting Driving Time Recording

An ELD must allow a motor carrier to unilaterally configure the availability of each of the three categories listed on Table 2 that the motor carrier chooses to authorize for each of its drivers. By default, none of these categories must be available to a new driver account without the motor carrier proactively configuring their availability.

A motor carrier may change the configuration for the availability of each category for each of its drivers. Changes to the configuration setting must be recorded on the ELD and communicated to the applicable authenticated driver during the ELD login process.

#### 4.3.3.1.2. Configuration of Using ELDs

An ELD must provide the motor carrier an ability to configure a driver account exempt from use of an ELD.

The ELD must default the setting of this configuration option for each new driver account created on an ELD to no exemption. An exemption must be proactively configured for an applicable driver account by the motor carrier. The ELD must prompt the motor carrier to annotate the record and provide an explanation for the configuration of exemption.

If a motor carrier configures a driver account to be exempt, the ELD must present the configured indication that is in effect for that driver during the ELD login and logout processes.

If a motor carrier configures a driver account as exempt the ELD must continue to record ELD driving time but suspend detection of missing data elements data diagnostic event for the driver described in section 4.6.1.5 and data transfer compliance monitoring function described in section 4.6.1.7 when such driver is authenticated on the ELD.

#### 4.3.3.2. Motor Carrier's Post-Review Electronic Edit Requests

An ELD may allow the motor carrier (via a monitoring algorithm or support personnel) to screen, review, and request corrective edits to the driver's certified (as described in section 4.3.2.3) and submitted records through the ELD system electronically. If this function is implemented by the ELD, the ELD must also support functions for the driver to see and review the requested edits.

Edits requested by anyone or any system other than the driver must require the driver's electronic confirmation or rejection.

### 4.4. ELD Processing and Calculations

#### 4.4.1. Conditions for Automatic Setting of Duty Status

##### 4.4.1.1. Automatic Setting of Duty Status to Driving

An ELD must automatically record driving time when the vehicle is in motion by setting duty status to driving for the driver unless, before the vehicle is in motion, the driver:

(1) Sets the duty status to off-duty and indicates personal use of CMV, in which case

duty status must remain off-duty until driver's indication of the driving condition ends; or

(2) Sets the duty status to on-duty not driving and indicates yard moves, in which case duty status must remain on-duty not driving until driver's indication of the driving condition ends.

##### 4.4.1.2. Automatic Setting of Duty Status to On-Duty Not Driving

When the duty status is set to driving, and the CMV has not been in-motion for 5 consecutive minutes, the ELD must prompt the driver to confirm continued driving status or enter the proper duty status. If the driver does not respond to the ELD prompt within 1-minute after receiving the prompt, the ELD must automatically switch the duty status to on-duty not driving. The time thresholds for purposes of this section must not be configurable.

##### 4.4.1.3. Other Automatic Duty-Status Setting Actions Prohibited

An ELD must not feature any other automatic records of duty setting mechanism than those described in sections 4.4.1.1 and 4.4.1.2. Duty status changes that are not initiated by the driver, including duty status alteration recommendations by motor carrier support personnel or a software algorithm, are subject to motor carrier edit requirements in section 4.3.3.2.

#### 4.4.2. Geo-Location Conversions

For each change in duty status, the ELD must convert automatically captured vehicle position in latitude/longitude coordinates into geo-location information, indicating approximate distance and direction to an identifiable location corresponding to the name of a nearby city, town, or village, with a state abbreviation.

Geo-location information must be derived from a database that contains all cities, towns, and villages with a population of 5,000 or greater and listed in ANSI INCITS 446-2008 (incorporated by reference, see § 395.38), reference (3)(a) in section 6 of this appendix.

An ELD's viewable outputs (such as printouts or displays) must feature geo-location information as place names in text format.

#### 4.4.3. Date and Time Conversions

An ELD must have the capability to convert and track date and time captured in UTC standard to the time standard in effect at driver's home terminal, taking the daylight savings time changes into account by using the parameter "Time Zone Offset from UTC" as specified in section 7.1.40.

An ELD must record the driver's record of duty status using the time standard in effect at the driver's home terminal for a 24-hour period beginning with the time specified by the motor carrier for that driver's home terminal.

The data element "Time Zone Offset from UTC" must be included in the "Driver's certification of Own Records" events as specified in section 4.5.1.4.

#### 4.4.4. Setting of Event Parameters in Records, Edits, and Entries

This section describes the security measures for configuring and tracking event

attributes for ELD records, edits, and entries in a standardized manner.

##### 4.4.4.1. Event Sequence Identifier (ID) Number

Each ELD event must feature an event sequence ID Number.

The event sequence ID number for each ELD must use continuous numbering across all users of that ELD and across engine and ELD power on and off cycles.

An ELD must use the next available event sequence ID number (incremented by one) each time a new event log is recorded.

Event sequence ID number must track at least the last 65,536 unique events recorded on the ELD.

The continuous event sequence ID numbering structure used by the ELD must be mapped into a continuous hexadecimal number between 0000 (Decimal 0) and FFFF (Decimal 65535).

##### 4.4.4.2. Event Record Status, Event Record Origin, Event Type Setting

An ELD must retain the original records even when allowed edits and entries are made over a driver's ELD records.

An ELD must keep track of all event record history, and the process used by the ELD must produce the event record status, event record origin, and event type for the ELD records in the standard categories specified in sections 7.1.22, 7.1.21 and 7.1.24, respectively for each record as a standard security measure. For example, an ELD may use the process outlined in sections 4.4.4.2.1–4.4.4.2.6 to meet the requirements of this section.

##### 4.4.4.2.1. Records Automatically Logged by ELD

At the instance an ELD creates a record automatically, the ELD must:

- (1) Set the "Event Record Status" to "1" (active); and
- (2) Set the "Event Record Origin" to "1" (automatically recorded by ELD).

##### 4.4.4.2.2. Driver Edits

At the instance of a driver editing existing record(s), the ELD must:

- (1) Identify the ELD record(s) being modified for which the "Event Record Status" is currently set to "1" (active);
- (2) Acquire driver input for the intended edit and construct the ELD record(s) that will replace the record(s) identified in (1) above;
- (3) Set the "Event Record Status" of the ELD record(s) identified in (1) above, which is being modified, to "2" (inactive-changed);
- (4) Set the "Event Record Status" of the ELD record(s) constructed in (2) above to "1" (active); and
- (5) Set the "Event Record Origin" of the ELD record(s) constructed in (2) above to "2" (edited or entered by the driver).

##### 4.4.4.2.3. Driver Entries

When a driver enters missing record(s), the ELD must:

- (1) Acquire driver input for the missing entries being implemented and construct the new ELD record(s) that will represent the driver entries;
- (2) Set the "event record status" of the ELD record(s) constructed in (1) above to "1" (active); and

(3) Set the “event record origin” of the ELD record(s) constructed in (1) above to “2” (edited or entered by the driver).

#### 4.4.4.2.4. Driver's Assumption of Unidentified Driver Logs

When a driver reviews and assumes ELD record(s) logged under the unidentified driver profile, the ELD must:

(1) Identify the ELD record(s) logged under the unidentified driver profile that will be reassigned to the driver;

(2) Use elements of the unidentified driver log(s) from (1) above and acquire driver input to populate missing elements of the log originally recorded under the unidentified driver profile, and construct the new event record(s) for the driver;

(3) Set the event record status of the ELD record(s) identified in (1) above, which is being modified, to “2” (inactive—changed);

(4) Set the event record status of the ELD record(s) constructed in (2) above to “1” (active); and

(5) Set the event record origin of the ELD record(s) constructed in (2) above to “4” (assumed from unidentified driver profile).

#### 4.4.4.2.5. Motor Carrier Edit Suggestions

If a motor carrier requests an edit on a driver's records electronically, the ELD must:

(1) Identify the ELD record(s) being requested to be modified for which the “event record status” is currently set to “1” (active);

(2) Acquire motor carrier input for the intended edit and construct the ELD record(s) that will replace the record identified in (1) above—if approved by the driver;

(3) Set the event record status of the ELD record(s) in (2) above to “3” (inactive—change requested); and

(4) Set the event record origin of the ELD record constructed in (2) above to “3” (edit requested by an authenticated user other than the driver).

#### 4.4.4.2.6. Driver's Actions Over Motor Carrier Edit Suggestions

(1) If edits are requested by the motor carrier to the driver over a driver's records electronically, the ELD must implement functions for the driver to review the requested edits, see their effects and indicate on the ELD whether the driver confirms or rejects the requested edit(s).

(2) If the driver approves the motor carrier's edit suggestion the ELD must:

(a) Set the event record status of the ELD record(s) identified under section 4.4.4.2.5(1) being modified, to “2” (inactive—changed); and

(b) Set the “event record status” of the ELD record(s) constructed in 4.4.4.2.5(2) to “1” (active).

(3) If the driver disapproves the motor carrier's edit(s) suggestion, the ELD must set the “event record status” of the ELD record(s) identified in 4.4.4.2.5(2) to “4” (inactive—change rejected).

#### 4.4.5. Data Integrity Check Functions

An ELD must support standard security measures which require the calculation and recording of standard data check values for each ELD event recorded, for each line of the output file, and for the entire data file to be

generated for transmission to an authorized safety official or the motor carrier.

For purposes of implementing data check calculations, the alphanumeric-to-numeric mapping provided in Table 3 must be used.

Each ELD event record type specified in sections 4.5.1.1 and 4.5.1.3 must include an event data check value, which must be calculated as specified in section 4.4.5.1. An event data check value must be calculated at the time of the following instances and must accompany that event record thereafter:

(1) When an event record is automatically created by the ELD;

(2) When an authorized edit is performed by the driver on the ELD or on its support systems; and

(3) When an electronic edit proposal is created by the motor carrier through the ELD system.

Each line of the ELD output file must include a line data check value, which must be calculated as specified in section 4.4.5.2.

Each ELD report must also include a file data check value, which must be calculated as specified in section 4.4.5.3.

#### 4.4.5.1. Event Data Check

The event data check value must be calculated as follows.

##### 4.4.5.1.1. Event Checksum Calculation

A checksum calculation includes the summation of numeric values or mappings of a specified group of alphanumeric data elements. The ELD must calculate an event checksum value associated with each ELD event at the instance of the event record being created.

The event record elements that must be included in the checksum calculation are the following:

- (1) <Event Type>,
- (2) <Event Code>,
- (3) <Event Date>,
- (4) <Event Time>,
- (5) <Vehicle Miles>,
- (6) <Engine Hours>,
- (7) <Event Latitude>,
- (8) <Event Longitude>,
- (9) <CMV number>, and
- (10) <ELD username>.

The ELD must sum the numeric values of all individual characters making up the listed data elements using the character to decimal value coding specified in Table 3, and use the 8-bit lower byte of the hexadecimal representation of the summed total as the event checksum value for that event.

##### 4.4.5.1.2. Event Data Check Calculation

The event data check value must be the hexadecimal representation of the output 8-bit byte, after the below bitwise operations are performed on the binary representation of the event checksum value, as set forth below:

- (1) Three consecutive circular shift left (rotate no carry -left) operations; and
- (2) A bitwise exclusive OR (XOR) operation with the hexadecimal value C3 (decimal 195; binary 11000011).

##### 4.4.5.2. Line Data Check

A line data check value must be calculated at the time of the generation of the ELD output file, to transfer data to authorized safety officials or to catalogue drivers' ELD records at a motor carrier's facility. A line

data check value must be calculated as follows.

##### 4.4.5.2.1. Line Checksum Calculation

The ELD must calculate a line checksum value associated with each line of ELD output file at the instance when an ELD output file is generated.

The data elements that must be included in the line checksum calculation vary as per the output data file specified in section 4.8.2.1.

The ELD must convert each character featured in a line of output using the character to decimal value coding specified on Table 3 and sum the converted numeric values of each character listed on a given ELD output line item (excluding the line data check value being calculated), and use the 8-bit lower byte value of the hexadecimal representation of the summed total as the line checksum value for that line of output.

##### 4.4.5.2.2. Line Data Check Calculation

The line data check value must be calculated by performing the following operations on the binary representation of the line checksum value as follows:

(1) Three consecutive circular shift left (rotate no carry-left) operations on the line checksum value; and

(2) A bitwise XOR operation with the hexadecimal value 96 (decimal 150; binary 10010110).

##### 4.4.5.2.3. Line Data Check Value Inclusion in Output File

The calculated line data check value must be appended as the last line item of each of the individual line items of the ELD output file as specified in the output file format in section 4.8.2.1.

##### 4.4.5.3. File Data Check

A file data check value must also be calculated at the time of the creation of an ELD output file. A file data check value must be calculated as follows.

##### 4.4.5.3.1. File Checksum Calculation

The ELD must calculate a single 16-bit file checksum value associated with an ELD output file at the instance when an ELD output file is generated.

The file data check value calculation must include all individual line data check values contained in that file.

The ELD must sum all individual line data check values contained in a data file output created, and use the lower two 8-bit byte values of the hexadecimal representation of the summed total as the “file checksum” value.

##### 4.4.5.3.2. File Data Check Value Calculation

The file data check value must be calculated by performing the following operations on the binary representation of the file checksum value:

(1) Three consecutive circular shift left (aka rotate no carry -left) operations on each 8-bit bytes of the value; and

(2) A bitwise XOR operation with the hexadecimal value 969C (decimal 38556; binary 1001011010011100).

The file data check value must be the 16-bit output obtained from the above process.

4.4.5.3.3. File Data Check Value Inclusion in Output File

The calculated 16-bit file data check value must be converted to hexadecimal 8-bit bytes

and must be appended as the last line item of the ELD output file as specified in the output file format in section 4.8.2.1.11.

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**Table 3**

**Character to Decimal Value Mapping for Checksum Calculations**

“Character” → Decimal mapping {ASCII (“Character”) (decimal)– 48 (decimal)}

“1”→1	“A”→17	“J”→26	“S”→35	“a”→49	“j”→58
“2”→2	“B”→18	“K”→27	“T”→36	“b”→50	“k”→59
“3”→3	“C”→19	“L”→28	“U”→37	“c”→51	“l”→60
“4”→4	“D”→20	“M”→29	“V”→38	“d”→52	“m”→61
“5”→5	“E”→21	“N”→30	“W”→39	“e”→53	“n”→62
“6”→6	“F”→22	“O”→31	“X”→40	“f”→54	“o”→63
“7”→7	“G”→23	“P”→32	“Y”→41	“g”→55	“p”→64
“8”→8	“H”→24	“Q”→33	“Z”→42	“h”→56	“q”→65
“9”→9	“I”→25	“R”→34		“i”→57	“r”→66
“s”→67	“t”→68	“u”→69	“v”→70	“w”→71	“x”→72
“y”→73	“z”→74	All other characters including blank spaces→ 0			

**BILLING CODE 4190-EX-C****4.5. ELD Recording****4.5.1. Events and Data to Record**

An ELD must record data at the following discrete events:

**4.5.1.1. Event: Change in Driver's Duty Status**

When a driver's duty status changes, the ELD must associate the record with the driver, the record originator—if created during an edit or entry—the vehicle, the motor carrier, and the shipping document number and must include the following data elements:

- (1) <Event Sequence ID Number> as described in section 7.1.23;
- (2) <Event Record Status> as described in section 7.1.22;
- (3) <Event Record Origin> as described in section 7.1.21;
- (4) <Event Type> as described in section 7.1.24;
- (5) <Event Code> as described in section 7.1.19;
- (6) <{Event} Date> as described in section 7.1.8;
- (7) <{Event} Time> as described in section 7.1.39;
- (8) <{Accumulated} Vehicle Miles> as described in section 7.1.42;
- (9) <{Elapsed} Engine Hours> as described in section 7.1.18;
- (10) <{Event} Latitude> as described in section 7.1.30;
- (11) <{Event} Longitude> as described in section 7.1.32;
- (12) <Distance Since Last Valid Coordinates> as described in section 7.1.9;
- (13) <Malfunction Indicator Status {for ELD}> as described in section 7.1.34;
- (14) <Data Diagnostic Event Indicator Status {for Driver}> as described in section 7.1.7;
- (15) <{Event} Comment/Annotation> as described in section 7.1.6;
- (16) <Driver's Location Description> as described in section 7.1.12; and
- (17) <Event Data Check Value> as described in section 7.1.20.

**4.5.1.2. Event: Intermediate Logs**

When a CMV is in motion, as described in section 4.3.1.2, and there has not been a duty status change event or another intermediate log event recorded in the previous 1-hour period, the ELD must record a new intermediate log event.

The ELD must associate the record to the driver, the vehicle, the motor carrier, and the shipping document number, and must include the same data elements outlined in section 4.5.1.1 except for item (16).

**4.5.1.3. Event: Change in Driver's Indication of Allowed Conditions That Impact Driving Time Recording**

At each instance when the status of a driver's indication of personal use of CMV or yard moves changes, the ELD must record a new event. The ELD must associate the record with the driver, the vehicle, the motor carrier, and the shipping document number, and must include the same data elements outlined in section 4.5.1.1.

**4.5.1.4. Event: Driver's Certification of Own Records**

At each instance when a driver certifies or re-certifies that driver's records for a given 24-hour period are true and correct, the ELD must record the event. The ELD must associate the record with the driver, the vehicle, the motor carrier, and the shipping document number and must include the following data elements:

- (1) <Event Sequence ID Number> as described in section 7.1.23;
- (2) <Event Type> as described in section 7.1.24;
- (3) <Event Code> as described in section 7.1.19;
- (4) <Time Zone Offset from UTC> as described in section 7.1.40.
- (5) <{Event} Date> and <Date {of the certified record}> as described in section 7.1.8; and
- (6) <{Event} Time> as described in section 7.1.39.

**4.5.1.5. Event: Driver's Login/Logout Activity**

At each instance when an authorized user logs in and out of the ELD, the ELD must record the event. The ELD must associate the record with the driver, the vehicle, the motor carrier, and the shipping document number, and must include the following data elements:

- (1) <Event Sequence ID Number> as described in section 7.1.23;
- (2) <Event Type> as described in section 7.1.24;
- (3) <Event Code> as described in section 7.1.19;
- (4) <{Event} Date> as described in section 7.1.8;
- (5) <{Event} Time> as described in section 7.1.39;
- (6) <{Total} Vehicle Miles> as described in section 7.1.42; and
- (7) <{Total} Engine Hours> as described in section 7.1.18.

**4.5.1.6. Event: CMV's Engine Power Up and Shut Down Activity**

When a CMV's engine is powered up or shut down, an ELD must record the event within 1 minute of occurrence and retain the

earliest shut down and latest power-up event if CMV has not moved since the last ignition power on cycle. The ELD must associate the record with the driver or the unidentified driver profile, the vehicle, the motor carrier, and the shipping document number, and must include the following data elements:

- (1) <Event Sequence ID Number> as described in section 7.1.23;
- (2) <Event Type> as described in section 7.1.24;
- (3) <Event Code> as described in section 7.1.19;
- (4) <{Event} Date> as described in section 7.1.8;
- (5) <{Event} Time> as described in section 7.1.39;
- (6) <{Total} Vehicle Miles> as described in section 7.1.42;
- (7) <{Total} Engine Hours> as described in section 7.1.18;
- (8) <{Event} Latitude> as described in section 7.1.30;
- (9) <{Event} Longitude> as described in section 7.1.32; and
- (10) <Distance Since Last Valid Coordinates> as described in section 7.1.9.

**4.5.1.7. Event: ELD Malfunction and Data Diagnostics Occurrence**

At each instance when an ELD malfunction or data diagnostic event is detected or cleared by the ELD, the ELD must record the event. The ELD must associate the record with the driver, the vehicle, the motor carrier, and the shipping document number, and must include the following data elements:

- (1) <Event Sequence ID Number> as described in section 7.1.23;
- (2) <Event Type> as described in section 7.1.24;
- (3) <Event Code> as described in section 7.1.19;
- (4) <Malfunction/Diagnostic Code> as described in section 7.1.33;
- (5) <{Event} Date> as described in section 7.1.8;
- (6) <{Event} Time> as described in section 7.1.39;
- (7) <{Total} Vehicle Miles> as described in section 7.1.42; and
- (8) <{Total} Engine Hours> as described in section 7.1.18.

**4.6. ELD's Self-Monitoring of Required Functions**

An ELD must have the capability to monitor its compliance with the technical requirements of this section for detectable malfunctions and data inconsistencies listed in Table 4 and must keep records of its malfunction and data diagnostic event detection.

**TABLE 4—STANDARD CODING FOR REQUIRED COMPLIANCE MALFUNCTION AND DATA DIAGNOSTIC EVENT DETECTION**

Malfunction/diagnostic code	Malfunction description
P .....	"Power Compliance" Malfunction.
E .....	"Engine synchronization compliance" malfunction.
T .....	"Timing compliance" malfunction.
L .....	"Positioning compliance" malfunction.
R .....	"Data recording compliance" malfunction.
S .....	"Data transfer compliance" malfunction.

TABLE 4—STANDARD CODING FOR REQUIRED COMPLIANCE MALFUNCTION AND DATA DIAGNOSTIC EVENT DETECTION—Continued

Malfunction/diagnostic code	Malfunction description
O .....	“Other” ELD detected malfunction.
Malfunction/diagnostic code	Data diagnostic event
1 .....	“Power data diagnostic” event.
2 .....	“Engine synchronization data diagnostic” event.
3 .....	“Missing required data elements data diagnostic” event.
4 .....	“Data transfer data diagnostic” event.
5 .....	“Unidentified driving records data diagnostic” event.
6 .....	“Other” ELD identified diagnostic event.

#### 4.6.1. Compliance Self-Monitoring, Malfunctions and Data Diagnostic Events

##### 4.6.1.1. Power Compliance Monitoring

An ELD must monitor data it receives from the engine ECM or alternative sources as allowed in sections 4.3.1.1- 4.3.1.4, its onboard sensors, and data record history to identify instances when it may not have complied with the power requirements specified in section 4.3.1.1, in which case, the ELD must record a power data diagnostics event for the corresponding driver(s), or under the unidentified driver profile if no drivers were authenticated at the time of detection.

An ELD must set a power compliance malfunction if the power data diagnostics event described above indicate an aggregated in-motion driving time understatement of 30 minutes or more on the ELD over a 24-hour period across all driver profiles, including the unidentified driver profile.

##### 4.6.1.2. Engine Synchronization Compliance Monitoring

An ELD must monitor the data it receives from the engine ECM or alternative sources as allowed in sections 4.3.1.1–4.3.1.4, its onboard sensors and data record history to identify instances and durations of its non-compliance with the ELD engine synchronization requirement specified in section 4.2.

An ELD required to establish a link to the engine ECM as described in section 4.2 of this section must monitor its connectivity to the engine ECM and its ability to retrieve the vehicle parameters described under section 4.3.1 and must record an engine-synchronization data diagnostics event when it no longer can acquire updated values for the ELD parameters required for records within 5 seconds of the need.

An ELD must set an engine synchronization compliance malfunction if connectivity to any of the required data sources specified in section 4.3.1 is lost for more than 30 minutes during a 24-hour period aggregated across all driver profiles, including the unidentified driver profile.

##### 4.6.1.3. Timing Compliance Monitoring

The ELD must periodically cross-check its compliance with the requirement specified in section 4.3.1.5 with respect to an accurate external UTC source and must record a

timing compliance malfunction when it can no longer meet the underlying compliance requirement.

##### 4.6.1.4. Positioning Compliance Monitoring

An ELD must continually monitor the availability of valid position measurements meeting the listed accuracy requirements in section 4.3.1.6 and must track the distance and elapsed time from the last valid measurement point.

An ELD records requiring location information must use the last valid position measurement and include the latitude/longitude coordinates and distance traveled, in miles, since the last valid position measurement.

An ELD must monitor elapsed time during periods when the ELD fails to acquire a valid position measurement within the past 5 miles of CMV's movement. When such elapsed time exceeds a cumulative 60 minutes over a 24 hour period, the ELD must set and record a positioning compliance malfunction.

If a new ELD event must be recorded at an instance when ELD had failed to acquire a valid position measurement within the most recent elapsed 5 miles of driving, but the ELD has not yet set a positioning compliance malfunction, the ELD must record the character “X” in both the latitude and longitude fields, unless location is entered manually by the driver, in which case it must log the character “M” instead. Under the circumstances listed in this paragraph, if the ELD event is due to a change in duty status for the driver, the ELD must prompt the driver to enter location manually in accordance with section 4.3.2.7. If the location information is not entered by the driver and the vehicle is in motion, the ELD must record a missing required data elements data diagnostic event for the driver.

If a new ELD event must be recorded at an instance when the ELD has set a positioning compliance malfunction, the ELD must record the character “E” in both the latitude and longitude fields regardless of whether the driver is prompted and manually enters location information.

##### 4.6.1.5. Data Recording Compliance Monitoring

An ELD must monitor its storage capacity and integrity and must detect a data recording compliance malfunction if it can

no longer record or retain required events or retrieve recorded logs that are not otherwise catalogued remotely by the motor carrier.

An ELD must monitor the completeness of the ELD event record information in relation to the required data elements for each event type and must record a missing data elements data diagnostics event for the driver if any required field is missing at the time of recording.

##### 4.6.1.6. Monitoring Records Logged Under the Unidentified Driver Profile

When there are ELD records involving driving time logged on an ELD under the unidentified driver profile, the ELD must prompt the driver(s) logging into that ELD with a warning indicating the existence of new unassigned driving time. The ELD must provide a mechanism for the driver to review and either acknowledge the assignment of one or more of the unidentified driver records attributable to the driver under the authenticated driver's profile as described in section 4.3.2.8.2(1) or indicate that these records are not attributable to the driver.

If more than 30 minutes of driving in a 24-hour period show unidentified driver on the ELD, the ELD must detect and record an unidentified driving records data diagnostic event and data diagnostic indicator must be turned on for all drivers logged in to that ELD for the current 24-hour period and the following 7 days.

An unidentified driving records data diagnostic event can be cleared by the ELD when driving time logged under the unidentified driver profile for the current 24-hour period and the previous 7 consecutive days drops to 15 minutes or less.

##### 4.6.1.7. Data Transfer Compliance Monitoring

An ELD must implement in-service monitoring functions to verify that certified primary roadside transfer mechanism(s) described in section 4.9.1 are continuing to function properly. An ELD must verify this functionality at least once every 7 days. These monitoring functions may be automatic or may involve manual steps for a driver.

An ELD must record a data transfer data diagnostic event and enter an unconfirmed data transfer mode if the monitoring mechanism fails to confirm proper in-service operation of certified primary roadside transfer mechanism(s).

After an ELD records a data transfer data diagnostic event, the ELD must increase the frequency of the monitoring function to check at least once every 24-hour period. If the ELD stays in the unconfirmed data transfer mode following the next three consecutive monitoring checks, the ELD must detect a data transfer compliance malfunction.

#### 4.6.1.8. Other Technology-Specific Operational Health Monitoring

In addition to the required monitoring schemes described in sections 4.6.1.1–4.6.1.7, the ELD provider may implement additional, technology-specific malfunction and data diagnostic detection schemes and may use the ELD's malfunction status indicator and data diagnostic status indicator (described in sections 4.6.2.1 and 4.6.3.1) to communicate ELD's malfunction or non-compliant state to the operator(s) of the ELD.

#### 4.6.2. ELD Malfunction Status Indicator

ELD malfunctions affect integrity of the device and its compliance; therefore, active malfunctions must be indicated to all drivers who may use that ELD. An ELD must provide a recognizable visual indicator, and may provide an audible signal, to the operator as to its malfunction status.

##### 4.6.2.1. Visual Malfunction Indicator

An ELD must display a single visual malfunction indicator for all drivers using the ELD on the ELD's display or on a stand-alone indicator. The visual signal must be visible to the driver when the driver is seated in the normal driving position.

The ELD malfunction indicator must be clearly illuminated when there is an active malfunction on the ELD.

The malfunction status must be continuously communicated to the driver when the ELD is powered.

#### 4.6.3. ELD Data Diagnostic Status Indicator

ELD data diagnostic status affects only the authenticated user; therefore, an ELD must only indicate the active data diagnostics status applicable to the driver logged into the ELD. An ELD must provide a recognizable visual indicator, and may provide an audible signal, to the driver as to its data diagnostics status.

##### 4.6.3.1. Visual Data Diagnostics Indicator

An ELD must display a single visual data diagnostics indicator, apart from the visual malfunction indicator described in section 4.6.2.1, to visually communicate existence of active data diagnostics events for the applicable driver. The visual signal must be visible to the driver when the driver is seated in the normal driving position.

The data diagnostic indicator must be clearly illuminated when there is a detected data inconsistency for the authenticated driver.

The data diagnostics status must be continuously communicated to the applicable driver when the ELD is powered.

#### 4.7. Special Purpose ELD Functions

##### 4.7.1. Driver's ELD Volume Control

If a driver selects the sleeper-berth state for the driver's record of duty status, and no co-driver has logged into the ELD as on-duty

driving, and if the ELD outputs audible signals, the ELD must either:

(1) Allow the driver to mute the ELD's volume or turn off the ELD's audible output, or

(2) Automatically mute the ELD's volume or turn off the ELD's audible output.

For purposes of this section, if an ELD operates in combination with another device or other hardware or software technology that is not separate from the ELD, the volume controls required herein apply to the combined device or technology.

##### 4.7.2. Driver's Access to Own ELD Records

An ELD must provide a mechanism for a driver to obtain a copy of the driver's own hours-of-service records on demand, in either an electronic or printout format compliant with inspection standards outlined in section 4.8.2.1.

The process must not require a driver to go through the motor carrier to obtain copies of the driver's own hours-of-service records if driver's records reside on or are accessible directly by the ELD unit used by the driver.

If an ELD meets the requirements of this section by making data files available to the driver, it must also provide a utility function for the driver to display the data on a computer, at a minimum, as specified in § 395.8(g).

##### 4.7.3. Privacy Preserving Provision for Use During Personal Uses of a CMV

While an ELD must record the events listed in section 4.5.1 under all circumstances, a subset of the recorded elements must either be omitted in the records or recorded at a lower precision level, as described in further detail below, when a driver indicates that the driver is temporarily using the CMV for an authorized personal purpose. The driver indicates this intent by setting driver's duty status to off-duty as described in section 4.3.2.2.1 and indicating authorized personal use of CMV as described in section 4.3.2.2.2.

During a period when a driver indicates authorized personal use of CMV, the ELD must:

(1) Record all new ELD events with latitude/longitude coordinates information rounded to a single decimal place resolution; and

(2) Omit recording vehicle miles and engine hours fields in new ELD logs by leaving them blank, except for events corresponding to a CMV's engine power-up and shut-down activity as described in section 4.5.1.6.

A driver's indication that the CMV is being operated for authorized personal purposes may span more than one CMV ignition on cycle if the driver proactively confirms continuation of the personal use condition prior to placing the vehicle in motion when the ELD prompts the driver at the beginning of the new ignition power on cycle.

#### 4.8. ELD Outputs

##### 4.8.1. Information To Be Displayed by an ELD

An ELD must support the capability to present the following information to a user of the ELD via its user-interface:

(1) Authenticated driver's last name, first name and ELD username.

(2) Total miles driven and total engine hours information used in logs.

(3) ELD malfunction status indicator.

(4) ELD data diagnostic status indicator for the authenticated driver.

(5) ELD records associated with the authenticated driver, and records in which the driver serves as a co-driver including the following information:

(i) Each change of duty status for the current 24-hour period and the previous 7 consecutive days and the time of day and location for each change;

(ii) Total miles of driving during each driving period and the current duty day; and

(iii) The sequence of driver's indication pertaining to authorized personal use of the CMV and yard moves (as specified in section 4.3.2.2.2) and the accompanying driver annotations for the current 24-hour period and the previous 7 consecutive days.

(6) A summary of ELD records associated with the driver, reflecting total hours on duty and driving time for the current 24-hour period and the previous 7 consecutive days.

(7) A graph-grid view of driver's daily duty status changes for the current 24-hour period and each of the previous 7 consecutive days either on a display unit or on a printout report as specified in section 4.10.2.4.

(8) The ELD records associated with the unidentified driver profile recorded on that ELD as follows:

(i) The sequence of driving and non-driving time logged for the current 24-hour period and the previous 7 consecutive days.

(ii) Total miles of driving during each driving period and the current duty day.

(9) A summary of ELD records associated with the unidentified driver profile, reflecting the total hours on duty and driving time for the current 24-hour period and the previous 7 consecutive days.

##### 4.8.2. ELD Data File

An ELD must have the capability to generate a consistent electronic file output compliant with the format described herein to facilitate the transfer, processing and standardized display of ELD data sets on the authorized safety officials' computing environments.

##### 4.8.2.1. ELD Output File Standard

Regardless of the particular database architecture used for recording the ELD events in electronic format, the ELD must produce a standard ELD data output file for transfer purposes, which must be generated according to the standard specified in this section.

Data output must be provided in a single comma-delimited file outlined in this section using American National Standard Code for Information Exchange (ASCII) character sets meeting the standards of ANSI INCITS 4–1986 (R2007) (incorporated by reference, see § 395.38), reference (3)(b) in section 6 of this appendix. It must include: (1) A header segment, which specifies current or non-varying elements of an ELD file; and (2) variable length comma-delimited segments for the drivers, vehicles, ELD events, ELD malfunction and data diagnostics records, ELD login and logout activity, and unidentified driver records.

## 4.8.2.1.1. Header Segment

This segment must include the following data elements and format:

**ELD File Header Segment:** <CR>

<{Driver's} Last Name>,<{Driver's} First Name>,<ELD username {for the driver} >,<  
{Driver's} Driver's License Issuing State>,<{Driver's} Driver's License Number>,<Line  
Data Check Value> <CR>

<{Co-Driver's} Last Name>,<{Co-Driver's} First Name>,<ELD username {for the co-  
driver} >,<Line Data Check Value> <CR>

<CMV Power Unit Number>,<CMV VIN>,<Trailer Number(s)>,<Line Data Check  
Value> <CR>

<Carrier's USDOT Number>,<Carrier Name>,<Multiday-basis Used>,<24-Hour Period  
Starting Time>,<Time Zone Offset from UTC>,<Line Data Check Value> <CR>

<Shipping Document Number>,<Exempt Driver Configuration>,<Line Data Check  
Value> <CR>

<{Current} Date>,< {Current} Time>,< {Current} Latitude>,<{Current} Longitude>,<  
{Current} {Total} Vehicle Miles>,< {Current} {Total} Engine Hours>,<Line Data  
Check Value> <CR>

<ELD Registration ID>,<ELD Identifier>,<ELD Authentication Value>,<Output File  
Comment>,<Line Data Check Value> <CR>

## 4.8.2.1.2. User List

This segment must list all drivers and co-drivers with driving time records on the most recent CMV operated by the inspected driver or motor carrier's support personnel who

requested edits within the time period for which this file is generated. The list must be in chronological order with most recent user of the ELD on top, including the driver being inspected, the co-driver, and the unidentified

driver profile. This segment has a variable number of rows depending on the number of profiles with activity over the time period for which this file is generated. This section must start with the following title:

**User List:** <CR>

Each subsequent row must have the following data elements:

<{Assigned User} Order Number>,<{User's} ELD Account Type>,<{User's} Last Name>,<{User's} First Name>,<Line Data Check Value> <CR>

#### 4.8.2.1.3. CMV List

This segment must list each CMV that the current driver operated and that has been recorded on the driver's ELD records within

the time period for which this file is generated. The list must be rank ordered in accordance with the time of CMV operation with the most recent CMV being on top. This segment has a variable number of rows

depending on the number of CMVs operated by the driver over the time period for which this file is generated. This section must start with the following title:

**CMV List: <CR>**

Each subsequent row must have the following data elements:

<{Assigned CMV} Order Number>,<CMV Power Unit Number>,<CMV VIN>,<Line Data Check Value> <CR>

#### 4.8.2.1.4. ELD Event List for Driver's Record of Duty Status

This segment must list ELD event records tagged with event types 1 (a change in duty status as described in section 4.5.1.1), 2 (an intermediate log as described in section

4.5.1.2), and 3 (a change in driver's indication of conditions impacting driving time recording as described in section 4.5.1.3). The segment must list all event record status types and of all event record origins for the driver, rank ordered with the most current log on top in accordance with

the date and time fields of the record. This segment has a variable number of rows depending on the number of ELD events recorded for the driver over the time period for which this file is generated. This section must start with the following title:

**ELD Event List: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Record Status>,<Event Record Origin>,<Event Type>,<Event Code>,<{Event} Date>,<{Event} Time>,< {Accumulated} Vehicle Miles>,< {Elapsed} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<Distance Since Last Valid Coordinates>,<{Corresponding CMV} Order Number>,<{User} Order Number {for Record Originator}>,<Malfunction Indicator Status {for ELD}>,<Data Diagnostic Event Indicator Status {for Driver}>,<Event Data Check Value>,<Line Data Check Value> <CR>

#### 4.8.2.1.5. Event Annotations, Comments, and Driver's Location Description

This segment must list only the elements of the ELD event list created in 4.8.2.1.4

above that have an annotation, comment, or a manual entry of location description by the driver. This segment has a variable number of rows depending on the number of ELD

events under section 4.8.2.1.4 that feature a comment, annotation, or manual location entry by the driver. This section must start with the following title:

**ELD Event Annotations or Comments: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,< ELD username {of the Record Originator} >,<{Event} Comment Text or Annotation>,<Driver's Location Description>,<Line Data Check Value> <CR>

#### 4.8.2.1.6. ELD Event List for Driver's Certification of Own Records

This segment must list ELD event records with event type 4 (driver's certification of own records as described in section 4.5.1.4)

for the inspected driver for time period for which this file is generated. It must be rank ordered with the most current record on top. This segment has a variable number of rows depending on the number of certification and

re-certification actions the authenticated driver may have executed on the ELD over the time period for which this file is generated. This section must start with the following title:

**Driver's Certification/Recertification Actions: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time>,<Date of the certified record>,<{Corresponding CMV} Order Number>,<Line Data Check Value> <CR>

#### 4.8.2.1.7. Malfunction and Diagnostic Event Records

This segment must list all ELD malfunctions that have occurred on this ELD during the time period for which this file is

generated. It must list diagnostic event records related to the driver being inspected, rank ordered with the most current record on top. This segment has a variable number of rows depending on the number of ELD

malfunctions and ELD diagnostic event records recorded and relevant to the inspected driver over the time period for which this file is generated. This section must start with the following title:

**Malfunctions and Data Diagnostic Events: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<Malfunction/Diagnostic Code>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>,<{Corresponding CMV} Order Number>,<Line Data Check Value> <CR>

#### 4.8.2.1.8. ELD Login/Logout Report

This segment must list the login and logout activity on the ELD (ELD events with event

type 5 (A driver's login/logout activity)) for the inspected driver for the time period for which this file is generated. It must be rank

ordered with the most recent activity on top. This section must start with the following title:

**ELD Login/Logout Report: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<ELD username>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>,<Line Data Check Value> <CR>

#### 4.8.2.1.9. CMV's Engine Power-Up and Shut Down Activity

This segment must list the logs created when CMV's engine is powered up and shut

down (ELD events with event type 6 (CMV's engine power up/shut down)) for the time period for which this file is generated. It must be rank ordered with the latest activity

on top. This section must start with the following title:

**CMV Engine Power-Up and Shut Down Activity: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<Line Data Check Value> <CR>

4.8.2.1.10. ELD Event Log List for the Unidentified Driver Profile

This segment must list the ELD event records for the Unidentified Driver profile,

rank ordered with most current log on top in accordance with the date and time fields of the logs. This segment has a variable number of rows depending on the number of

Unidentified Driver ELD records recorded over the time period for which this file is generated. This section must start with the following title:

**Unidentified Driver Profile Records: <CR>**

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Record Status>,<Event Record Origin>,<Event Type>,<Event Code>,<{Event} Date>,<{Event} Time>,<{Accumulated} Vehicle Miles>,<{Elapsed} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<Distance Since Last Valid Coordinates>,<{Corresponding CMV} Order Number>,<Malfunction Indicator Status {for ELD}>,<Event Data Check Value>,<Line Data Check Value> <CR>

4.8.2.1.11. File Data Check Value

This segment lists the file data check value as specified in section 4.4.5.3 of this

appendix. This part includes a single line as follows:

**End of File: <CR>**

<File Data Check Value><CR>

4.8.2.2. ELD Output File Name Standard

If the ELD output is saved in a file for transfer or maintenance purposes, it must

follow the twenty-five character-long filename standard below:

(1) The first five position characters of the filename must correspond to the first five

letters of the last name of the driver for whom the file is compiled. If the last name of the driver is shorter than 5 characters, remaining positions must use the character

“ ” [underscore] as a substitute character. For example, if the last name of the driver is “Lee”, the first five characters of the output file must feature “Lee\_”.

(2) The sixth and seventh position characters of the filename must correspond to the last two digits of the driver's license number for the driver for whom the file is compiled.

(3) The eighth and ninth position characters of the filename must correspond to the sum of all individual numeric digits in the driver's license number for the driver for whom the file is compiled. The result must be represented in two-digit format. If the sum value exceeds 99, use the last two digits of the result. For example, if the result equals “113”, use “13”. If the result is less than 10, use 0 as the first digit. For example, if the result equals “5”, use “05”.

(4) The tenth through fifteenth position characters of the filename must correspond to the date the file is created. The result must be represented in six digit format “MMDDYY” where “MM” represent the month, “DD” represent the day and “YY” represent the last two digits of the year. For example, February 5, 2013 must be represented as “020513”.

(5) The sixteenth position character of the filename must be a hyphen “-”.

(6) The seventeenth through twenty-fifth position characters of the filename must, by default, be “000000000” but each of these nine digits can be freely configured by the motor carrier or the ELD provider to be a number between 0 and 9 or a character

between A and Z to be able to produce distinct files—if or when necessary—that may otherwise be identical in filename as per the convention proposed in this section. ELD providers or motor carriers do not need to disclose details of conventions they may use for configuring the seventeenth through twenty-fifth digits of the filename.

#### 4.9. Data Transfer Capability Requirements

An ELD must be able to present the captured ELD records of a driver in the standard electronic format as described below, and transfer the data file to an authorized safety official, on demand, for inspection purposes.

##### 4.9.1. Data Reporting During Roadside Safety Inspections

On demand during a roadside safety inspection, an ELD must produce a driver's record of duty status for the current 24-hour period and the previous 7 consecutive days in electronic format, in the standard data format described in section 4.8.2.1.

When a driver uses the single-step driver interface, as described in section 4.3.2.4, to indicate for the ELD to compile and transfer driver's ELD records to authorized safety officials, the ELD must transfer the generated ELD data output to the computing environment used by authorized safety officials via the standards referenced in this section. To meet roadside data reporting requirements, an ELD must do at least one of the following:

(1) Generate a printout of the record of duty status report for the current 24-hour

period and the previous 7 consecutive days in the printout format described in section 4.10.2.4 that can be handed to an enforcement officer. Upon request, the ELD must also generate a printout including a scannable QR code (Quick Response) or a series of QR codes that embed the ELD data used for the printout as specified in section 4.10.2.2; or

(2) Support the one primary and the two backup data transfer mechanisms in accordance with the transfer standards outlined in section 4.10.

(a) The primary transfer mechanisms options are as follows: Web Services as specified in section 4.10.1.1, or Bluetooth as specified in section 4.10.1.2, or email as specified in section 4.10.1.3.

(b) The backup transfer mechanisms are as follows:

USB 2.0 (incorporated by reference, see § 395.38), reference (2)(a) in section 6 of this appendix, and as specified in section 4.10.2.1, and

(i) Scannable QR codes as specified in section 4.10.2.2; or

(ii) TransferJet as specified in section 4.10.2.3.

An ELD must support one of the 7 options for roadside data transfer in Table 5 and must certify proper operation of each element under that option. An authorized safety official will specify which transfer mechanism the official will use within the certified transfer mechanisms of an ELD.

TABLE 5—REQUIRED COMBINATION OF ROADSIDE DATA TRANSFER CAPABILITIES FOR AN ELD

Option	Certified data transfer capabilities
Option 1: .....	Printout Report + QR Code printout.
Option 2: .....	Wireless Web Services + USB 2.0 + QR Codes.
Option 3: .....	Wireless Web Services + USB 2.0 + TransferJet.
Option 4: .....	Bluetooth + USB 2.0 + QR Codes.
Option 5: .....	Bluetooth + USB 2.0 + TransferJet.
Option 6: .....	Wireless Email + USB 2.0 + QR Codes.
Option 7: .....	Wireless Email + USB 2.0 + TransferJet.

#### 4.9.2. Motor Carrier Data Reporting

An ELD or a support system used in conjunction with ELDs must be capable of maintaining and retaining copies of electronic ELD records for a period of at least 6 months from the date of receipt.

An ELD or a support system used in conjunction with an ELD must produce, on demand, a data file or a series of data files of ELD records for a subset of its drivers, a subset of its vehicles, and for a subset of the 6-month record retention period, to be specified by an authorized safety official, in an electronic format standard described in section 4.8.2.1 or, if the motor carrier has multiple offices or terminals, within the time permitted under § 390.29.

At a minimum, an ELD or a support system used in conjunction with an ELD must be able to transfer the ELD data file or files electronically by one of the following three transfer mechanisms:

(1) Web Services as specified in section 4.10.1.1 (but not necessarily wirelessly); or

(2) USB 2.0, reference (2)(a) in section 6 of this appendix, and as specified in section 4.10.2.1; or

(3) Email as specified 4.10.1.3 (but not necessarily wirelessly).

#### 4.10. Communications Standards for the Transmittal of Data Files From ELDs

ELDs must transmit ELD records electronically in accordance with the file format specified in section 4.8.2.1 and must be capable of a one-way transfer of these records through wired and/or wireless methods to authorized safety officials upon request as specified in section 4.9.

##### 4.10.1. Primary Wireless Data Transfer Mechanisms

For each type of wireless transfer mechanisms, an ELD, when used, must follow the underlying specifications in this section.

##### 4.10.1.1. Wireless Data Transfer via Web Services

Transfer of ELD data to FMCSA via Web Services must follow the following standards:

(1) Web Services Description Language (WSDL) 1.1 (incorporated by reference, see § 395.38), reference (1)(a) in section 6 of this appendix

(2) Simple Object Access Protocol (SOAP) 1.2 (incorporated by reference, see § 395.38), reference (1)(b) in section 6 of this appendix

(3) Extensible Markup Language (XML) 1.0 5th Edition (incorporated by reference, see § 395.38), reference (1)(c) in section 6 of this appendix

(4) FMCSA's Third-Party Developers' Partnership (3pDP) (see <https://3pdp.fmcsa.dot.gov/>)

If an ELD provider plans to use Web Services, upon ELD provider registration as described in section 5.1 of this appendix, FMCSA will provide formatting files necessary to convert the ELD file into an XML format and upload the data to the

FMCSA servers. These files include the FMCSA's Rules of Behavior, XML Schema, WSDL file, Interface Control Document (ICD), and the ELD Web Services Development Handbook. Additionally, ELD Providers must obtain a Public/Private Key pair compliant with the NIST SP 800-32, Introduction to Public Key Technology and the Federal PKI Infrastructure, (incorporated by reference, see § 395.38), reference (5)(b) in section 6 of this appendix, and submit the public key with their registration. ELD Providers will be required to complete a test procedure to ensure their data is properly formatted before they can begin submitting driver's ELD data to the FMCSA server.

ELD data transmission from the ELD to the ELD support system must be accomplished in a way that protects the privacy of the driver(s).

At roadside if both the vehicle operator and law enforcement have an available data connection, the vehicle operator will initiate the transfer of ELD data to FMCSA. The ELD support system will convert the ELD file to XML using an FMCSA provided schema and upload it using information provided in the

WSDL file using SOAP via Hypertext Transfer Protocol Secure (HTTPS) using HTTP and RFC 5246, Transport Layer Security (TLS) Protocol Version 1.2 (incorporated by reference, see § 395.38), references (1)(a), (b), (c), (d) and (7)(a) in section 6 of this appendix.

#### 4.10.1.2. Wireless Data Transfer via Bluetooth®

Bluetooth SIG Specification of the Bluetooth System covering core package version 2.1 + EDR or higher (incorporated by reference, see § 395.38), reference (8)(a) in section 6 of this appendix, must be followed. ELDs using this standard must be capable of displaying a Personal Identification Number generated by the Bluetooth application profile for bonding with other devices. Upon request of an authorized official, the ELD must become discoverable by the authorized safety officials' Bluetooth-enabled computing platform, and generate a random code, which the driver must share with the official. The ELD must connect to the roadside authorized safety officials' technology via wireless personal area network and transmit the

required data via Web Services as described in section 4.10.1.1 of this appendix.

#### 4.10.1.3. Wireless Data Transfer Through Email

ELD must attach a file to an email message to be sent using RFC 5321 Simple Mail Transfer Protocol (SMTP) (incorporated by reference, see § 395.38), reference (7)(b) in section 6 of this appendix, to a specific email address, which will be shared with the ELD providers during the technology registration process.

The file must have the format as described in section 4.8.2.1 and must be encrypted using AES-256 in FIPS Publication 197 (incorporated by reference, see § 395.38), reference (5)(a) in section 6 of this appendix, with the FMCSA public key compliant with NIST SP 800-32, reference (5)(b) in section 6 of this appendix, to be provided to the ELD provider at the time of registration.

The email must be formatted using the RFC 5322 Internet Message Format (incorporated by reference, see § 395.38), reference (7)(c) in section 6 of this appendix, as follows:

Element	Format
To :	<Address Provided by FMCSA during online registration>
From :	<Desired return address for confirmation>
Subject :	ELD records from <ELD Registration ID><':><ELD Identifier>
Body :	<Output File Comment>
Attachment :	MIME encoded AES-256 encrypted file with <filename>. <Date string>. <unique identifier>.aes

A message confirming receipt of the ELD file will be sent to the address specified in the email. The filename must follow the convention specified in section 4.8.2.2.

#### 4.10.2. Backup Wired and Proximity Data Transfer Mechanisms

For each type of close proximity data transfer mechanisms used, an ELD must follow the specifications in this section.

##### 4.10.2.1. USB 2.0

ELDs certified for USB data transfer mechanism must be capable of transferring ELD records using the Universal Serial Bus Specification (Revision 2.0) (incorporated by reference, see § 395.38), reference (2)(a) in section 6 of this appendix.

Each ELD technology must implement a single USB-compliant interface with the necessary adaptors for a Type A connector. The USB interface must implement the Mass Storage class (08h) for driverless operation, to comply with IEEE standard 1667-2009, (incorporated by reference, see § 395.38), reference (4)(a) in section 6 of this appendix.

ELD must be capable of providing power to a standard USB-compatible drive.

An ELD must re-authenticate the driver prior to saving the driver's ELD file to an external device.

On initiation by an authenticated driver, an ELD must be capable of saving ELD file(s) to USB-compatible drives (AES-256 hardware encrypted, reference (5)(a) in section 0 of this

appendix) that are provided by authorized safety officials during an inspection. Prior to initiating this action, ELDs must be capable of reading a text file from an authorized safety officials' drive and verifying it against a file provided to ELD providers who have registered their technologies as described in section 5.1.

##### 4.10.2.2. Data Transfer via Scannable QR Codes

ELD transmitting data via two-dimensional barcode(s) must be capable of encoding the data file described in section 4.8.2.1 via a QR code or a series of QR codes, as defined in ISO/IEC18004:2006 specification (incorporated by reference, see § 395.38), reference (6)(a) in section 6 of this appendix.

QR codes must be no smaller than 1.5 square inches and have the following specifications:

Level: L

Version: 15

Color: Black and White

#### 4.10.2.3. Data Transfer via TransferJet™

ELDs transmitting data via the close proximity wireless technology must use the TransferJet protocol as defined in ISO/IEC 17568 (incorporated by reference, see § 395.38), reference (6)(b) in section 6 of this appendix.

The device or component of the device transmitting the ELD data via TransferJet must be capable of being removed from the

CMV to allow the official to receive the transmission without entering the vehicle.

An ELD must re-authenticate the driver prior to transferring driver's ELD file via TransferJet.

With the initiation of the authenticated driver, the ELD using TransferJet must activate Proactive Mode prior to transmitting driver's ELD data to an official.

#### 4.10.2.4. Printout

If the ELD technology complies with the roadside data transfer requirement by producing a printout report, it must be able to generate the compliant report as specified in this section.

The printout must include separate reports for the inspected driver's profile and the

unidentified driver profile. If there are no unidentified driver records existing on the ELD for the current 24-hour period and for any of the previous 7 consecutive days, an ELD does not need to print for the authorized safety official. Otherwise, both reports must be printed and provided to the authorized safety official.

Print paper must be at least 2 inches wide. The paper must also be at least 11 inches in height, or on a roll of paper that can be torn when each individual printout is complete.

The printout must include the following information for the current 24-hour period and each of the previous 7 consecutive days: (Items in < . > are data elements.)

**Driver's Name:** <{Driver's} First Name>,<{Driver's} Last Name>

**Driver's License:** <{Driver's} Driver's License Issuing State>,<{Driver's} Driver's License Number>

**Co-Driver:** <{Co-Driver's} First Name>,<{Co-Driver's} Last Name>

**Power Unit:** <CMV Power Unit Number>,<CMV VIN>

**Trailer:** <Trailer Number(s)>

**Carrier:** <Carrier's USDOT number>,<Carrier Name>

**Multi Day Basis, 24-hour Starting Time, Time Zone Offset from UTC:** <Multiday-basis Used>,<24-Hour Period Starting Time>, <Time Zone Offset from UTC>

**Shipping Number:** <Shipping Document Number>

**Date and Time:** <Date {of Printout}>,<Time {of Printout}>

**Current Location:** <{Current} Latitude>, <{Current} Longitude>,<Distance Since Last Valid Coordinates>

**Current Odometer and Engine Hours:** <{Current} {Total} Vehicle Miles>,<{Current} {Total} Engine Hours>

**Current Geo-location:** <{Current} Geo-location>

**ELD:** <ELD Registration ID>,<ELD Identifier>,<ELD Authentication Value>

**Output File Comment:** <Output File Comment>

**Unidentified Driving Records on the ELD?:** <{Current} Data Diagnostic Event Indicator Status {for “Unidentified driving records data diagnostic” event}>

**Exempt Driver Configuration by Motor Carrier:** <Exempt Driver Configuration {for the Driver}>

**ELD’s Malfunction Status:** <Malfunction Indicator Status {for ELD}>

**Driver’s Data Diagnostic Status:** <Data Diagnostic Event Indicator Status {for Driver}>

**Change of Duty Status, Intervening Interval Records and Change in Driver's indication of Special Driving Conditions:**

<Event Sequence ID Number> , <Event Record Status>,<Event Record Origin>,<Event Type> , <Event Code>,<{Event} Date> , <{Event} Time> , <{Accumulated} Vehicle Miles>,<{Elapsed} Engine Hours>,<Geo-Location><sup>#</sup>,<{Event} Comment/Annotation>

:

:

<Event Sequence ID Number> , <Event Record Status>,<Event Record Origin>,<Event Type> , <Event Code>,<{Event} Date> , <{Event} Time> , <{Accumulated} Vehicle Miles>,<{Elapsed} Engine Hours>,<Geo-Location><sup>#</sup>,<{Event} Comment/Annotation>

# “<Geo-location> must be substituted with “<Driver's Location Description>” field for manual entries and with “<{blank}>” field for intervening logs.

**Driver's Record Certification Actions:**

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time> , <Date {of the certified record}>

:

:

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time> , <Date {of the certified record}>

**Malfunctions and Data Diagnostic Events<sup>1</sup>:**

<Event Sequence ID Number>,<Event Code>,<Malfunction/Diagnostic Code>,<{Event}  
 Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>  
 :  
 :  
 <Event Sequence ID Number>,<Event Code>,<Malfunction/Diagnostic Code>,<{Event}  
 Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>

<sup>1</sup>Printout report must only list up to 10 most recent ELD malfunctions and up to 10 most recent data diagnostics events within the time period for which the report is generated.

#### **ELD Login/Logout Report<sup>2</sup>:**

<Event Sequence ID Number>,<Event Code>,<ELD username>,<{Event}  
 Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>  
 :  
 :  
 <Event Sequence ID Number>,<Event Code>,<ELD username>,<{Event}  
 Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>

<sup>2</sup>Printout report must only list up to 10 most recent driver's login and up to 10 most recent driver's logout events within the time period for which the report is generated.

#### **CMV Engine Power up / Shut Down Report<sup>3</sup>:**

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event}  
 Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>

```

:
:
<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event}
Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>

```

<sup>3</sup>Printout report must only list up to 10 most recent engine power up and up to 10 most recent engine shut down events within the time period for which the report is generated.

The printout must include a graph-grid consistent with § 395.8(g) displaying each change of duty status. The graph-grid for each day's RODS must be at least 4 inches by 1.5 inches in size.

The graph-grid must also overlay periods of driver's indications of authorized personal use of CMV and yard moves using a different style line (such as dashed or dotted line) or shading. The appropriate abbreviation must also be indicated on the graph-grid.

Upon request, an ELD must also produce a printout including QR Code(s) as specified in section 4.10.2.2 to allow for the complete transfer of data via a scanner in addition to the visual presentation of the data on the printout report. Data coded in QR code(s) must be compliant with the ELD data output format specified in section 4.8.2.1.

#### 4.10.3. Motor Carrier Support System Data Transmission

Regardless of the roadside transmission option supported by the ELD technology, the support systems of the motor carrier where electronic ELD records are maintained and retained must be able to transmit enforcement-specified historical data for their drivers using one of three methods specified under section 4.9.2. Web services option must follow the specifications described under section 4.10.1.1. Email option must follow the specifications described under section 4.10.1.3, and USB option must follow the specifications of Universal Serial Bus Specification, revision 2.0 (incorporated by reference, see § 395.38), reference (2)(a) in section 6 of this appendix, and described under section 4.10.2.1.

### 5. ELD—Registration-Certification

As described in § 395.22(a) of subpart B, motor carriers must only use ELDs that are listed on the FMCSA Web site. An ELD provider must register with FMCSA and certify each ELD model and version for that ELD to be listed on this Web site.

#### 5.1. ELD Provider's Registration

##### 5.1.1. Registering Online

An ELD provider developing an ELD technology must register online at a secure FMCSA Web site where the ELD provider can securely certify that its ELD is compliant with this appendix. Provider's registration must include the following information:

(1) Company name of the technology provider/manufacture.

(2) Name of an individual authorized by the provider to verify that the ELD is compliant with this appendix and to certify it under section 5.2 of this appendix.

(3) Address of the registrant.

(4) Email address of the registrant.

(5) Telephone number of the registrant.

#### 5.1.2. Keeping Information Current

The ELD provider must keep the information in section 5.1.1 current through FMCSA's Web site.

#### 5.1.3. Authentication Information Distribution

FMCSA will provide a unique ELD registration ID, authentication key(s), authentication file(s), and formatting and configuration details required in this appendix to registered providers during the registration process.

#### 5.2. Certification of Conformity With FMCSA Standards

A registered ELD provider must certify that each ELD model and version has been sufficiently tested to meet the functional requirements included in this appendix under the conditions in which the ELD would be used.

##### 5.2.1. Online Certification

An ELD provider registered online as described in section 5.1.1 must disclose the following information about each ELD model and version and certify that the particular ELD is compliant with the requirements of this appendix. The online process will only allow a provider to complete certification if the provider successfully discloses all of the following required information:

(1) Name of the product.

(2) Model number of the product.

(3) Software version of the product.

(4) An ELD identifier, uniquely identifying the certified model and version of the ELD, assigned by the ELD provider in accordance with 7.1.15.

(5) Picture and/or screen shot of the product.

(6) User's manual describing how to operate the ELD.

(7) Description of the supported and certified data transfer mechanisms and step-by-step instructions for a driver to produce and transfer the ELD records to an authorized safety official.

(8) Summary description of ELD malfunctions.

(9) Procedure to validate an ELD authentication value as described in section 7.1.14.

(10) Certifying statement describing how the product was tested to comply with FMCSA regulations.

#### 5.2.2. Procedure To Validate an ELD's Authenticity

Section 5.2.1(9) requires that the ELD provider institute an authentication process and disclose necessary details for FMCSA systems to independently verify the ELD authentication values included in the dataset of inspected ELD outputs. The authentication value must include a hash component that only uses data elements included in the ELD dataset and datafile. ELD authentication value must meet the requirements specified in section 7.1.14.

#### 5.3. Publicly Available Information

Except for the information listed under section 5.1.1(2), (4), and (5) and section 5.2.1(9), FMCSA will make the information in sections 5.1.1 and 5.2.1 for each certified ELD publicly available on a Web site to allow motor carriers to determine which products have been properly registered and certified as ELDs compliant with this appendix.

### 6. References

(1) *World Wide Web Consortium (W3C)*. 32 Vassar Street, Building 32-G514, Cambridge, MA 02139. Web page is <http://www.w3.org>; telephone is (617) 253-2613.

(a) "Web Services Description Language (WSDL) 1.1, W3C Note 15, March 2001," Ariba, IBM Research, Microsoft. (See § 395.38, Incorporation by Reference.)

(b) "Simple Object Access Protocol (SOAP) Version 1.2 Part 1: Messaging Framework (Second Edition), W3C Recommendation 27 April 2007," W3C® (MIT, ERCIM, Keio). (See § 395.38, Incorporation by Reference.)

(c) "Extensible Markup Language (XML) 1.0 (Fifth Edition), W3C Recommendation 26 November 2008," W3C® (MIT, ERCIM, Keio). (See § 395.38, Incorporation by Reference.)

(d) RFC 2616 "Hypertext Transfer Protocol—HTTP/1.1." (See § 395.38, Incorporation by Reference.)

(2) *Universal Serial Bus Implementers Forum (USBIF)*. 3855 SW. 153rd Drive, Beaverton, Oregon 97006. Web page is <http://www.usb.org>; telephone is (503) 619-0426.

(a) “Universal Serial Bus Specification,” Compaq, Hewlett-Packard, Intel, Lucent, Microsoft, NEC, Philips; April 27, 2000 (Revision 2.0). (See § 395.38, Incorporation by Reference.)

(3) *American National Standards Institute (ANSI)*, 11 West 42nd Street, New York, New York 10036. Web page is <http://webstore.ansi.org>; telephone is (212) 642-4900.

(a) “ANSI INCITS 446–2008, American National Standard for Information Technology—Identifying Attributes for Named Physical and Cultural Geographic Features (Except Roads and Highways) of the United States, Its Territories, Outlying Areas, and Freely Associated Areas and the Waters of the Same to the Limit of the Twelve-Mile Statutory Zone (10/28/2008),” (ANSI INCITS 446–2008). (For further information, see also the Geographic Names Information System (GNIS) at <http://geonames.usgs.gov/domestic/index.html>. (See § 395.38, Incorporation by Reference.)

(b) “Information Systems—Coded Character Sets—7-Bit American National Standard Code for Information Interchange (7-Bit ASCII),” ANSI INCITS 4–1986 (R2007). (See § 395.38, Incorporation by Reference.)

(4) *IEEE Standards Association*, 445 Hoes Lane, Piscataway, NJ 08854–4141. Web page is <http://standards.ieee.org/index.html>. Telephone is (732) 981–0060.

(a) “Standard for Authentication in Host Attachments of Transient Storage Devices,” IEEE Standards Association: 2009 (IEEE Std. 1667–2009). (See § 395.38, Incorporation by Reference.)

(b) [Reserved]

(5) *U.S. Department of Commerce, National Institute of Standards and Technology (NIST)*, 100 Bureau Drive, Stop 1070, Gaithersburg, MD 20899–1070. Web page is <http://www.nist.gov>. Telephone is (301) 975–6478.

(a) “Federal Information Processing Standards (FIPS) Publication 197, November 26, 2001, Announcing the ADVANCED ENCRYPTION STANDARD (AES).” (See § 395.38, Incorporation by Reference.)

(b) “Special Publication (SP) 800–32, February 26, 2001, Introduction to Public Key Technology and the Federal PKI Infrastructure.” (See § 395.38, Incorporation by Reference.)

(6) *International Standards Organization (ISO)*, 1, ch. de la Voie-Creuse, CP 56–CH–1211, Geneva 20, Switzerland. Web page is <http://www.iso.org>. Telephone is 41 22 749 03 46.

(a) “ISO/IEC 18004:2006 Information technology—Automatic identification and data capture techniques—QR Code 2005 bar code symbology specification”. (See § 395.38, Incorporation by Reference.)

(b) “ISO/IEC 17568 Information technology—Telecommunications and information exchange between systems—Close proximity electric induction wireless communications.” (See § 395.38, Incorporation by Reference.)

(7) *Internet Engineering Task Force (IETF)*, C/o Association Management Solutions, LLC (AMS), 48377 Freemont Blvd., Suite 117, Freemont, CA 94538. Telephone is (510) 492–4080.

(a) RFC 5246—“The Transport Layer Security (TLS) Protocol Version 1.2”, August 2008. (See § 395.38, Incorporation by Reference.)

(b) RFC 5321—“Simple Mail Transfer Protocol,” October 2008. (See § 395.38, Incorporation by Reference.)

(c) RFC 5322—“Internet Message Format,” October 2008. (See § 395.38, Incorporation by Reference.)

(8) Bluetooth SIG, Inc. 5209 Lake Washington Blvd. NE., Suite 350, Kirkland, WA 98033. Web page is <https://www.bluetooth.org/Technical/Specifications/adopted.htm>. Telephone is (425) 691–3535.

(a) “Specification of the Bluetooth System: Wireless Connections Made Easy,” Bluetooth SIG Covered Core Package version 2.1 + EDR or a higher version. (See § 395.38, Incorporation by Reference.)

(b) [Reserved]

## 7. Data Elements Dictionary

### 7.1.1. 24-Hour Period Starting Time

*Description:* This data element refers to the 24-hour period starting time specified by the motor carrier for driver's home terminal.

*Purpose:* Identifies the bookends of the work day for the driver; Makes ELD records consistent with § 395.8 requirements which require this information to be included on the form.

*Source:* Motor carrier.

*Used in:* ELD account profile; ELD outputs.

*Data Type:* Programmed or populated on the ELD during account creation and maintained by the motor carrier to reflect true and accurate information for drivers.

*Data Range:* 0000 to 2359; first two digits 00 to 23; last two digits 00 to 59.

*Data Length:* 4 characters.

*Data Format:* <HHMM> Military time format where “HH” refer hours and “MM” refer minutes designation for start time expressed in time standard in effect at the driver's home terminal.

*Disposition:* Mandatory.

*Examples:* [0600], [0730], [1800].

### 7.1.2. Carrier Name

*Description:* This data element refers to the motor carrier's legal name for conducting commercial business.

*Purpose:* Provides a recognizable identifier about the motor carrier on viewable ELD outputs; Provides ability to cross check against USDOT number.

*Source:* FMCSA's Safety and Fitness Electronic Records (SAFER) System.

*Used in:* ELD account profile.

*Data Type:* Programmed on the ELD or entered once during the ELD account creation process.

*Data Range:* Any alphanumeric combination.

*Data Length:* Minimum: 4; Maximum: 120 characters.

*Data Format:* <Carrier Name> as in <CCCC> to <CCCC.....CCCC>.

*Disposition:* Mandatory.

*Example:* [CONSOLIDATED TRUCKLOAD INC.].

### 7.1.3. Carrier's USDOT Number

*Description:* This data element refers to the motor carrier's USDOT number.

*Purpose:* Uniquely identifies the motor carrier employing the driver using the ELD.

*Source:* FMCSA's Safety and Fitness Electronic Records (SAFER) System.

*Used in:* ELD account profiles; ELD event records; ELD output file.

*Data Type:* Programmed on the ELD or entered once during the ELD account creation process.

*Data Range:* An integer number of length 1–8 assigned to the motor carrier by FMCSA (9 position numbers reserved).

*Data Length:* Minimum: 1; Maximum: 9 characters.

*Data Format:* <Carrier's USDOT Number> as in <C> to <CCCCCCCC>.

*Disposition:* Mandatory.

*Examples:* [1], [1000003].

### 7.1.4. CMV Power Unit Number

*Description:* This data element refers to the identifier the motor carrier uses for their CMVs in their normal course of business.

*Purpose:* Identifies the vehicle a driver operates while a driver's ELD records are recorded; Makes ELD records consistent with § 395.8 requirements which requires the truck or tractor number to be included on the form.

*Source:* Unique CMV identifiers a motor carrier's uses in their normal course of business and include on dispatch documents or the license number and the licensing State of the power unit.

*Used in:* ELD event records; ELD output file.

*Data Type:* Programmed on the ELD or populated by motor carrier's extended ELD system or entered by the driver.

*Data Range:* Any alphanumeric combination.

*Data Length:* Minimum: 1; Maximum: 10 characters.

*Data Format:* <CMV Power Unit Number> as in <C> to <CCCCCCCC>.

*Disposition:* Mandatory for all CMVs operated while using an ELD.

*Examples:* [123], [00123], [BLUEKW123], [TX12345].

### 7.1.5. CMV VIN

*Description:* This data element refers to the manufacturer assigned vehicle identification number (VIN) for the CMV powered unit.

*Purpose:* Uniquely identifies the operated CMV not only within a motor carrier at a given time but across all CMVs sold within a 30 year rolling period.

*Source:* A robust unique CMV identifier standardized in North America.

*Used in:* ELD event records; ELD output file.

*Data Type:* Retrieved from the engine ECM via the vehicle databus.

*Data Range:* Either blank or 17 characters long as specified by NHTSA in 49 CFR part 565, or 18 characters long with first character assigned as “-” (dash) followed by the 17 character long VIN. Check digit, i.e., VIN character position 9, as specified in 49 CFR part 565 must imply a valid VIN.

*Data Length:* Blank or 17–18 characters.

*Data Format:* <CMV VIN> or <“-”> <CMV VIN> or <{blank}> as in <CCCCCCCCCCCCCCCC>, or <CCCCCCCCCCCCCCCC> or <>.

*Disposition:* Mandatory for all CMVs linked to the engine ECM and when VIN is

available from the engine ECM over the vehicle databus; Otherwise optional. If optionally populated and source is not the engine ECM, precede VIN with the character “.” in records.

*Examples:* [1FUJGHDV0CLBP8834], [-1FUJGHDV0CLBP8896], [ ].

#### 7.1.6. Comment/Annotation

*Description:* This is a textual note related to a record, update or edit capturing the comment or annotation a driver or another authorized support personnel may input to the ELD.

*Purpose:* Provides ability for a driver to offer explanations to records, selections, edits or entries.

*Source:* Driver or another authenticated motor carrier support personnel.

*Used in:* ELD events; ELD outputs.

*Data Type:* Entered by the authenticated user via ELD’s interface.

*Data Range:* Free form text of any alphanumeric combination.

*Data Length:* 0–60 characters if optionally entered;

4–60 characters if annotation is required and driver is prompted by the ELD.

*Data Format:* <Comment/Annotation> as in <{blank}> or <C> to <CCC ..... CCC>.

*Disposition:* Optional in general;

Mandatory if prompted by ELD.

*Examples:* [ ], [Personal Conveyance. Driving to Restaurant in bobtail mode], [Forgot to switch to SB. Correcting here].

#### 7.1.7. Data Diagnostic Event Indicator Status

*Description:* This is a Boolean indicator identifying whether the used ELD unit has an active data diagnostic event set for the authenticated driver at the time of event recording.

*Purpose:* Documents the snapshot of ELD’s data diagnostic status for the authenticated driver at the time of an event recording.

*Source:* ELD internal monitoring functions.

*Used in:* ELD events; ELD outputs.

*Data Type:* Internally monitored and managed.

*Data Range:* 0 (no active data diagnostic events for the driver) or 1 (at least one active data diagnostic event set for the driver).

*Data Length:* 1 character.

*Data Format:* <Data Diagnostic Event Indicator Status> as in <C>.

*Disposition:* Mandatory.

*Examples:* [0] or [1].

#### 7.1.8. Date

*Description:* In combination with the variable “Time”, this parameter stamps records with a reference in time; Even though date and time must be captured in UTC, event records must use date and time converted to the time zone in effect at the driver’s home terminal as specified in section 4.4.3.

*Purpose:* Provides ability to record the instance of recorded events.

*Source:* ELD’s converted time measurement.

*Used in:* ELD events; ELD outputs.

*Data Type:* UTC date must be automatically captured by ELD; Date in effect at the driver’s home terminal must be calculated as specified in section 4.4.3.

*Data Range:* Any valid date combination expressed in <MMDDYY> format where “MM” refers to months, “DD” refers to days of the month and “YY” refers to the last two digits of the calendar year.

*Data Length:* 6 characters.

*Data Format:* <MMDDYY> where <MM> must be between 01 and 12, <DD> must be between 01 and 31, and <YY> must be between 00 and 99.

*Disposition:* Mandatory.

*Examples:* [122815], [010114], [061228].

#### 7.1.9. Distance Since Last Valid Coordinates

*Description:* Distance in whole miles traveled since the last valid latitude,

longitude pair the ELD measured with the required accuracy.

*Purpose:* Provides ability to keep track of location for recorded events in cases of temporary position measurement outage.

*Source:* ELD internal calculations.

*Used in:* ELD events; ELD outputs.

*Data Type:* Kept track of by the ELD based on position measurement validity.

*Data Range:* An integer value between 0 and 6; If the distance traveled since the last valid coordinate measurement exceeds 6 miles, the ELD must enter the value as 6.

*Data Length:* 1 character.

*Data Format:* <Distance Since Last Valid Coordinates> as in <C>.

*Disposition:* Mandatory.

*Examples:* [0], [1], [5], [6].

#### 7.1.10. Driver’s License Issuing State

*Description:* This data element refers to the issuing State, Province or Jurisdiction of the listed Driver’s License for the ELD account holder.

*Purpose:* In combination with “Driver’s License Number”, it links the ELD driver account holder uniquely to an individual with driving credentials; Ensures that only one driver account can be created per individual.

*Source:* Driver’s license.

*Used in:* ELD account profile(s); ELD output file.

*Data Type:* Entered (during the creation of a new ELD account).

*Data Range:* To character abbreviation listed on Table 6.

*Data Length:* 2 characters.

*Data Format:* Driver’s License Issuing State> as in <CC>.

*Disposition:* Mandatory for all driver accounts created on the ELD; Optional for “non-driver” accounts.

*Example:* [WA].

TABLE 6—STATE AND PROVINCE ABBREVIATION CODES

State code	State	State code	State
<b>U.S.A.</b>			
AL .....	ALABAMA	MT .....	MONTANA.
AK .....	ALASKA	NC .....	NORTH CAROLINA.
AR .....	ARKANSAS	ND .....	NORTH DAKOTA.
AZ .....	ARIZONA	NE .....	NEBRASKA.
CA .....	CALIFORNIA	NH .....	NEW HAMPSHIRE.
CO .....	COLORADO	NJ .....	NEW JERSEY.
CT .....	CONNECTICUT	NM .....	NEW MEXICO.
DC .....	DISTRICT OF COLUMBIA	NV .....	NEVADA.
DE .....	DELAWARE	NY .....	NEW YORK.
FL .....	FLORIDA	OH .....	OHIO.
GA .....	GEORGIA	OK .....	OKLAHOMA.
HI .....	HAWAII	OR .....	OREGON.
IA .....	IOWA	PA .....	PENNSYLVANIA.
ID .....	IDAHO	RI .....	RHODE ISLAND.
IL .....	ILLINOIS	SC .....	SOUTH CAROLINA.
IN .....	INDIANA	SD .....	SOUTH DAKOTA.
KS .....	KANSAS	TN .....	TENNESSEE.
KY .....	KENTUCKY	TX .....	TEXAS.
LA .....	LOUISIANA	UT .....	UTAH.
MA .....	MASSACHUSETTS	VA .....	VIRGINIA.
MD .....	MARYLAND	VT .....	VERMONT.
ME .....	MAINE	WA .....	WASHINGTON.
MI .....	MICHIGAN	WI .....	WISCONSIN.
MN .....	MINNESOTA	WV .....	WEST VIRGINIA.

TABLE 6—STATE AND PROVINCE ABBREVIATION CODES—Continued

State code	State	State code	State
MO .....	MISSOURI	WY .....	WYOMING.
MS .....	MISSISSIPPI		
AMERICAN POSSESSIONS OR PROTECTORATES			
AS .....	AMERICAN SAMOA.		
GU .....	GUAM.		
MP .....	NORTHERN MARIANAS.		
PR .....	PUERTO RICO.		
VI .....	VIRGIN ISLANDS.		
CANADA			
Province code	Province		
AB .....	ALBERTA.		
BC .....	BRITISH COLUMBIA.		
MB .....	MANITOBA.		
NB .....	NEW BRUNSWICK.		
NF .....	NEWFOUNDLAND.		
NS .....	NOVA SCOTIA.		
NT .....	NORTHWEST TERRITORIES.		
ON .....	ONTARIO.		
PE .....	PRINCE EDWARD ISLAND.		
QC .....	QUEBEC.		
SK .....	SASKATCHEWAN.		
YT .....	YUKON TERRITORY.		
MEXICO			
AG .....	AGUASCALIENTES	MX .....	MEXICO.
BN .....	BAJA CALIFORNIA NORTE	NA .....	NAYARIT.
BS .....	BAJA CALIFORNIA SUR	NL .....	NUEVO LEON.
CH .....	COAHUILA	OA .....	OAXACA.
CI .....	CHIHUAHUA	PU .....	PUEBLA.
CL .....	COLIMA	QE .....	QUERETARO.
CP .....	CAMPECHE	QI .....	QUINTANA ROO.
CS .....	CHIAPAS	SI .....	SINALOA.
DF .....	DISTRICTO FEDERAL	SL .....	SAN LUIS POTOSI.
DG .....	DURANGO	SO .....	SONORA.
GE .....	GUERRERO	TA .....	TAMAULIPAS.
GJ .....	GUANAJUATO	TB .....	TABASCO.
HD .....	HIDALGO	TL .....	TLAXCALA.
JA .....	JALISCO	VC .....	VERACRUZ.
MC .....	MICHOACAN	YU .....	YUCATAN.
MR .....	MORELOS	ZA .....	ZACATECAS.
OTHER			
Province code	Province, state or country		
OT .....	ALL OTHERS NOT COVERED ABOVE.		

## 7.1.11. Driver's License Number

**Description:** This data element refers to the unique Driver's License information required for each driver account on the ELD.

**Purpose:** In combination with driver's license issuing State, it links the ELD driver account holder to an individual with driving credentials; Ensures that only one driver account can be created per individual.

**Source:** Driver's license.

**Used in:** ELD account profile(s); ELD output file.

**Data Type:** Entered (during the creation of a new ELD account).

**Data Range:** Any alphanumeric combination.

**Data Length:** Minimum: 1; Maximum: 20 characters.

**Data Format:** <Driver's License Number> as in <C> to <CCCCCCCCCCCCCCCCCCCC>. For ELD record keeping purposes, ELD must only retain characters in a Driver's License Number entered during an account creation process that are a number between 0–9 or a character between A–Z (non-case sensitive).

**Disposition:** Mandatory for all driver accounts created on the ELD; Optional for “non-driver” accounts.

**Examples:** [SAMPLMJ065LD], [D000368210361], [198], [N02632676353666].

## 7.1.12. Driver's Location Description

**Description:** This is a textual note related to the location of the CMV input by the driver upon ELD's prompt.

**Purpose:** Provides ability for a driver to enter location information related to entry of missing records; Provides ability to accommodate temporary positioning service interruptions or outage without setting positioning malfunctions.

**Source:** Driver, only when prompted by the ELD.

**Used in:** ELD events; ELD outputs.

**Data Type:** Entered by the authenticated driver when ELD solicits this information as specified in section 4.3.2.7.

*Data Range:* Free form text of any alphanumeric combination.

*Data Length:* 5–60 characters.

*Data Format:* <CCCC> to <CCC.....CCC>.

*Disposition:* Mandatory when prompted by ELD.

*Examples:* [], [5 miles SW of Indianapolis, IN], [Reston, VA].

#### 7.1.13. ELD Account Type

*Description:* An indicator designating whether an ELD account is of type driver support personnel (non-driver).

*Purpose:* Enables to verify account type specific requirements set forth in this document.

*Source:* ELD designated.

*Used in:* ELD outputs.

*Data Type:* Specified during the account creation process and recorded on ELD.

*Data Range:* Character “D” indicating of account type “Driver” or “S”, indicating of account type (“motor carrier’s support personnel” i.e. non-driver); “Unidentified Driver” account must be designated with type “D”.

*Data Length:* 1 character.

*Data Format:* <C>.

*Disposition:* Mandatory.

*Examples:* [D], [S].

#### 7.1.14. ELD Authentication Value

*Description:* An alphanumeric value that is unique to an ELD and verifies the authenticity of the given ELD.

*Purpose:* Provides ability to cross-check the authenticity of an ELD used in the recording of a driver’s records during inspections.

*Source:* ELD provider assigned value; Includes a certificate component and a hashed component; Necessary information related to authentication keys and hash procedures disclosed by the registered ELD provider during the online ELD certification process for independent verification by FMCSA systems.

*Used in:* ELD outputs.

*Data Type:* Calculated from the authentication key and calculation procedure privately distributed by the ELD provider to FMCSA during the ELD registration process.

*Data Range:* Alphanumeric combination.

*Data Length:* 16–32 characters.

*Data Format:* <CCCC.....CCCC>.

*Disposition:* Mandatory.

*Example:*

[D3A4506EC8FF566B506EC8FF566BDFBB].

#### 7.1.15. ELD Identifier

*Description:* An alphanumeric identifier assigned by the ELD provider to the ELD technology that is certified by the registered provider at FMCSA’s Web site.

*Purpose:* Provides ability to cross-check that the ELD used in the recording of a driver’s records is certified through FMCSA’s registration and certification process as required.

*Source:* Assigned and submitted by the ELD provider during the online certification of an ELD model, and version.

*Used in:* ELD outputs.

*Data Type:* Coded on the ELD by the ELD provider and disclosed to FMCSA during the online certification process.

*Data Range:* A six character alphanumeric identifier using characters A–Z and number 0–9

*Data Length:* 6 characters.

*Data Format:* <ELD Identifier> as in <CCCCC>.

*Disposition:* Mandatory.

*Examples:* [1001ZE], [GAM112], [02P3P1].

#### 7.1.16. ELD Registration ID

*Description:* An alphanumeric registration identifier assigned to the ELD provider that is registered with FMCSA during the ELD registration process.

*Purpose:* Provides ability to cross-check that the ELD provider has registered as required.

*Source:* Received from FMCSA during online provider registration.

*Used in:* ELD outputs.

*Data Type:* Coded on the ELD by the Provider.

*Data Range:* A four character alphanumeric registration identifier using characters A–Z and numbers 0–9.

*Data Length:* 4 characters.

*Data Format:* <ELD Registration ID> as in <CCCC>.

*Disposition:* Mandatory.

*Examples:* [ZA10], [QA0C], [FAZ2].

#### 7.1.17. ELD Username

*Description:* This data element refers to the unique user identifier assigned to the account holder on the ELD to authenticate the corresponding individual during an ELD login process; The individual may be a driver or a motor carrier’s support personnel.

*Purpose:* Documents the user identifier assigned to the driver linked to the ELD account.

*Source:* Assigned by the motor carrier during the creation of a new ELD account.

*Used in:* ELD account profile; Event records; ELD login process.

*Data Type:* Entered (during account creation and user authentication).

*Data Range:* Any alphanumeric combination.

*Data Length:* Minimum: 4; Maximum: 60 characters.

*Data Format:* <ELD Username> as in <CCCC> to <CCCC ..... CCCC>.

*Disposition:* Mandatory for all accounts created on the ELD.

*Examples:* [smithj], [100384], [sj2345], [john.smith].

#### 7.1.18. Engine Hours

*Description:* Engine hours refer to the time the CMV’s engine in powered in decimal hours with 0.1 hr (6-minute) resolution; This parameter is a placeholder for <{Total} Engine Hours> which refers to the aggregated time of a vehicle’s engine’s operation since its inception and used in recording “engine power on” and “engine shut down” events, and also for <{Elapsed} Engine Hours> which refers to the elapsed time in engine’s operation in the given ignition power on cycle and used in the recording of all other events.

*Purpose:* Provides ability to identify gaps in the operation of a CMV, when the vehicle’s engine may be powered but the ELD may not; Provides ability to cross check integrity of recorded data elements in events and prevent gaps in the recording of ELD.

*Source:* ELD measurement or sensing.

*Used in:* ELD events; ELD outputs.

*Data Type:* Acquired from the engine ECM or a comparable other source as allowed in section 4.3.1.4.

*Data Range:* For <{Total} Engine Hours>, range is between 0.0 and 99,999.9;

For <{Elapsed} Engine Hours>, range is between 0.0 and 99.9.

*Data Length:* 3–7 characters.

*Data Format:* <Vehicle Miles> as in <C.C> to <CCCCC.C>.

*Disposition:* Mandatory.

*Examples:* [0.0], [9.9], [346.1], [2891.4].

#### 7.1.19. Event Code

*Description:* A dependent attribute on “Event Type” parameter that further specifies the nature of the change indicated in “Event Type”; This parameter indicates the new status after the change.

*Purpose:* Provides ability to code the specific nature of the change electronically.

*Source:* ELD internal calculations.

*Used in:* ELD event records; ELD outputs.

*Data Type:* ELD recorded and maintained event attribute in accordance with the type of event and nature of the new status being recorded.

*Data Range:* Dependent on the “Event Type” as indicated on Table 7.

*Data Length:* 1 character.

*Data Format:* <Event Type> as in <C>.

*Disposition:* Mandatory.

*Examples:* [0], [1], [4], [9].

TABLE 7—“EVENT TYPE” PARAMETER CODING

Event type	Event code	Event code description
1 .....	1 .....	Driver’s duty status changed to “Off-duty”.
1 .....	2 .....	Driver’s duty status changed to “Sleeper Berth”.
1 .....	3 .....	Driver’s duty status changed to “Driving”.
1 .....	4 .....	Driver’s duty status changed to “On-duty not driving”.
2 .....	1 .....	Intermediate log with conventional location precision.
2 .....	2 .....	Intermediate log with reduced location precision.
3 .....	1 .....	Driver indicates “Authorized Personal Use of CMV”.
3 .....	2 .....	Driver indicates “Yard Moves”.
3 .....	0 .....	Driver indication for PC, YM and WT cleared.

TABLE 7—“EVENT TYPE” PARAMETER CODING—Continued

Event type	Event code	Event code description
4 .....	1 .....	Driver's first certification of a daily record.
4 .....	n .....	Driver's n'th certification of a daily record (when recertification necessary). “n” is an integer between 1 and 9. If more than 9 certifications needed, use 9 for each new re-certification record.
5 .....	1 .....	Authenticated driver's ELD login activity.
5 .....	2 .....	Authenticated driver's ELD logout activity.
6 .....	1 .....	Engine power-up with conventional location precision.
6 .....	2 .....	Engine power-up with reduced location precision.
6 .....	3 .....	Engine shut down with conventional location precision.
6 .....	4 .....	Engine shut-down with reduced location precision.
7 .....	1 .....	An ELD malfunction logged.
7 .....	2 .....	An ELD malfunction cleared.
7 .....	3 .....	A data diagnostic event logged.
7 .....	4 .....	A data diagnostic event cleared.

## 7.1.20. Event Data Check Value

*Description:* A hexadecimal “check” value calculated in accordance to procedure outlined in section 4.4.5.1 and attached to each event record at the time of recording.

*Purpose:* Provides ability to identify cases where an ELD event record may have been inappropriately modified after its original recording.

*Source:* ELD internal

*Used in:* ELD events; ELD output file.

*Data Type:* Calculated by the ELD in accordance with 4.4.5.1.

*Data Range:* A number between hexadecimal 00 (decimal 0) and hexadecimal FF (decimal 255).

*Data Length:* 2 characters.

*Data Format:* <Event Data Check Value> as in <CC>.

*Disposition:* Mandatory.

*Examples:* [05], [CA], [F3].

## 7.1.21. Event Record Origin

*Description:* An attribute for the event record indicating whether it is automatically recorded, or edited, entered or accepted by the driver, requested by another authenticated user, or assumed from unidentified driver profile.

*Purpose:* Provides ability to track origin of the records.

*Source:* ELD internal calculations.

*Used in:* ELD event records; ELD outputs.

*Data Type:* ELD recorded and maintained event attribute in accordance with the procedures outlined in sections 4.4.4.2.2, 4.4.4.2.3, 4.4.4.2.4 and 4.4.4.2.5.

*Data Range:* 1, 2, 3 or 4 as described on Table 8.

*Data Length:* 1 character.

*Data Format:* <Event Record Origin> as in <C>.

*Disposition:* Mandatory.

*Examples:* [1], [2], [3], [4].

TABLE 8—“EVENT RECORD ORIGIN” PARAMETER CODING

Event record origin	Event record origin code
Automatically recorded by ELD .....	1
Edited or Entered by the Driver .....	2

TABLE 8—“EVENT RECORD ORIGIN” PARAMETER CODING—Continued

Event record origin	Event record origin code
Edit Requested by an Authenticated User other than the Driver .....	3
Assumed from Unidentified Driver profile .....	4

## 7.1.22. Event Record Status

*Description:* An attribute for the event record indicating whether an event is active or inactive and further, if inactive, whether it is due to a change or lack of confirmation by the driver or due to a driver's rejection of change request.

*Purpose:* Provides ability to keep track of edits and entries performed over ELD records while retaining original records.

*Source:* ELD internal calculations.

*Used in:* ELD event records; ELD outputs.

*Data Type:* ELD recorded and maintained event attribute in accordance with the procedures outlined in sections 4.4.4.2.2, 4.4.4.2.3, 4.4.4.2.4, 4.4.4.2.5, and 4.4.4.2.6.

*Data Range:* 1, 2, 3 or 4 as described on Table 9.

*Data Length:* 1 character.

*Data Format:* <Event Record Status> as in <C>.

*Disposition:* Mandatory.

*Examples:* [1], [2], [3], [4]

TABLE 9—“EVENT RECORD STATUS” PARAMETER CODING

Event record status	Event record status code
Active .....	1
Inactive—Changed .....	2
Inactive—Change Requested .....	3
Inactive—Change Rejected ..	4

## 7.1.23. Event Sequence ID Number

*Description:* This data element refers to the serial identifier assigned to each required ELD event as described in section 4.5.1.

*Purpose:* Provides ability to keep a continuous records keeping track on a given ELD across all users of that ELD.

*Source:* ELD internal calculations.

*Used in:* ELD event records; ELD outputs.

*Data Type:* ELD maintained; Incremented by 1 for each new record on the ELD;

Continuous for each new event the ELD records regardless of owner of the records.

*Data Range:* 0 to FFFF; Initial factory value must be 0; After FFFF hexadecimal (decimal 65535), the next Event Sequence ID number must be 0.

*Data Length:* 1–4 characters.

*Data Format:* <Event Sequence ID Number> as in <C> to <CCCC>.

*Disposition:* Mandatory.

*Examples:* [1], [1F2C], [2D3], [BB], [FFFE].

## 7.1.24. Event Type

*Description:* An attribute specifying the type of the event record.

*Purpose:* Provides ability to code the type of the recorded event in electronic format.

*Source:* ELD internal calculations.

*Used in:* ELD event records; ELD outputs.

*Data Type:* ELD recorded and maintained event attribute in accordance with the type of event being recorded.

*Data Range:* 1–7 as described on Table 10.

*Data Length:* 1 character.

*Data Format:* <Event Type> as in <C>.

*Disposition:* Mandatory.

*Examples:* [1], [5], [4], [7].

TABLE 10—“EVENT TYPE” PARAMETER CODING

Event type	Event type code
A change in driver's duty-status .....	1
An intermediate log .....	2
A change in driver's indication of authorized personal use of CMV or yard moves .....	3
A driver's certification/re-certification of records .....	4
A driver's login/logout activity .....	5
CMV's engine power up/shut down activity .....	6
A malfunction or data diagnostic detection occurrence .....	7

## 7.1.25. Exempt Driver Configuration

*Description:* A parameter indicating whether the motor carrier's configured a

driver's profile to claim exemption from ELD use.

**Purpose:** Provides ability to code the motor carrier indicated exemption for the driver electronically.

**Source:** Motor carrier's configuration for a given driver.

**Used in:** ELD outputs.

**Data Type:** Motor carrier configured and maintained parameter in accordance with the qualification requirements listed in § 395.1.

**Data Range:** E (exempt) or 0 (number zero).

**Data Length:** 1 character.

**Data Format:** <Exempt Driver

Configuration> as in <C>.

**Disposition:** Mandatory.

**Examples:** [E], [0].

#### 7.1.26. File Data Check Value

**Description:** A hexadecimal "check" value calculated in accordance to procedure outlined in section 4.4.5.3 and attached to each ELD output file.

**Purpose:** Provides ability to identify cases where an ELD file may have been inappropriately modified after its original creation.

**Source:** ELD internal.

**Used in:** ELD output files.

**Data Type:** Calculated by the ELD in accordance with 4.4.5.3.

**Data Range:** A number between hexadecimal 0000 (decimal 0) and hexadecimal FFFF (decimal 65535).

**Data Length:** 4 characters.

**Data Format:** <File Data Check Value> as in <CCCC>.

**Disposition:** Mandatory.

**Examples:** [F0B5], [00CA], [523E].

#### 7.1.27. First Name

**Description:** This data element refers to the given name of the individual holding an ELD account.

**Purpose:** Links an individual to the associated ELD account.

**Source:** Driver's license for driver accounts; Driver's license or government-issued ID for support personnel accounts.

**Used in:** ELD account profile(s); ELD outputs (display and file).

**Data Type:** Entered (during the creation of a new ELD account).

**Data Range:** Any alphanumeric combination.

**Data Length:** Minimum: 2; Maximum: 30 characters.

**Data Format:** <First Name> as in <CC> to <CC. . . .CC> where "C" denotes a character.

**Disposition:** Mandatory for all accounts created on the ELD.

**Example:** [John].

#### 7.1.28. Geo-Location

**Description:** A descriptive indicator of the CMV position in terms of a distance and direction to a recognizable location derived from a GNIS database at a minimum containing all cities, towns and villages with a population of 5,000 or greater.

**Purpose:** Provide recognizable location information on displayable outputs to users of the ELD.

**Source:** ELD internal calculations as specified in section 4.4.2.

**Used in:** ELD visual outputs (display, printout).

**Data Type:** Identified from the underlying latitude/longitude coordinates by the ELD.

**Data Range:** Contains four segments in one text field; A recognizable location driven from GNIS database containing—at a minimum—all cities, towns and villages with a population of 5,000 in text format containing a location name and the State abbreviation, distance from this location and direction from this location.

**Data Length:** Minimum: 5 Maximum: 60 characters.

**Data Format:** <Distance from {identified} Geo-location> <'mi'> <Direction from {identified} Geo-location> <'> <State Abbreviation {of identified} Geo Location> <'> <Place name of {identified} Geo-location> where: <Distance from {identified} Geo-location> must either be <{blank}> or <C> or <CC> where the—up-to two character number specifies absolute distance between identified geo-location and event location; <Direction from {identified} Geo-location> must either be <{blank}> or <C> or <CC> or <CCC>, must represent direction of event location with respect to the identified geo-location, and must take a value listed on Table 11;

<State Abbreviation {of identified} Geo Location> must take values listed on Table 6; <Place name of {identified} Geo-location> must be the text description of the identified reference location;

Overall length of the "Geo-location" parameter must not be longer than 60 characters long.

**Disposition:** Mandatory.

**Examples:** [2mi ESE IL Darien], [1mi SE TX Dallas], [11mi NNW IN West Lafayette].

**TABLE 11—CONVENTIONAL COMPASS ROSE DIRECTION CODING TO BE USED IN THE GEO-LOCATION PARAMETER**

Direction	Direction code
At indicated geo-location .....	{blank}
North of indicated geo-location .....	N
North-North East of indicated geo-location.	NNE
North East of indicated geo-location	NE
East-North East of indicated geo-location.	ENE
East of indicated geo-location .....	E
East-South East of indicated geo-location.	ESE
South East of indicated geo-location.	SE
South-South East of indicated geo-location.	SSE
South of indicated geo-location .....	S
South-South West of indicated geo-location.	SSW
South West of indicated geo-location.	SW
West-South West of indicated geo-location.	WSW
West of indicated geo-location .....	W
West-North West of indicated geo-location.	WNW
North West of indicated geo-location.	NW

**TABLE 11—CONVENTIONAL COMPASS ROSE DIRECTION CODING TO BE USED IN THE GEO-LOCATION PARAMETER—Continued**

Direction	Direction code
North-North West of indicated geo-location.	NNW

#### 7.1.29. Last Name

**Description:** This data element refers to the last name of the individual holding an ELD account.

**Purpose:** Links an individual to the associated ELD account.

**Source:** Driver's license for driver accounts; Driver's license or government-issued ID for support personnel accounts.

**Used in:** ELD account profile(s); ELD outputs (display and file).

**Data Type:** Entered (during the creation of a new ELD account).

**Data Range:** Any alphanumeric combination.

**Data Length:** Minimum: 2; Maximum: 30 characters.

**Data Format:** <Last Name> as in <CC> to <CC. . . .CC>.

**Disposition:** Mandatory for all accounts created on the ELD.

**Example:** [Smith].

#### 7.1.30. Latitude

**Description:** An angular distance in degrees north and south of the equator.

**Purpose:** In combination with the variable "Longitude", this parameter stamps records requiring a position attribute with a reference point on the face of the earth.

**Source:** ELD's position measurement.

**Used in:** ELD events; ELD outputs.

**Data Type:** Latitude and Longitude must be automatically captured by the ELD.

**Data Range:** −90.00 to 90.00 in decimal degrees (two decimal point resolution) in records using conventional positioning precision; −90.0 to 90.0 in decimal degrees (single decimal point resolution) in records using reduced positioning precision when allowed; Latitudes north of the equator must be specified by the absence of a minus sign (−), preceding the digits designating degrees; Latitudes south of the Equator must be designated by a minus sign (−) preceding the digits designating degrees.

**Data Length:** 3 to 6 characters,

**Data Format:** First character: [<'−'> or <{blank}>] then [<C> or <CC>]; then <'.'>; then [<C> or <CC>].

**Disposition:** Mandatory.

**Examples:** [−15.68], [38.89], [5.07], [−6.11], [−15.7], [38.9], [5.1], [−6.1].

#### 7.1.31. Line Data Check Value

**Description:** A hexadecimal "check" value calculated in accordance to procedure outlined in section 4.4.5.2 and attached to each line of output featuring data at the time of output file being generated.

**Purpose:** Provides ability to identify cases where an ELD output file may have been inappropriately modified after its original generation.

*Source:* ELD internal.

*Used in:* ELD output file.

*Data Type:* Calculated by the ELD in accordance with 4.4.5.2.

*Data Range:* A number between hexadecimal 00 (decimal 0) and hexadecimal FF (decimal 255).

*Data Length:* 2 characters.

*Data Format:* <Line Data Check Value> as in <CC>.

*Disposition:* Mandatory.

*Examples:* [01], [A4], [CC].

#### 7.1.32. Longitude

*Description:* An angular distance in degrees measured on a circle of reference with respect to the zero (or prime) meridian; The prime meridian runs through Greenwich, England.

*Purpose:* In combination with the variable "Longitude", this parameter stamps records requiring a position attribute with a reference point on the face of the earth.

*Source:* ELD's position measurement.

*Used in:* ELD events; ELD outputs.

*Data Type:* Latitude and Longitude must be automatically captured by the ELD.

*Data Range:* -179.99 to 180.00 in decimal degrees (two decimal point resolution) in records using conventional positioning precision; -179.9 to 180.0 in decimal degrees (single decimal point resolution) in records using reduced positioning precision when allowed; Longitudes east of the prime meridian must be specified by the absence of a minus sign (-), preceding the digits designating degrees of longitude; Longitudes west of the prime meridian must be designated by minus sign (-) preceding the digits designating degrees.

*Data Length:* 3 to 7 characters

*Data Format:* First character: <'-'> or <{blank}>; then <C>, <CC> or <CCC>; then <'.>; then <C> or <CC>].

*Disposition:* Mandatory.

*Examples:* [-157.81], [-77.03], [9.05], [-0.15], [-157.8], [-77.0], [9.1], [-0.2].

#### 7.1.33. Malfunction/Diagnostic Code

*Description:* A code that further specifies the underlying malfunction or data diagnostic event.

*Purpose:* Enables coding the type of malfunction and data diagnostic event to cover the standardized set in Table 4.

*Source:* ELD internal monitoring.

*Used in:* ELD events; ELD outputs.

*Data Type:* Recorded by ELD when malfunctions and data diagnostic events are set or reset.

*Data Range:* As specified in Table 4.

*Data Length:* 1 character

*Data Format:* <C>

*Disposition:* Mandatory

*Examples:* [1], [5], [P], [L].

#### 7.1.34. Malfunction Indicator Status

*Description:* This is a Boolean indicator identifying whether the used ELD unit has an active malfunction set at the time of event recording.

*Purpose:* Documents the snapshot of ELD's malfunction status at the time of an event recording.

*Source:* ELD internal monitoring functions.

*Used in:* ELD events; ELD outputs.

*Data Type:* Internally monitored and managed.

*Data Range:* 0 (no active malfunction) or 1 (at least one active malfunction).

*Data Length:* 1 character.

*Data Format:* <Malfunction Indicator Status> as in <C>.

*Disposition:* Mandatory.

*Examples:* [0] or [1].

#### 7.1.35. Multiday Basis Used

*Description:* This data element refers to the multiday basis (7 or 8 days) used by the motor carrier to compute cumulative duty hours.

*Purpose:* Provides ability to apply the HOS rules accordingly.

*Source:* Motor carrier.

*Used in:* ELD account profile; ELD outputs.

*Data Type:* Entered by the motor carrier during account creation process.

*Data Range:* 7 or 8.

*Data Length:* 1 character.

*Data Format:* <Multiday basis used> as in <C>.

*Disposition:* Mandatory.

*Examples:* [7], [8].

#### 7.1.36. Order Number

*Description:* A continuous integer number assigned in the forming of a list, starting at 1 and incremented by 1 for each unique item on the list.

*Purpose:* Allows for more compact report file output generation avoiding repetitious use of CMV identifiers and usernames affected in records.

*Source:* ELD internal.

*Used in:* ELD outputs, listing of users and CMVs referenced in ELD logs.

*Data Type:* Managed by ELD.

*Data Range:* Integer between 1 and 99.

*Data Length:* 1-2 characters.

*Data Format:* <Order Number> as in <C> or <CC>.

*Disposition:* Mandatory.

*Examples:* [1], [5], [11], [28].

#### 7.1.37. Output File Comment

*Description:* A textual field that may be populated with information pertaining to the created ELD output file; An authorized safety official may provide a key phrase or code to be included in the output file comment, which may be used to link the requested data to an inspection, inquiry or other enforcement action; If provided to the driver by an authorized safety official, it must be entered into the ELD or its support system and included in the exchanged dataset as specified.

*Purpose:* The output file comment field provides an ability to link a submitted data to an inspection, inquiry or other enforcement action, if deemed necessary; Further, it may also serve a purpose to link a dataset to a vehicle, driver, carrier and/or ELD which may participate in voluntary future programs that may involve exchange of ELD data.

*Source:* Enforcement personnel or driver or motor carrier.

*Used in:* ELD outputs.

*Data Type:* If provided, output file comment is entered or appended to the ELD dataset prior to submission of ELD data to enforcement.

*Data Range:* Blank or any alphanumeric combination specified and provided by an authorized safety official.

*Data Length:* 0-60 characters.

*Data Format:* <{blank}>, or <C> thru <CCCC.....CCCC>.

*Disposition:* Mandatory.

*Examples:* [ ], [3BHG701015], [113G1EFW02], [7353930].

#### 7.1.38. Shipping Document Number

*Description:* Shipping document number the motor carrier uses in their system and dispatch documents.

*Purpose:* Links ELD data to the shipping records; Makes ELD dataset consistent with § 395.8 requirements.

*Source:* Motor Carrier.

*Used in:* ELD outputs.

*Data Type:* Entered in the ELD by the authenticated driver or populated by motor carrier's extended ELD support system and verified by the driver.

*Data Range:* Any alphanumeric combination.

*Data Length:* 0-40 characters.

*Data Format:* <{blank}>, or <C> thru <CCCC .....CCCC>.

*Disposition:* Mandatory if a shipping number is used on motor carrier's system.

*Examples:* [ ], [B 75354], [FX334411707].

#### 7.1.39. Time

*Description:* In combination with the variable "Date", this parameter stamps records with a reference in time; Even though date and time must be captured in UTC, event records must use date and time converted to the time zone in effect at the driver's home terminal as specified in section 4.4.3.

*Purpose:* Provides ability to record the instance of recorded events.

*Source:* ELD's converted time measurement.

*Used in:* ELD events; ELD outputs.

*Data Type:* UTC time must be automatically captured by ELD; Time in effect at the driver's home terminal must be calculated as specified in section 4.4.3.

*Data Range:* Any valid date combination expressed in <HHMMSS> format where "HH" refers to hours of the day, "DD" refers to minutes and "SS" refers to seconds.

*Data Length:* 6 characters.

*Data Format:* <HHMMSS> where <HH> must be between 00 and 23, <MM> and <SS> must be between 00 and 59.

*Disposition:* Mandatory.

*Examples:* [070111], [001259], [151522], [230945].

#### 7.1.40. Time Zone Offset From UTC

*Description:* This data element refers to the offset in time between UTC time and the time standard in effect at the driver's home terminal.

*Purpose:* Establishes the ability to link records stamped with local time to a universal reference.

*Source:* Calculated from measured variable <{UTC} Time> and <{Time Standard in Effect at driver's home terminal} Time>; Maintained together with "24-hour Period Starting Time" parameter by the motor carrier or tracked automatically by ELD.

*Used in:* ELD account profile; ELD event; Driver's certification of own records.

*Data Type:* Programmed or populated on the ELD during account creation and

maintained by the motor carrier or ELD to reflect true and accurate information for drivers. This parameter must adjust for Daylight Saving Time changes in effect at the driver's home terminal.

*Data Range:* 04 to 11; Omit sign.

*Data Length:* 2 characters.

*Data Format:* <Time Zone Offset from UTC> as in <HH> where "HH" refer to hours in difference.

*Disposition:* Mandatory.

*Examples:* [04], [05], [10].

#### 7.1.41. Trailer Number(s)

*Description:* This data element refers to the identifier(s) the motor carrier uses for the trailers in their normal course of business.

*Purpose:* Identifies the trailer(s) a driver operates while a driver's ELD records are recorded; Makes ELD records consistent with § 395.8 which requires the trailer number(s) to be included on the form.

*Source:* Unique trailer identifiers a motor carrier uses in their normal course of business and include on dispatch documents or the license number and licensing State of each towed unit; Trailer number(s) must be updated each time hauled trailers change.

*Data Type:* Automatically captured by the ELD or populated by motor carrier's extended ELD system or entered by the driver; Must be

updated each time the hauled trailer(s) change.

*Data Range:* Any alphanumeric combination.

*Data Length:* Minimum: blank; Maximum: 32 characters (3 trailer numbers each maximum 10 characters long, separated by spaces).

*Data Format:* Trailer numbers; Separated by space in case of multiple trailers hauled at one time; Field to be left "blank" for non-combination vehicles (such as a straight truck or bobtail tractor).

<Trailer Unit Number {#1}><' '><Trailer Unit Number {#2}><' '><Trailer Unit Number {#3}> as in <{blank}> to <CC>.

*Disposition:* Mandatory when operating combination vehicles.

*Examples:* [987], [00987 PP2345], [BX987 POP712 10567], [TX12345 LA22A21], [ ].

#### 7.1.42. Vehicle Miles

*Description:* Vehicle miles refer to the distance traveled using the CMV in whole miles; This parameter is a placeholder for <{Total} Vehicle Miles> which refers to the odometer reading and used in recording "engine power on" and "engine shut down" events, and also for <{Accumulated} Vehicle

Miles> which refers to the accumulated miles in the given ignition power on cycle and used in the recording of all other events.

*Purpose:* Provides ability to track distance traveled while operating the CMV in each duty status. Total miles traveled within a 24-hour period is a required field in § 395.8.

*Source:* ELD measurement or sensing.

*Used in:* ELD events; ELD outputs.

*Data Type:* Acquired from the engine ECM or a comparable other source as allowed in section 4.3.1.3.

*Data Range:* For <{Total} Vehicle Miles>, range is between 0 and 9,999,999;

For <{Accumulated} Vehicle Miles>, range is between 0 and 9,999.

*Data Length:* 1–7 characters.

*Data Format:* <Vehicle Miles> as in <C> to <CCCCCCCC>.

*Disposition:* Mandatory.

*Examples:* [99], [1004566], [0], [422].

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**Anne S. Ferro,**

*Administrator.*

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