

# ELECTRONIC ON-BOARD RECORDERS (EOBRs)

## Technology Solutions for Improved Safety and Compliance Management

Dave Kraft

Senior Manager of Government Affairs, Qualcomm

Chairman, EOBR Task Force, American Trucking Associations



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**This white paper provides information about Electronic On-Board Recorders (EOBRs) to better enable carriers to determine the potential value to their business. Information covered will include:**

- I. Current EOBR regulation and industry experience
- II. New developments for EOBR regulations and policies
- III. Conclusion: The opportunity in using EOBRs

## **I. CURRENT EOBR REGULATION AND INDUSTRY EXPERIENCE**

The Federal Motor Carrier Safety Administration (FMCSA) has allowed the use of automatic on-board recording devices (AOBRDs) to track drivers' hours of service since 1988. The requirements of such devices are contained in the Code of Federal Regulations (CFR) title 49 section 395, with specifics for these devices outlined in 395.15.

Requirements for AOBRDs (now commonly referred to as EOBRs) can currently be summarized as follows:

- Use by motor carriers is voluntary.
- Technology requirements state that the EOBR device must:
  - Be integrated with the vehicle
  - Be tamper-resistant
  - Automatically detect driving through an electric, electronic, electromechanical, or mechanical device
  - Record engine use, duration of movement, miles driven, and the date/time of duty status changes.
- Devices shall produce, upon demand, a driver's hours of service chart, electronic display, or printout showing the time and sequence of duty status changes including the driver's starting time at the beginning of each day. The exact format is not specified.
- Performance and other requirements are also defined for how to:
  - Submit driver records
  - Identify and respond to system failures
  - Use a support system for records retention
  - Maintain and calibrate systems
  - Train drivers
  - Provide manufacturer self-certification.

## INDUSTRY BENEFITS OF EOBRs

Over the past decade, EOBR solution providers have enabled these electronic driver log capabilities to become much more commonplace (see sample screenshot on page 6). Acceptance is gaining, and some myths and misconceptions about EOBRs have been dispelled. The experience with EOBRs is recapped below:

	PAPER LOGS	EOBRs
<b>Accuracy</b>	Driving time and other duty statuses are rounded to 15-minute intervals.	Driving time and other duty statuses are recorded to the nearest minute, maximizing driver utilization.
<b>Addressing Audits and Violations</b>	Sometimes difficult to manage and prone to error.	Violations are much less likely although may still occur. Any violations can be managed in an automated and disciplined manner.
<b>Driver Productivity</b>	Dispatchers lack visibility to driver availability. Drivers burdened with keeping up with their logs and avoiding HOS violations.	Many carriers have improved fleet-wide average driver productivity. EOBRs have enabled fleets to better recognize and utilize drivers' available hours in their dispatch operations, while also avoiding overburdening other drivers, which might lead to HOS violations.
<b>Back-Office Productivity</b>	Administrative duties across an entire fleet of drivers can prove time consuming and are prone to breaches in compliance due to missing paperwork and inaccurate records.	Drivers and back office staff alike appreciate going paperless. Efficiency, accuracy, and compliance assurance are seen as big improvements when paper is no longer needed.
<b>Driver Acceptance</b>	There has been a belief that drivers will resist EOBRs, and in some of the early implementations they did.	The common experience today is that drivers do not want to go back to paper logs once they have become familiar with EOBRs due to the efficiency and simplicity gained.

## II. NEW DEVELOPMENTS FOR EOBR REGULATIONS AND POLICIES

There is a current FMCSA initiative to update the regulation for EOBRs and take action on other policies and rules related to their use. There are also industry standards developments that supplement any additional rulemaking and broaden the utility of these systems.

### THE NEW EOBR RULE: “ELECTRONIC ON-BOARD RECORDERS FOR HOURS-OF-SERVICE COMPLIANCE”

The new EOBR rule (395.16) was proposed in January 2007 and submitted for final policy review in November 2008. The policy review was not completed prior to the change of administration in January 2009, and the rule was withdrawn subject to further actions by President Obama’s appointees at the US Department of Transportation (DOT) and FMCSA.

Contents of the draft final rule are not available for public information, but some of the significant updates to the EOBR rule provided in the prior, proposed rule version included:

#### January 2007 Proposal

<b>Voluntary Participation</b>	FMCSA was not pursuing a broader, industry-wide mandate.
<b>Remedial Directive Policy</b>	Carriers with chronic HOS violations could be required to use EOBRs for two years.
<b>Simplified Audit Requirements</b>	Carriers with EOBRs would receive some relief from providing paper supporting documents. Further details still needed to be defined by FMCSA.
<b>GPS</b>	Position history would be recorded and stored on the EOBR device every minute that the vehicle is moving and at each change of duty status.
<b>Electronic/Wireless Inspection</b>	Roadside inspectors could request driver logs in an electronic format. A standard HOS data set was proposed that could be provided via wireless or wired interface to the law enforcement device at roadside inspection.
<b>Grid-Graph Display</b>	The display formats for driver log data on the EOBR device would be specified as one standard format that would include a grid-graph display similar to a manual driver log. It was also proposed that EOBR displays be viewable outside the cab.
<b>Performance Requirements</b>	The proposal included new EOBR calibration tolerance and accuracy specifications for odometer, GPS location and EOBR internal clock.
<b>Certification</b>	EOBR suppliers would continue to be self-certified. No third-party certification would be required.

The next action to move the new EOBR rule forward will depend upon the new leadership at DOT and FMCSA. There is still much debate about whether the policy should provide an industry-wide mandate or continue to rely on voluntary compliance. FMCSA did not implement a mandate, although Congress may still address additional EOBR requirements in transportation-related legislation later this year.

## POLICY UPDATE TO GPS DATA IN AUDITS OF DRIVER LOGS

In December 2008, FMCSA updated its policy on “Use of Advanced Information Technologies to Monitor Compliance,” which effectively requires any GPS tracking and dispatch system information to be made available as supporting documents with HOS compliance audits. This requirement is clearly intended for carriers not using EOBRs, and most likely those that are suspected of having exposure to undetected and unmanaged violations in their manual HOS logs and records systems.

Unlike the proposed EOBR rule, there are no specific requirements for information content and data formats associated with GPS data and audits. Many concerns have already been expressed about how this new policy will be applied. The policy does point out, however, that FMCSA will be taking more aggressive action to uncover HOS compliance violations. With the provision of the new EOBR rule for “remedial directives,” FMCSA may in the future be able to dictate that a carrier use EOBRs to better manage its compliance performance.

Duty Status	Driver Name	Driver ID	Available Driving	11 Hours	14 Hours	60/70 Hours	Tractor	Last Duty Change	Last Recalc
Off Duty	Piper, John	2088	0h30	6h35	0h30	21h06	4489	05-29 10:32	05-24 10:51
Off Duty	Gallinger, Scott	30343	0h11	7h10	0h11	35h15	4176	05-29 05:20	04-24 10:11
Driving	Johnson, Steve	67845	-1h28	1h35	-1h28	31h32	4532	05-29 05:53	05-24 17:38
Driving	Frost, Greg	4109	-3h18	-2h18	-3h18	18h36	5788	05-29 04:35	05-09 18:03
Sleeper Berth	Coyle, Steve	30345	-79h39	-12h46	-79h39	13h55	4492	05-29 10:30	05-24 09:58

EOBR screen showing driver availability.

## COMPREHENSIVE SAFETY ANALYSIS (CSA) 2010 PROGRAM

Another active FMCSA initiative is the Comprehensive Safety Analysis (CSA) 2010 program. The program's objective is to enable more thorough measurements of carrier and driver safety performance. It will allow FMCSA and its state partners to contact more carriers and drivers, use improved data to better identify high risk carriers and drivers, and apply a wider range of interventions to correct high risk behavior. The program is currently in an operational testing phase and will be applied on a national scale in the near future. This program also illustrates that FMCSA is planning more aggressive actions to find and correct chronic HOS violators—and may impose remedial directives for EOBR use.

In conjunction with CSA 2010, FMCSA is planning to release a proposed rule later in 2009 addressing "Carrier Safety Fitness Determination" that will be a replacement for the current Safe-Stat rating system. This new regulation will enable FMCSA to establish safety ratings using more timely and broader information sources, including roadside inspection results.

## EOBR TASK FORCE—FOCUS ON INDUSTRY STANDARDS FOR EOBRs

Given the limited specifics in the 1988 EOBR regulation, there has been a need for the development of industry standards to address technical requirements of these systems as technology has evolved. In February 2005, the Technology and Maintenance Council (TMC) of the American Trucking Associations (ATA) initiated an EOBR Task Force to address these standards.

The EOBR Task Force is an open and voluntary group that has worked with the membership of TMC, ATA, and other key stakeholders. It has also collaborated with FMCSA and the law enforcement community represented by the Commercial Vehicle Safety Alliance (CVSA).

On March 15, 2007, the Task Force published a "Technical Policy Advisory," a detailed technical review and recommendation for FMCSA's proposed 395.16 rule. A copy of the document can be downloaded on the American Trucking Associations' website ([truckline.com](http://truckline.com)).

The agenda for the EOBR Task Force going forward will address some technical issues that are impractical to specify in the new EOBR regulation, covering such things as:

- Information Security and System Integrity—controls and management process standards
- Electronic / Wireless Inspections – protocols, technology, operational, and security standards
- EOBR Testing and Certification Criteria – detailed checklists, test cases, and evaluation criteria.

The Task Force will continue its open and collaborative process in developments for this agenda. It will also work in the context of the new 395.16 rule and related policy developments to ensure consistency between regulations and standards.



## WIRELESS ROADSIDE INSPECTIONS (WRI)

A current research initiative by FMCSA is the “Wireless Roadside Inspections” (WRI) program. WRI will be voluntary for carriers that have demonstrated effective safety and compliance management capabilities. It will serve to automate safety inspections covering carrier and driver credentials, electronic driver logs, and selected vehicle safety system status. The program is still at an early stage with many details yet to be determined. FMCSA is working with industry stakeholders to define requirements, since WRI must be of value to both carriers and law enforcement. Some key areas being discussed include:

- Guidelines for how wireless inspections are conducted, how frequently, and what approach may be taken for law enforcement intervention if deficiencies are found,
- Technical requirements and alternative methods for how EOBRs provide information via wireless means to law enforcement devices to assure security and interoperability, and
- Methods for providing feedback to carriers and drivers of wireless inspection results, providing transparency in the process and meaningful measures of compliance results.

The goal of WRI is to automate inspections and avoid time lost where non-compliance is a minimal risk, enabling law enforcement to better leverage roadside resources for higher risk carriers, vehicles, and drivers. It will enable participating carriers to minimize time lost with roadside inspections while also getting positive credit in their safety performance rating.

The program will serve to define standards for information exchange with EOBRs and vehicle safety systems. These new standards may not require additional rulemaking given the expected rulemaking developments for the:

- New EOBR (395.16) rule—providing regulatory requirement for EOBRs to have capabilities to support electronic or wireless inspections
- New carrier safety rating rule—providing a framework that provides positive safety rating value for compliance verification in inspections (value to carriers volunteering for WRI that may be subjected to frequent electronic inspections).

The program will also define new standards for vehicle safety system sensors and monitoring systems, providing continuous information on the status of brakes, tires, lighting systems, and other vehicle systems important for safe operation. FMCSA intends to work with equipment manufacturers to ensure that such safety sensors are reliable and of additional value to carriers as well.

The WRI program is currently in a requirements development phase with a pilot operation planned for early 2010. The expected implementation for WRI is in the 2012 to 2015 timeframe, with the initial implementation covering inspections of credentials and HOS log data, and future implementation to address data from vehicle system safety monitoring. Participation in WRI will be voluntary. Carriers that have implemented effective safety management programs, including the use of 395.16 compliant EOBRs, will be able to realize the benefits of automated inspections and compliance recognition.

### III. CONCLUSION: THE OPPORTUNITY IN USING EOBRs

The use of EOBRs has already demonstrated positive impacts in safety management programs and in carrier business operations. The opportunities to improve results can be summarized as:

- **Safety and Compliance**—HOS status and available hours are managed in real time. Drivers, dispatchers, and safety managers all have access to this information and any approaching violation creates notifications. If violations do occur, they are immediately detected and the information is available for a disciplined safety management process to remedy the behavior. The result is that HOS violations are minimized and any audit exposure for non-compliance is essentially eliminated.
- **Efficiency**—Increasing actual average driving time per driver is a real result among fleets using EOBRs. The system provides dispatchers and drivers with real-time information on available hours that often improves the decision making for load assignments. There are also efficiencies with elimination of paper logs—saving time for the driver and back-office staff.
- **Simplicity**—EOBRs are an easy-to-use, accurate, and timely tool for recording driver logs. The simplicity and automation are appreciated by drivers. For the back office, there are no calls or guesswork to determine drivers' available hours. The use of EOBRs also greatly reduces the burden of managing paper records for potential compliance audits.

Over the next 12 months, we can expect to see the requirements for the next generation of EOBRs become more definitive. FMCSA is planning to initiate the pilot of the Wireless Roadside Inspections program in early 2010. This pilot will enable validation of available approaches for how enforcement interfaces electronically with the new EOBRs.

The TMC EOBR Task Force will continue its efforts to develop additional standards, focusing on information security and the details of certification requirements. FMCSA is resuming its process to finalize the new 395.16 regulation for EOBRs. The combination of these developments will create a higher level of trust, efficiency, and interoperability that will enable better systems to manage driver hours of service compliance on an industry-wide scale.

## ABOUT THE AUTHOR

Dave Kraft, Senior Manager of Government Affairs for Qualcomm, actively leads and supports industry efforts to develop standards for transportation related technologies, including EOBRs. He has been active in providing recommendations to the Federal Motor Carrier Safety Administration (FMCSA) as it develops updated regulations for EOBR capabilities and driver log inspection processes. Dave is currently Chairman of the American Trucking Associations Technology and Maintenance Council EOBR Task Force, and Vice Chairman of the Telecommunications Industry Association Telematics Committee.

## About Qualcomm

Qualcomm supports efforts to improve highway safety and increase the ability of carriers to comply easily with regulations. Qualcomm has worked with its customers in advancing the capabilities of EOBRs to enable them to proactively manage safety performance and enhance the productivity of their fleet.

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