



# The Florida Senate

Issue Brief 2010-305

October 2009

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Committee on Commerce

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## AUTOMOBILE EVENT DATA RECORDERS

### Statement of the Issue

Approximately 40 million cars in America contain a little box, called an “event data recorder” (EDR). EDRs are often referred to as, and compared to, “black boxes” found in airplanes because they record specific information, usually during an accident.

The EDR was originally developed to determine the adequacies or inadequacies of certain safety devices in vehicles in order to develop better safety equipment. However, in the last few years, the information retrieved from EDRs has been used in litigation for criminal prosecution, civil tort cases, and insurance defense. Moreover, at least one insurance company has used EDR data to adjust the insurance rates of their customers.

Although much of the general public may not be aware of such recording devices within their automobiles, some may be concerned that the use of EDRs and the information they collect are an infringement of their privacy. Also, it is inconclusive as to who owns, or who has access to, the recorded information. Finally, if such information is used against the driver or passengers of an automobile in a criminal or civil suit, due process questions may arise.

This Issue Brief will explore the history and evolution of EDRs, identify federal and state laws pertaining to EDRs, and examine the existing and emerging uses and concerns of EDR technology.

### Discussion

#### Background

Automobile Event Data Recorders (EDRs) are often referred to as an automobile “black box,” likening them to flight data recorders, which are required on airplanes. Similar to an airplane’s black box, an EDR collects and records specific information and can be used to reconstruct what happened during an accident. However, a flight data recorder is very different from an EDR in several aspects. Flight data recorders continuously and permanently record information, while EDRs continuously capture and overwrite the captured information until a triggering event, such as an accident or a sudden change in velocity, occurs. When a triggering event occurs, the EDR only permanently records a few seconds of information. Also, flight data recorders are capable of recording hundreds of types of parameters, while EDRs collect much more limited information.

The U.S. Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) defines an EDR as:

a device or function in a vehicle that records the vehicle’s dynamic, time-series data during the time period just prior to a crash event (e.g., vehicle speed vs. time) or during a crash event (e.g., delta-V vs. time), intended for retrieval after the crash event. For the purposes of this definition, the event data do not include audio and video data.<sup>1</sup>

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<sup>1</sup> 49 CFR 563.5.

The NHTSA's definition for an EDR is general enough to encompass the capabilities of most EDRs installed from the original equipment manufacturer (OEM) of an automobile. However, the definition does not include some aftermarket EDRs that record many more types of information and for a longer period of time.

OEM EDRs generally record pre-crash, crash, and post-crash data including, the speed the automobile was traveling before the crash, whether the driver's airbag deployed, whether the driver was wearing a safety belt, and whether the driver applied the brakes.

### Evolution of Event Data Recorders

For nearly a century, various recording devices have been used on company fleet vehicles, trains, ships, and airplanes to either monitor business practices or to develop safety mechanisms.<sup>2</sup> The first of these devices, including the tachograph and TEL train event recorder, were rudimentary and only recorded vehicle speed or whether the vehicle was stationary or in motion. Over time, recording devices have become more advanced and complex. For example, the first practical and crash-resistant flight data recorder (FDR), which was introduced in 1953 and developed to investigate aviation accidents, could record five analog parameters.<sup>3</sup> Today, some types of FDRs can record up to 700 parameters and store up to 25 hours of flight data.<sup>4</sup>

In 1972, the NHTSA started using information recovered from automobile event data recorders (EDRs) to measure triaxial acceleration/time histories.<sup>5</sup> During that time, the NHTSA had placed EDRs on approximately 1,050 vehicles and 23 accidents were analyzed using the data from some of these EDRs.<sup>6</sup>

EDRs were first used commercially in conjunction with the airbag systems installed in select 1974 General Motors (GM) production vehicles.<sup>7</sup> In 1993, Indy race cars were fitted with more advanced EDRs to develop better efficiency, performance, and safety measures.<sup>8</sup>

After EDR technology became more affordable to manufacture, EDRs became more commonplace in passenger cars. In 2004, one study estimated that approximately 40 million passenger vehicles were equipped with EDRs.<sup>9</sup> In a 2006 final ruling on 49 CFR 563, the NHTSA estimated that 64 percent of new 2005 model year passenger vehicles (available for sale in 2004) and other light vehicles were equipped with EDRs.<sup>10</sup> According to the U.S. Department of Transportation's Bureau of Transportation Statistics, 7,545,149 new passenger vehicles were sold

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<sup>2</sup> See Menig, Paul and Coverdill, Cary; *Transportation Recorders on Commercial Vehicles*, available at [http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Transportation\\_Recorders\\_on\\_Commercial\\_Vehicles.pdf](http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Transportation_Recorders_on_Commercial_Vehicles.pdf). See also, HaslerRail - On Board Train Monitoring and Recording Systems – Speed and Event Recorders available at <http://www.railway-technology.com/contractors/computer/hasler/> and Correia, Joe T.; Iliadis, Ken A.; McCarron, Ed S.; and Smolej, Mario A.; *Utilizing Data From Automotive Event Data Recorders*, available at [http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Utilizing\\_Data\\_from\\_Automotive\\_Event\\_Data\\_Recorders.pdf](http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Utilizing_Data_from_Automotive_Event_Data_Recorders.pdf).

<sup>3</sup> See Grossi, Dennis R., *Aviation Recorder Overview*, available at [http://www.nts.gov/Events/symp\\_rec/proceedings/authors/grossi.htm](http://www.nts.gov/Events/symp_rec/proceedings/authors/grossi.htm). See also, *The History of Flight Recorders* available at <http://www.l-3ar.com/html/history.html>.

<sup>4</sup> Bonsor, Kevin, *How Black Boxes Work*, <http://electronics.howstuffworks.com/gadgets/other-gadgets/black-box5.htm>.

<sup>5</sup> See Correia, Joe T.; Iliadis, Ken A.; McCarron, Ed S.; and Smolej, Mario A.; *Utilizing Data from Automotive Event Data Recorders*, available at [http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Utilizing\\_Data\\_from\\_Automotive\\_Event\\_Data\\_Recorders.pdf](http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Utilizing_Data_from_Automotive_Event_Data_Recorders.pdf).

<sup>6</sup> See *Id.* at 5.

<sup>7</sup> Chidester, Augustus; Hinch, John; Mercer, Thomas; and Schultz, Keith; *Recording Automotive Crash Event Data*, available at <http://www.nhtsa.dot.gov/cars/problems/studies/record/edr-nts-paper.pdf>.

<sup>8</sup> See *supra* fn. 5, pg 5.

<sup>9</sup> See Gabler, Hampton C., et al.; *Use of Event Data Recorder (EDR) Technology for Highway Crash Data Analysis*, December 2004, pg 15, available at [http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp\\_w75.pdf](http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_w75.pdf), (estimating that, as of 2004, there are approximately 40 million passenger vehicles and light trucks containing EDRs).

<sup>10</sup> Department of Transportation, National Highway Traffic Safety Administration, 49 CFR Part 563 [Docket no. NHTSA-2006-25666], *Event Data Recorders, Final Rule*, pgs 6, 25; available at [http://www.crashdataservices.net/files/NHTSA\\_CDR\\_Ruling\\_49\\_CFR\\_Part\\_563.pdf](http://www.crashdataservices.net/files/NHTSA_CDR_Ruling_49_CFR_Part_563.pdf).

in 2004.<sup>11</sup> Therefore, approximately 4,828,895 cars that were sold in 2004 were equipped with EDRs. The NHTSA also estimates that 85 percent of 2010 model year cars will be equipped with EDRs.<sup>12</sup>

A NHTSA-sponsored EDR working group has estimated that EDRs are capable of recording 80 different data elements, although most EDRs do not have the memory capacity to do so.<sup>13</sup>

## Federal Regulation

The federal government became involved in the regulation of EDRs in the late 1990s when the National Aeronautics Space Administration's (NASA) Jet Propulsion Laboratory (JPL) assessed the capability of advanced technology to reduce air bag inflation-induced injuries and increase air bag effectiveness.<sup>14</sup> The JPL reported the need for better real-world data and recommended that the National Highway Traffic and Safety Administration (NHTSA) study the feasibility of installing EDRs on vehicles to obtain crash data for safety analyses.<sup>15</sup> During that time, the National Transportation Safety Board (NTSB) also recommended that NHTSA develop and implement, in conjunction with the domestic and international automobile manufacturers, "a plan to gather better information on crash pulses and other crash parameters in actual crashes, utilizing current or augmented crash sensing and recording devices."<sup>16</sup>

With NASA and NTSB's suggestions, NHTSA's Office of Research and Development formed a working group comprised of industry, academia, and other government organizations to facilitate the collection and utilization of collision avoidance and crashworthiness data from EDRs.<sup>17</sup> In August 2001, the EDR working group published a final report on the results of its deliberations, which included the following findings:<sup>18</sup>

- EDR data has the potential to greatly improve highway safety.
- EDR technology has potential safety applications for all types of motor vehicles.
- Future EDR systems may be able to capture a wide range of additional useful information.
- NHTSA has incorporated EDR data collection in its motor vehicle research databases.
- Open access to EDR data, without compromising an owner's identity, will benefit researchers, crash investigators, and manufacturers in improving safety on the highways.
- Studies of EDRs in Europe and in the U.S. have shown that driver and employee awareness of an on-board EDR reduced the number and severity of drivers' crashes.
- Different EDR systems may be required for different types of vehicles (e.g. small passenger car vs. a school bus) to meet the needs of each vehicle class.
- The degree of benefit from EDRs is directly related to the number of vehicles operating with an EDR and the accessibility of information from an EDR.

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<sup>11</sup> Department of Transportation, Bureau of Transportation Statistics, Table 1-12: U.S. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances, available at [http://www.bts.gov/publications/national\\_transportation\\_statistics/html/table\\_01\\_12.html](http://www.bts.gov/publications/national_transportation_statistics/html/table_01_12.html).

<sup>12</sup> See *supra* fn. 10, pg 54.

<sup>13</sup> *Id.* at 69.

<sup>14</sup> Phen, Robert L.; Dowdy, Mack W.; Ebbeler, Donald H.; Kim, Eun Ha; Moore, Nicholas R.; Van Zandt, Thomas R.; Jet Propulsion Laboratory, *The Application of Advanced Technology to Improve Air Bag Performance*, 1998, available at <http://trs-new.jpl.nasa.gov/dspace/bitstream/2014/19085/1/98-0291.pdf>.

<sup>15</sup> See *supra* fn. 10, pgs 8, 26. See also, NHTSA Notice of Proposed Rulemaking for 49 CFR Part 563 under "Background," available at <http://www.nhtsa.dot.gov/cars/rules/rulings/EDRNPRM4--June1/part1.html>. Note: In 1997, NHTSA and NASA's Jet Propulsion Laboratory (JPL) entered into an agreement to: "Evaluate air bag performance, establish the technological potential for improved air bag systems, and identify key expertise and technology within NASA that can potentially contribute significantly to the improved effectiveness of air bags." Kowalick, Thomas M., *Proactive Use of Highway Recorded Data via an Event Data Recorder (EDR) to Achieve Nationwide Seat Belt Usage in the 90th Percentile by 200*, available at [http://www.nts.gov/events/symp\\_rec/proceedings/authors/kowalick.pdf](http://www.nts.gov/events/symp_rec/proceedings/authors/kowalick.pdf).

<sup>16</sup> See NTSB's Safety Recommendation #H-97-018, available at <http://www.nts.gov/safetyrecs/private/QueryPage.aspx>.

<sup>17</sup> See *supra* fn. 15, NHTSA Notice of Proposed Rulemaking for 49 CFR Part 563, "Background." Also, a second workgroup on EDRs was formed by NHTSA, but concerned mainly the use of EDRs on trucks and buses.

<sup>18</sup> See *Id.*

- Certain systems such as automatic crash notification (ACN) and global positioning systems (GPS) may work in conjunction with EDRs to provide early notification of the occurrence, nature, and location of a serious collision.
- Most EDR systems utilize proprietary technology and require the manufacturer to download and analyze the data.

In October 2002, following the NHTSA's workgroup findings, it published in the Federal Register<sup>19</sup> a request for comments from the public concerning EDRs and specifically questioned what role the agency should play in the continued development and installation of EDRs in motor vehicles.<sup>20</sup> Thereafter, the NHTSA published a Notice of Proposed Rulemaking for Event Data Recorders (EDRs) in the Federal Register on June 14, 2004, which was followed by a comment period ending August 18, 2004.<sup>21</sup> The NHTSA adopted a final rule concerning EDRs on August 17, 2006.

### ***The NHTSA Final Rule***

The NHTSA's August 2006 rule requires all vehicle manufacturers to be in compliance with certain new EDR standards and by a certain date, which the NHTSA refers to as a "lead time."<sup>22</sup> Originally, all vehicles manufactured after September 1, 2010, were to be in compliance with the rule.<sup>23</sup> However, the NHTSA has since updated its rule to delay the compliance deadline for vehicle manufacturers until September 1, 2012.<sup>24</sup> The NHTSA has estimated that the new rule will cost manufacturers, who already have equipped their vehicles with EDRs, but need to adjust their EDRs to comport with the new rule, up to \$0.17 per vehicle, or up to \$1.7 million in total.<sup>25</sup> However, assuming all 15.5 million new light vehicles are equipped with EDRs, including vehicles from manufacturers that previously did not equip their cars with EDRs, the NHTSA estimates the total cost to be up to \$10.9 million.<sup>26</sup>

The NHTSA rule regulates only EDRs that are voluntarily installed on vehicles and does not mandate EDRs to be placed on all new vehicles.<sup>27</sup> The rule nationally standardizes the type of data recorded and collected from EDRs.<sup>28</sup> It also requires certain standards for the survivability and the retrievability of EDR data to make sure data can survive most crashes and be retrieved by persons authorized to use the data.<sup>29</sup> Furthermore, manufacturers are required to provide notice to consumers of the existence of EDRs in their vehicles.

### ***Data and Parameters Recorded***

The NHTSA rule requires each vehicle equipped with an EDR to record at least 15 required data elements during a certain interval/time and at a specified sample rate. These 15 data elements are required to be recorded because the NHTSA believes these elements are "critical to crash reconstruction, advanced restraint operation, and

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<sup>19</sup> See 67 FR 63493.

<sup>20</sup> See *supra* fn. 15, NHTSA Notice of Proposed Rulemaking for 49 CFR Part 563, "Background."

<sup>21</sup> NHTSA, *Event Data Recorder (EDR) Research Applications of History*, available at [http://www.nhtsa.gov/portal/site/nhtsa/template.MAXIMIZE/menuitem.338d64bcebefdfd24ec86e10dba046a0/?javax.portlet.tpst=4670b93a0b088a006bc1d6b760008a0c\\_ws\\_MX&javax.portlet.prp\\_4670b93a0b088a006bc1d6b760008a0c\\_viewID=detail\\_view&itemID=24ecb73b8dfed010VgnVCM1000002c567798RCRD&overrideViewName=Article](http://www.nhtsa.gov/portal/site/nhtsa/template.MAXIMIZE/menuitem.338d64bcebefdfd24ec86e10dba046a0/?javax.portlet.tpst=4670b93a0b088a006bc1d6b760008a0c_ws_MX&javax.portlet.prp_4670b93a0b088a006bc1d6b760008a0c_viewID=detail_view&itemID=24ecb73b8dfed010VgnVCM1000002c567798RCRD&overrideViewName=Article).

<sup>22</sup> See *supra* fn. 10, pg 21.

<sup>23</sup> *Id.* at 43.

<sup>24</sup> See Department of Transportation, National Highway Traffic Safety Administration, 49 CFR Part 563 [Docket no. NHTSA-2008-0004], Event Data Recorders, Final Rule: Response to Petitions for Reconsideration, pgs 2181-2182; available at [http://www.crashdataservices.net/files/NHTSA-2008-0004-0001\\_1\\_.pdf](http://www.crashdataservices.net/files/NHTSA-2008-0004-0001_1_.pdf).

<sup>25</sup> See *supra* fn. 10, pgs 23-24.

<sup>26</sup> *Id.* at 24, 155. However, manufacturers submitted comments during the comment period for NHTSA's Notice for Proposed Rulemaking in 2004, stating that NHTSA's cost estimates were significantly understated. *Id.* at 42, 151-155.

<sup>27</sup> The rule only applies to passenger cars, multipurpose passenger vehicles, trucks, and buses with a gross vehicle weight rating of 3,855 kg (8,500 pounds) or less or unloaded vehicles weighing 2,495 kg (5,500 pounds) or less. See *supra* fn. 10, pgs 12, 43.

<sup>28</sup> See *supra* fn. 10, pg. 7.

<sup>29</sup> *Id.*

enabling ACN [automatic crash notification].<sup>30</sup> Table II, located at the end of this brief, lists the 15 required data elements, the interval/time, and the sample rates required to be recorded.<sup>31</sup>

For vehicles containing EDRs that record data in addition to the 15 data elements listed in Table II, the NHTSA rule requires those additional data elements to be recorded at a certain interval/time and at a specified sample rate. Table III, located at the end of this brief, provides a list of recording intervals/time and data sample rates that must be recorded should a manufacturer equip a vehicle with an EDR capable of recording the listed parameters.<sup>32</sup>

The NHTSA requires that all recorded parameters listed in Table II and Table III meet certain range, accuracy, and resolution reporting requirements.<sup>33</sup>

### ***Storage and Survivability of Data***

According to the NHTSA rule, EDRs must collect and store certain data elements from crash events. In an air bag deployment crash, the data recorded from any previous crash must be deleted. Any data related to the air bag's deployment must be recorded and the memory must be locked to prevent any future overwriting of the data.<sup>34</sup> In a crash where the air bag does not deploy, but the crash meets the trigger threshold causing the EDR to record data, all previously recorded data in the EDR's memory must be deleted from the EDR's memory, and the current data (up to two events) must be recorded.<sup>35</sup>

A manufacturer's EDR must be tested in conjunction with crash tests already required under federal law to test the survivability of EDR data in crashes. Data elements must survive the completion of a crash test and must be retrievable in a manner specified by the manufacturer for at least 10 days after the test.<sup>36</sup>

### ***Retrievability of Data***

Each vehicle manufacturer must ensure that the necessary tools are commercially available for downloading the required EDR data. A manufacturer can ensure that such tools are commercially available by either producing the tools themselves or by working directly with their suppliers through licensing agreements.<sup>37</sup> A retrieving device must be commercially available within 90 days of the first sale of a vehicle.<sup>38</sup> Moreover, retrieval tools must be available for several years after the vehicle, for which it is designed to read, has been sold.<sup>39</sup>

### ***Notice to Consumers***

Vehicle manufacturers must include a specified statement in the owner's manual to make the operator aware of the presence, function, and capabilities of the EDR installed in the vehicle.<sup>40</sup> At a minimum, a manufacturer must include the following statement in English in the owner's manual of any vehicle equipped with an EDR:

This vehicle is equipped with an event data recorder (EDR). The main purpose of an EDR is to record, in certain crash or near crash-like situations, such as an air bag deployment or hitting a road obstacle, data that will assist in understanding how a vehicle's systems performed. The EDR is designed to record data related to vehicle dynamics and safety systems for a short period of time, typically 30 seconds or less. The EDR in this vehicle is designed to record such data as:

- How various systems in your vehicle were operating;

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<sup>30</sup> *Id.* at 70.

<sup>31</sup> *Id.* at 198.

<sup>32</sup> *Id.* at 198-200.

<sup>33</sup> *Id.* at 200-203. *See also*, Department of Transportation, National Highway Traffic Safety Administration, 49 CFR Part 563 [Docket no. NHTSA-2008-0004], Event Data Recorders, Final Rule: Response to Petitions for Reconsideration, pgs 2183-2184; available at [http://www.crashdataservices.net/files/NHTSA-2008-0004-0001\\_1\\_.pdf](http://www.crashdataservices.net/files/NHTSA-2008-0004-0001_1_.pdf).

<sup>34</sup> *Id.* at 14.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* at 21.

<sup>38</sup> *Id.* at 15.

<sup>39</sup> *Id.* at 103.

<sup>40</sup> *Id.* at 204-205.

- Whether or not the driver and passenger safety belts were buckled/fastened;
- How far (if at all) the driver was depressing the accelerator and/or brake pedal; and,
- How fast the vehicle was traveling.

These data can help provide a better understanding of the circumstances in which crashes and injuries occur. NOTE: EDR data are recorded by your vehicle only if a non-trivial crash situation occurs; no data are recorded by the EDR under normal driving conditions and no personal data (e.g., name, gender, age, and crash location) are recorded. However, other parties, such as law enforcement, could combine the EDR data with the type of personally identifying data routinely acquired during a crash investigation.

To read data recorded by an EDR, special equipment is required, and access to the vehicle or the EDR is needed. In addition to the vehicle manufacturer, other parties, such as law enforcement, that have the special equipment, can read the information if they have access to the vehicle or the EDR.

The NHTSA's requirement of this statement in all owner manuals for newly manufactured car models equipped with EDRs was a compromise.<sup>41</sup> The NHTSA states that this rule addresses consumers' concerns that manufacturers or dealers have provided insufficient notice to consumers about the existence of these devices, while also addressing manufacturer and dealers' concerns that they would be potentially overburdened should they be required to provide several different forms of notice to consumers.<sup>42</sup>

### ***Preemption***

Although NHTSA's rule does not contain an express preemption clause, the NHTSA announced in its response to public comments of the proposed rule that the general principles of preemption law would operate and, therefore, any conflicting state laws or regulations are preempted.<sup>43</sup> The NHTSA clarifies in its explanation of preemption that conflicting regulation affecting the particular "*types of EDRs addressed by our [NHTSA] regulation,*" are preempted.<sup>44</sup> Specifically, the NHTSA opined that "additional disclosure requirements on vehicle manufacturers or dealers would likewise create a conflict and therefore be preempted."<sup>45</sup>

However, the NHTSA made clear in its response to public comments that the final rule,

does not address certain other issues generally within the realm of State law, such as whether the vehicle owner owns the EDR data, how EDR data can be used/discovered in civil litigation, how EDR data may be used in criminal proceedings, whether EDR data may be obtained by the police without a warrant, whether EDR data may be developed into a driver-monitoring tool, and the nature and extent that private parties (including insurance companies, car rental companies, and automobile manufacturers) will have or may contract for access to EDR data. These issues are instead being addressed by State legislatures.<sup>46</sup>

### **State Regulation**

There are 12 states that have laws specifically referencing automobile event data recorders.<sup>47</sup> As reflected in Table I, most of these states have provisions that:

<sup>41</sup> *Id.* at 123-130.

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* at 131.

<sup>44</sup> *Id.* (emphasis added) This statement clarifies that the NHTSA regulations do not apply to aftermarket EDRs installed by the vehicle owners. States are not preempted from providing for regulation of aftermarket EDRs.

<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at 134-135.

<sup>47</sup> See A.C.A. § 27-37-103 (Arkansas); West's Ann. Cal. Vehicle Code § 9951 (California); C.R.S.A. § 12-6-402 (Colorado); C.G.S.A. § 14-164aa (Connecticut); 29-A M.R.S.A. § 1971 (Maine); N.R.S. 484.638 (Nevada); N.H. Rev. Stat. § 357-G:1 (New Hampshire); McKinney's Vehicle and Traffic Law § 416-b (New York); NDCC, 51-07-28 (North Dakota); O.R.S. § 105.932 (Oregon); V.T.C.A., Transportation Code § 547.615 (Texas); and Va. Code Ann. § 46.2-1088.6 (Virginia).

- specify the vehicle owner as the owner of EDR data;
- restrict access to EDR data, unless procured via a warrant or court order;
- restrict insurers' access to, and use of, EDRs; and
- require manufacturers or dealers to provide notice or make certain disclosures to consumers about EDRs, consistent with federal law.

While the notice provisions are generally similar to the NHTSA requirements, the specific state statutes allow the states to enforce their provisions in the respective state courts.

**TABLE I**  
**STATE REGULATION OF EDRS**

	Ownership Provision	Access to Data Restrictions	Notice or Disclosure Provision	Insurer Use Provision
Arkansas	✓	✓	✓	✓
California		✓	✓	
Colorado	✓	✓	✓	
Connecticut		✓		
Maine	✓	✓	✓	
Nevada	✓	✓	✓	
New Hampshire	✓	✓	✓	
New York	✓	✓	✓	
North Dakota	✓	✓	✓	✓
Oregon	✓	✓		✓
Texas	✓	✓	✓	
Virginia	✓	✓		✓

Source: Senate Commerce Committee Staff

### ***Florida Regulation of EDRs***

EDRs are not specifically regulated under the Florida Statutes; however, Florida does have a computer trespass statute, s. 815.06, F.S., which defines a “computer” as “an internally programmed, automatic device that performs data processing.” An EDR could be interpreted to fit within this broad description. Under s. 815.06, F.S., whoever willfully, knowingly, and without authorization accesses or causes to be accessed any computer, computer system, or computer network commits an offense against computer users and commits a felony of the third degree.

Florida’s 4th District Court of Appeals has ruled on the admissibility of EDR data in a criminal trial. The court in *Matos v. State*, 899 So.2d 403, 407(Fla. 4th DCA 2005), ruled that the use of EDR data satisfies the *Frye* test for admissibility, because EDR data is generally accepted in the relevant scientific field.<sup>48</sup>

Florida law does not address who owns EDR data, who has access to EDR data, and the permissible uses of EDR data (e.g. adjusting automobile insurance rates, criminal prosecution, product liability defense, and etc.).

### **Existing and Emerging Uses**

#### ***Safety***

Historically, EDRs have been used to develop new safety mechanisms for vehicles and test the viability of safety mechanisms already being used in vehicles.<sup>49</sup> EDRs are now being used in conjunction with automatic crash

<sup>48</sup> Note: The police in the *Matos* case had a warrant to retrieve the data from the EDR found in the defendant’s car. *Matos*, 899 So.2d at 408. Before evidence may be admissible in court, the *Frye* doctrine requires that expert testimony be supported by scientific principles or evidence generally accepted by the relevant scientific or professional community. *Frye vs. U.S.*, 293 F. 1013 (1923).

<sup>49</sup> See *supra* fn. 7, Table 3, “Categories of Uses for Event Data.” See also, *supra* fn. 10, pg 6.

notification systems (e.g. OnStar®) to facilitate emergency responses.<sup>50</sup> GM's OnStar® service is a popular device on newer GM models that utilizes cellular service to convey EDR data and other information to emergency personnel after an accident.<sup>51</sup>

### ***Litigation***

Over the last few years, EDR data has become more frequently used in litigation. For example, manufacturers have used EDR data to defend themselves in product liability cases.<sup>52</sup> EDR data has also been used in criminal cases.<sup>53</sup>

### ***Insurance***

More recently, some insurance companies have been using EDR data to increase or decrease insurance rates. Progressive has a MyRate® program (formerly called TripSense®) available in certain states<sup>54</sup> that uses an aftermarket EDR device to track its customers' driving habits. Under the program, a customer may elect to participate and install an EDR in their vehicle to track information such as mileage and hard braking frequency, in exchange for the possibility of a lower insurance rate. However, those who have excessive mileage or hard braking may be penalized and incur a 9 percent increase on their automobile insurance bill. GMAC Insurance also has an incentive program, which offers discounts to its customers by tracking their mileage through telematics.<sup>55</sup> In addition to utilizing EDRs for incentive programs, it has been reported that "insurers are increasingly utilizing EDR information to assist with determining comparative/contributory negligence, investigating fraud, deterring opportunistic injury claims," and enforcing subrogation rights.<sup>56</sup>

### ***Law Enforcement***

One prominent use of EDR data is to reconstruct an accident for traffic enforcement or criminal prosecution purposes. Several law enforcement agencies throughout the state send one or more of their staff to EDR training facilities to learn how to retrieve EDR data and analyze the information. Florida law enforcement agencies receive EDR training from the Collision Safety Institute (CSI) or the Institute of Police Technology and Management (IPTM). As of August 2009, the IPTM has trained approximately 543 law enforcement personnel from Florida.<sup>57</sup>

In response to a staff questionnaire to Florida law enforcement agencies, most respondents reported that EDRs are a useful verification tool for assessing the accuracy of their accident reconstruction work.<sup>58</sup> In addition, some agencies that do not have the equipment or trained personnel necessary to retrieve and use EDR data use other agencies' resources to access EDR data, usually when there has been a severe automobile accident.

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<sup>50</sup> Howard, Bill, *Automatic Crash Notification Keeps Panic Factor Down*, December 18, 2007, available at <http://www.progressive.com/auto-tech/automatic-crash-notification.aspx>. Also, BMW has a similar service as OnStar®, called BMW Assist™.

<sup>51</sup> OnStar® by GM, *Helpful Info*, available at [http://www.onstar.com/us\\_english/jsp/explore/onstar\\_basics/helpful\\_info.jsp?info-view=tech equip](http://www.onstar.com/us_english/jsp/explore/onstar_basics/helpful_info.jsp?info-view=tech equip).

<sup>52</sup> See *Bachman v. General Motors Corp.*, 776 N.E.2d 262 (Ill. 4th DCA 2002). In 1996, General Motors (GM) recalled certain car models that had defective EDRs because they were overly sensitive causing airbags to deploy unnecessarily. *Id.* at 272. See also, Palmer, W. Scott, *Auto "Black Box" Data- Industry Update*, October 31, 2003, available at <http://www.injurysciences.com/Documents/EDRUpdateArticle.pdf>.

<sup>53</sup> For example, see *Tennessee v. Holladay*, 2006 WL 304685 (Tenn. Crim. App. 2006) (only the Westlaw citation is available, not reported in S.W.3d); *Matos v. State*, 899 So.2d 403, 407(Fla. 4th DCA 2005) ; and *Vailes v. Desoto and Caddo Parish Commissions*, Louisiana 11th Dist. Ct., 66-452B.

<sup>54</sup> The MyRate® program is available in Alabama, Connecticut, Georgia, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, Oregon, and Texas. (See "Your Location" at The MyRate® Web Site at [http://www.progressive.com/myrate/myrate-default.aspx?code=8004201454&gclid=C1ej59Of05wCFQQVswodgCA\\_1A.](http://www.progressive.com/myrate/myrate-default.aspx?code=8004201454&gclid=C1ej59Of05wCFQQVswodgCA_1A.))

<sup>55</sup> GMAC Insurance, Pay-As-You-Go Auto Insurance, "What is PAYG Insurance?" available at <http://167.19.248.84/what-is-payg/default.asp>.

<sup>56</sup> Palmer, W. Scott, *Auto "Black Box" Data- Industry Update*, October 31, 2003, available at <http://www.injurysciences.com/Documents/EDRUpdateArticle.pdf>.

<sup>57</sup> CSI has trained approximately 475 people per year. However, the number of Florida law enforcement trained by CSI is unavailable. Information reported from CSI and IPTM are on file with the Commerce Committee.

<sup>58</sup> Questionnaire responses from Florida law enforcement agencies are on file with the Commerce Committee.



### Other Uses

Today, there are aftermarket EDR devices that have GPS, video, and voice recording capabilities. Some people use these devices to track their children or other family member's driving habits.<sup>59</sup> One such device is called the Smart Black Box®. The Smart Black Box® has GPS and video recording capabilities.<sup>60</sup> Another device, the CarChip®, can monitor speeding and driver tendencies.<sup>61</sup>

### Existing and Emerging Concerns

Privacy seems to be the most prevalent concern with EDRs.<sup>62</sup> Privacy advocates are concerned that most vehicle owners are unaware of the EDR technology in their vehicles and unaware of the capabilities of EDRs.<sup>63</sup>

According to a 2003 study conducted by the National Cooperative Highway Research Program, almost two-thirds of car buyers are unaware that EDRs exist.<sup>64</sup> This concern may be mitigated by the 2006 NHTSA regulation, which requires each manufacturer to include a disclosure statement in every automobile owner's manual, for those automobile models containing EDRs, to apprise the owners of the existence of EDRs in the vehicles. Additionally, the NHTSA states that such privacy concerns are unfounded, because EDRs regulated under the final rule do not provide much more information than what is available to an individual witnessing an accident or reconstructing an accident based on other evidence (e.g. tire tread marks, seat-belt perforations, vehicle damage, etc.).<sup>65</sup>

Some claim that EDRs are another way for the government to watch over and regulate people's conduct. Often, the concern is based on what future devices might be capable of recording.<sup>66</sup> The NHTSA has tried to quell these fears by assuring those concerned that the NHTSA only uses the information to assess safety devices, they always seek consent to use the data, and they carefully protect any identifying information associated with the data collected.<sup>67</sup>

Some are concerned about who is considered the owner of an EDR. Generally, the NHTSA recognizes that the car owner is the owner of EDR, but that may still be problematic under some circumstances.<sup>68</sup> For example, when there is an accident and a car is severely damaged, sometimes the insurance company will only pay for the damages once they retain the title of the car. Once an insurance company retains title of the car, it may be argued that the insurance company then owns the EDR data and can defend against additional claims.<sup>69</sup>

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<sup>59</sup> McCormick, John, *Chips Let Parents Track Teen Driving*, December 3, 2006, available at <http://www.azstarnet.com/allheadlines/158713>.

<sup>60</sup> KCI Communications, Inc., Smart Black Box®, available at <http://www.thecarblackbox.com/>.

<sup>61</sup> Davis Instruments, Inc., CarChip®, *Worried About Your Teen Driver?*, available at [http://www.davisnet.com/drive/products/CarChip\\_Teen.asp](http://www.davisnet.com/drive/products/CarChip_Teen.asp).

<sup>62</sup> Kowalick, Thomas M., *Real-World Perceptions of Emerging Event Data Recorder (EDR) Technologies*, pg 6, available at [http://www.nhtsa.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Real-World\\_Perceptions\\_of\\_Emerging\\_EDR\\_Technologies.pdf](http://www.nhtsa.gov/staticfiles/DOT/NHTSA/NRD/Articles/EDR/PDF/Research/Real-World_Perceptions_of_Emerging_EDR_Technologies.pdf).

<sup>63</sup> Askland, Andrew, Ph.D., *The Double Edged Sword That is the Event Data Recorder*, 25 Temp. J. Sci. Tech. & Envtl. L. 1, 7 (Spring 2006), available at <http://www.temple.edu/law/tjstel/2006/spring/v25no1-Askland.pdf>.

<sup>64</sup> Gabler, Hampton C., et al.; *Use of Event Data Recorder (EDR) Technology for Highway Crash Data Analysis*, December 2004, pg 168, available at [http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp\\_w75.pdf](http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_w75.pdf).

<sup>65</sup> Department of Transportation, National Highway Traffic Safety Administration, Notice of Proposed Rulemaking, 49 CFR 563, Docket No. NHTSA-2004-18029, Proposal and Response to Petition: Privacy, available at <http://www.nhtsa.dot.gov/cars/rules/rulings/EDRNPRM4--June1/part2.html>.

<sup>66</sup> See *supra* fn. 64, pg 120.

<sup>67</sup> See *supra* fn. 10, pgs 39, 121.

<sup>68</sup> Johnson, Mark, *Manufacturers Must Release Data Recorder Information*, November 1, 2006, available at <http://www.search-autoparts.com/searchautoparts/Industry+News/Manufacturers-must-release-data-recorder-informati/ArticleStandard/Article/detail/386636> (quoting Rae Tyson, a NHTSA spokesperson).

<sup>69</sup> *Supra* fn. 56, pg 3.

There are also concerns about who should have access to EDR data. Some are concerned about the insurance industries' use of EDR data and whether it will be used to deny claims or increase premiums.<sup>70</sup> Some worry that manufacturers will use data from EDRs to void manufacturer warranties.<sup>71</sup> Some are concerned about rental car companies using global positioning devices (GPS) or other electronic surveillance, such as EDRs, to track their driving.<sup>72</sup> For instance, the rental car companies Acme Rental and American Car Rental used GPS devices to determine if customers were driving over a certain speed. If a customer was caught speeding, then the customer was penalized with a fee or the insurance purchased on the rental car was voided because the companies considered speeding "excessive wear and tear" to the rental car.<sup>73</sup>

Another EDR concern is law enforcement's potential use of EDRs.<sup>74</sup> For example, some may be concerned that as EDRs become more advanced and capable of storing more information, law enforcement may be able to give speeding tickets solely based on the data recorded on EDRs.<sup>75</sup>

### Constitutional Questions

One prominent constitutional concern stems from the fear that the government will use EDRs in ways that violate protections afforded to individuals under the Fourth Amendment of the U.S. Constitution against unreasonable searches and seizures.<sup>76</sup> Another concern is linked to Florida's express constitutional right to privacy, which affords Floridians more privacy protections than the U.S. Constitution, and yet may be violated if the weaker U.S. Constitutional privacy protections are used as a standard for protecting a car owner's EDR data.

While Florida's Constitution offers an explicit right to privacy, that right may be diminished for car owners in Florida, because the Florida Supreme Court has deemed having a license to drive a privilege and not a constitutional right.<sup>77</sup> The Florida Supreme Court has historically recognized that a person's driving privilege may be regulated by the government in the interest of keeping citizens safe.<sup>78</sup> Such regulations may also extend to vehicle equipment, if the tampering, deterioration, or disrepair of equipment is deemed detrimental to a driver's safety.<sup>79</sup>

#### *4<sup>th</sup> Amendment: Search and Seizures*

The Fourth Amendment guarantees people the right to be secure against unreasonable searches and seizures by the government.<sup>80</sup> A Fourth Amendment concern surrounding the use of EDRs includes whether, and in what manner, a police officer is authorized to retrieve data from an EDR to use against an individual in a criminal proceeding.<sup>81</sup> Historically, case law has afforded police officers broad discretion in searching a vehicle, even

<sup>70</sup> Gritzinger, Bob, Cars.Com News, *With Data Recorders, Big Brother is Riding Shotgun*, available at [http://www.cars.com/news/stories/111604\\_storyb\\_an.jhtml](http://www.cars.com/news/stories/111604_storyb_an.jhtml).

<sup>71</sup> See Gritzinger, Bob, *AutoWeek*, "Black Box On Board: New Standards for Automotive Big Brother Take Effect in 2012," available at <http://www.accidentreconstruction.com/newsletter/sep08/BlackBoxonBoard.pdf>.

<sup>72</sup> California, Connecticut, and New York specifically restrict the use of GPS by car rental companies. See Conn.Gen.Stat. § 42a-9-609 (2003); Cal. Civ. Code § 1936(6)(o) (2002); and N.Y. General Business Law § 20 Art. 26 § 396-z (2006).

<sup>73</sup> *Am. Car Rental, Inc. v. Comm'r of Consumer Prot.*, 869 A.2d 1198 (Conn. 2005).

<sup>74</sup> *Supra* fn. 63, pg 4.

<sup>75</sup> *Supra* fn. 70.

<sup>76</sup> *Supra* fn. 63, pgs 4-5.

<sup>77</sup> *Bolware v. State*, 995 So.2d 268, 274 (Fla. 2008).

<sup>78</sup> *Smith v. City of Gainesville*, 93 So.2d 105 (Fla. 1957).

<sup>79</sup> See s. 316.610(2) F.S., stating, "[i]n the event the vehicle is found to be in unsafe condition or any required part or equipment is not present or is not in proper repair and adjustment, and the continued operation would probably present an unduly hazardous operating condition, the officer may require the vehicle to be immediately repaired or removed from use." See also, s. 316.215(1), F.S.

<sup>80</sup> See U.S. Const., amend. IV. Also, the protections afforded by the 4<sup>th</sup> amendment are extended to the States by the 14<sup>th</sup> amendment. *Mapp v. Ohio*, 367 U.S. 643, 655 (1961). Note: The 4<sup>th</sup> amendment only protects people from government action, not from actions taken by private individuals. *United States v. Jacobsen*, 466 U.S. 109, 113 (1984).

<sup>81</sup> *Supra* fn. 63, pgs 4-5.

when a vehicle is stopped for a minor traffic infraction.<sup>82</sup> Furthermore, inventory searches of vehicles after an arrest are usually deemed reasonable and, therefore, constitutional.<sup>83</sup>

However, a very recent U.S. Supreme Court decision may alter future “search and seizure” decisions concerning EDRs. The April 21, 2009, U.S. Supreme Court decision in *Arizona v. Gant*, 129 S.Ct. 1710 (2009), took a sharp detour from the previous *New York v. Belton*, 453 U.S. 454 (1981), decision regarding the legality of searching vehicles post-arrest. In *Belton*, the Court upheld the search of a jacket found in the passenger compartment of a vehicle, even though the search took place after the occupants were arrested, patted down, separated from each other, and not within the immediate vicinity of the vehicle, because the Court found that the search was incident to a lawful arrest.<sup>84</sup> Conversely, in *Gant*, the Court held that a search of a jacket in an offender’s car after he had been arrested and secured in a patrol car was unconstitutional.<sup>85</sup> However, the court emphasized in the *Gant* ruling that it was only clarifying its earlier *Belton* decision and that “[p]olice may search a vehicle incident to a recent occupant’s arrest only if the arrestee is within reaching distance of the passenger compartment at the time of the search or it is reasonable to believe the vehicle contains evidence of the offense of the arrest.”<sup>86</sup>

Florida’s courts could interpret the *Gant* decision to be a broad limitation of law enforcement’s authority to search cars for EDR data or courts could interpret this recent decision to mean that EDRs always contain evidence of driving offenses and, therefore, a warrant is not needed for such searches.

### **Privacy Rights**

The federal right to privacy extends to fundamental interests such as marriage, procreation, contraception, family relationships, and the rearing and educating of children.<sup>87</sup> The Supreme Court has held that a right to privacy shall be upheld unless the government’s policy meets the strict scrutiny test, meaning that the government’s action may only be justified by a compelling state interest which is narrowly tailored to carry out the legitimate state interest at stake.<sup>88</sup>

Florida’s constitutional privacy clause, pursuant to Article I, Section 23, of the Florida Constitution, provides greater protection than the federal constitution.<sup>89</sup> The Florida Supreme Court in *City of North Miami v. Kurtz*, 653 So. 2d 1025 (Fla. 1995), found that if an individual makes a constitutional challenge under the privacy clause, the individual must first establish that he or she has a “legitimate expectation of privacy.” If a legitimate expectation of privacy exists then the state must demonstrate not only a compelling interest for intruding on one’s privacy, but also that the least intrusive means were used in accomplishing its goal.<sup>90</sup>

Therefore, under Florida law, even though safety concerns and law enforcement may be compelling reasons to intrude on one’s privacy when retrieving data from an EDR, the person seeking the data must also prove that the least intrusive means were used in accomplishing this goal (i.e. that a crash reconstruction would not serve the same purpose).

### **Summary**

While the initial purpose of the EDR was to determine the adequacies or inadequacies of certain safety devices in vehicles in order to develop better safety equipment in automobiles, it is increasingly used by manufacturers, insurance agencies, and law enforcement agencies for a variety of purposes. Concerns over such uses are emerging. Any legislative action to address these concerns should be weighed against unintended impediments to

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<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> *New York v. Belton*, 453 U.S. 454, 462-463 (1981).

<sup>85</sup> *Arizona v. Gant*, 129 S. Ct. 1710, 1723-1724 (2009).

<sup>86</sup> *Id.* at 1723.

<sup>87</sup> *Carey v. Population Serv. Int’l*, 431 U.S. 678, 685 (1977).

<sup>88</sup> *Roe v. Wade*, 410 U.S. 113 (1973).

<sup>89</sup> *City of North Miami v. Kurtz*, 653 So. 2d 1025 (Fla. 1995).

<sup>90</sup> *Id.* at 1028.

accomplishing the original purpose of EDR technology and its utility to law enforcement in investigating accidents.

**TABLE II**  
**DATA ELEMENTS REQUIRED FOR ALL VEHICLES**  
**EQUIPPED WITH AN EVENT DATA RECORDER (EDR )**

<b>Data Element</b>	<b>Recording Interval / Time<sup>1</sup> (Relative to time zero)</b>	<b>Data Sample Rate Samples per Second</b>
Delta-V, longitudinal	0 to 250 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	100
Maximum delta-V, longitudinal	0-300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	n.a.
Time, maximum delta-V	0-300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	n.a.
Speed, vehicle indicated	-5.0 to 0 sec	2
Engine throttle, % full (or accelerator pedal, % full)	-5.0 to 0 sec	2
Service brake, on/off	-5.0 to 0 sec	2
Ignition cycle, crash	-1.0 sec	n.a.
Ignition cycle, download	At time of download	n.a.
Safety belt status, driver	-1.0 sec	n.a.
Frontal air bag warning lamp, on/off	-1.0 sec	n.a.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, driver	Event	n.a.
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, right front passenger	Event	n.a.
Multi-event, number of events (1,2)	Event	n.a.
Time from event 1 to 2	As needed	n.a.
Complete file recorded (yes, no)	Following other data	n.a.

**Source:** Department of Transportation, National Highway Traffic Safety Administration, 49 CFR Part 563 [Docket no. NHTSA-2008-0004], Event Data Recorders, Final Rule: Response to Petitions for Reconsideration, pgs 2181-2182; available at [http://www.crashdataservices.net/files/NHTSA-2008-0004-0001\\_1\\_.pdf](http://www.crashdataservices.net/files/NHTSA-2008-0004-0001_1_.pdf).

**TABLE III  
DATA ELEMENTS REQUIRED FOR VEHICLES UNDER SPECIFIED CONDITIONS  
(REQUIRED ELEMENTS FOR ELECTIVE RECORDED PARAMETERS IN EVENT DATA RECORDERS)**

<b>Data Element Name</b>	<b>Condition for Requirement</b>	<b>Recording Interval / Time (Relative to time zero)</b>	<b>Data Sample Rate (Per Second)</b>
Lateral acceleration	If recorded*	0-250 ms	100
Longitudinal acceleration	If recorded	0-250 ms	100
Normal acceleration	If recorded	0-250 ms	100
Delta-V, lateral	If recorded	0-250 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	100
Maximum delta-V, lateral	If recorded	0-300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	n.a.
Time, maximum delta-V, lateral	If recorded	0-300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	n.a.
Time, maximum delta-V, resultant	If recorded	0-300 ms, or 0 to End of Event Time plus 30 ms, whichever is shorter.	n.a.
Engine RPM	If recorded	-50 to 0 sec	2
Vehicle roll angle	If recorded	-10 up to 50 sec (suggested duration of recording, but not required)	10
ABS activity (engaged, non-engaged)	If recorded	-50 to 0 sec	2
Stability control (on, off, engaged)	If recorded	-50 to 0 sec	2
Steering input	If recorded	-50 to 0 sec	2
Safety belt status, right front passenger (buckled, not buckled)	If recorded	-10 sec	n.a.
Frontal air bag suppression switch status, right front passenger (on, off, or auto)	If recorded	-10 sec	n.a.
Frontal air bag deployment, time to n <sup>th</sup> stage, driver**	If equipped with a driver's frontal air bag with a multi-stage inflator.	Event	n.a.
Frontal air bag deployment, time to n <sup>th</sup> stage, right front passenger	If equipped with a right front passenger's frontal air bag with a multi-stage inflator.	Event	n.a.

Frontal air bag deployment, n <sup>th</sup> stage disposal, driver, Y/N (whether the nth stage deployment was for occupant restraint or propellant disposal purposes)	If recorded	Event	n.a.
Frontal air bag deployment, n <sup>th</sup> stage disposal, right front passenger, Y/N (whether the nth stage deployment was for occupant restraint or propellant disposal purposes)	If recorded	Event	n.a.
Side air bag deployment, time to deploy, driver	If recorded	Event	n.a.
Side air bag deployment, time to deploy, right front passenger	If recorded	Event	n.a.
Side curtain/tube air bag deployment, time to deploy, driver side	If recorded	Event	n.a.
Side curtain/tube air bag deployment, time to deploy, right side	If recorded	Event	n.a.
Pretensioner deployment, time to fire, driver	If recorded	Event	n.a.
Pretensioner deployment, time to fire, right front passenger	If recorded	Event	n.a.
Seat track position switch, foremost, status, driver	If recorded	-10 sec	n.a.
Seat track position switch, foremost, status, right front passenger	If recorded	-10 sec	n.a.
Occupant size classification, driver	If recorded	-10 sec	n.a.
Occupant size classification, right front passenger	If recorded	-10 sec	n.a.
Occupant position classification, driver	If recorded	-10 sec	n.a.
Occupant position classification, right front passenger	If recorded	-10 sec	n.a.

\* "If recorded" means if the data is recorded in non-volatile memory for the purpose of subsequent downloading.

\*\* Time to nth stage means the elapsed time from the crash time zero to the deployment command for the nth stage of a frontal air bag (for both driver and right front passenger).

**Source:** Department of Transportation, National Highway Traffic Safety Administration, 49 CFR Part 563 [Docket no. NHTSA-2008-0004], Event Data Recorders, Final Rule: Response to Petitions for Reconsideration, pgs 2182-2183; available at [http://www.crashdataservices.net/files/NHTSA-2008-0004-0001\\_1\\_.pdf](http://www.crashdataservices.net/files/NHTSA-2008-0004-0001_1_.pdf).