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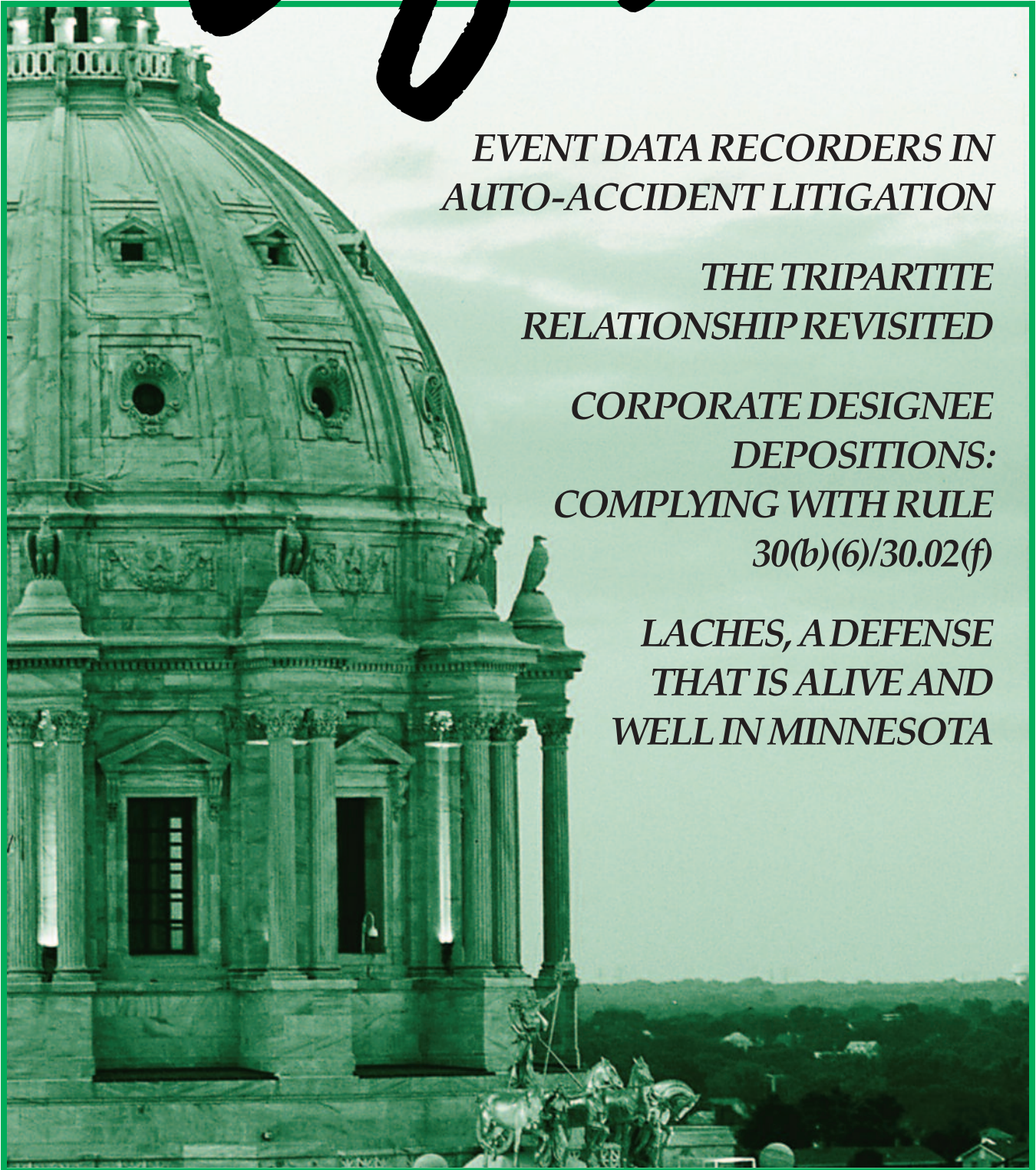
SPRING 2010

*EVENT DATA RECORDERS IN
AUTO-ACCIDENT LITIGATION*

*THE TRIPARTITE
RELATIONSHIP REVISITED*

*CORPORATE DESIGNEE
DEPOSITIONS:
COMPLYING WITH RULE
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*LACHES, A DEFENSE
THAT IS ALIVE AND
WELL IN MINNESOTA*



EVENT DATA RECORDERS IN AUTO-ACCIDENT LITIGATION

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It should come as no surprise that, as we enter the second decade of the 21st century, the vehicles we drive are chocked full of technology. They do not fly yet, but they do come with built-in GPS, collision avoidance systems, cameras, computers, televisions and telephones. They are designed to protect us with anti-lock brakes, automatic suspensions and airbags. Some even plug in the wall and run silently. They can tell us how to get where we are going, where we have been, where we are now, and – here is the important part for lawyers – they can tell us what the car and driver were doing while just before an accident. Sort of. Sometimes.

WHAT ARE EVENT DATA RECORDERS?

All cars equipped with airbags use an electronic control device that “decides” whether to deploy the airbag based on information “inputs” from components in the vehicle. Some cars store the information that is used in the calculations. Others simply store the fact that a signal to deploy the airbag or initiate a belt tensioner was given, and may record a trouble code. Other vehicles have engine control modules that may or may not record data such as percent engine throttle or vehicle speed. An event data recorder (EDR)¹ is a device or function in a “vehicle that captures the vehicle’s dynamic, time-series data during the time period

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just prior to a crash event (e.g., vehicle speed vs. time) or during a crash event (e.g., delta-V vs. time), such that the data can be retrieved after the crash event. For the purposes of this definition, the event data do not include audio and video data.”² EDR’s in autos make use of the inputs used to control airbag deployment, and in some cases get input from many other systems on an automobile.³

Currently, EDR’s are not mandatory in cars sold in the US. In fact, there are no current requirements regarding what data EDR’s record, how long it is kept, or how it can be downloaded and used. Each manufacturer uses its own unique system. As of 2005, the following manufacturers were known to have equipped all of their vehicles with EDR’s: General Motors, Ford, Isuzu, Mazda, Mitsubishi, Subaru and Suzuki.⁴ In 2006, the National Highway Traffic Safety Administration (NHTSA) issued a new rule, codified at 49 C.F.R. § 563 (2010) requiring that all EDR’s installed in new vehicles as of September 2010 record certain data.⁵ That rule has now been extended to the 2013 model year. The rule does not require EDR use, only that any EDR meet its standards.⁶ Despite the lack of governmental requirement, the NHTSA estimates that 85% of vehicles will have EDR’s installed in them by 2010.

¹ EDR’s are commonly referred to as “black boxes.” The devices also referred to as “sensing and diagnostic module[s]” (SDMs) in GM vehicles, *Bachman v. General Motors Corp.*, 776 N.E. 2d 262, 271 (Ill. App. 2002); Restraint Control Modules (RCMs) for Ford vehicles, *State v. Shabazz*, 946 A.2d 626 (N.J. Sup. Ct. App. Div. 2005); or “Diagnostic Energy Reserve Module[s]” (DERMs) in early GM vehicles, *Harris v. General Motors Corp.*, 201 F.3d 800, 805 (6th Cir. 2000).

² 49 C.F.R. § 563.5.

³ The scope of this article does not extend to similar devices used in aircraft (black boxes) nor on commercial motor vehicles or railroad trains. However, the issues raised in this article may also apply to information retrieved from these devices, and familiarity with how they actually work and what they actually record will help the lawyer and the finder of fact understand the value or lack of value of the information they provide.

⁴ National Highway Traffic Safety Administration, Final regulatory evaluation – event data recorders, Table III-1: Estimate of the number of EDR’s in light vehicles with a GVWR of 3,855 kilograms (8,500 pounds) or less, July 2006. p. 111-12. (Washington, DC: US Department of Transportation 2006)

⁵ 49 C.F.R. § 563.3 (2010)

⁶ 49 C.F.R. § 563.6 (2010)

EDR's meeting this standard must record the following:

- Change in forward crash speed
- Maximum change in forward crash speed
- Time from beginning of crash at which the maximum change in forward crash speed occurs
- Speed vehicle was traveling
- Percentage of engine throttle, percentage full (how far the accelerator pedal was pressed)
- Whether or not brake was applied
- Ignition cycle (number of power cycles applied to the EDR) at the time of the crash
- Ignition cycle (number of power cycles applied to the EDR) when the EDR data were downloaded
- Whether or not driver was using safety belt
- Whether or not frontal airbag warning lamp was on
- Driver frontal airbag deployment: time to deploy for a single stage airbag, or time to first stage deployment for a multistage airbag
- Right front passenger frontal airbag deployment: time to deploy for a single stage airbag, or time to first stage deployment for a multistage airbag
- Number of crash events
- Time between first two crash events, if applicable
- Whether or not EDR completed recording.

Some EDR's are capable of recording more pre-crash information than others.⁷ The NHTSA requires such "devices to record such things as sideways [lateral] acceleration, forward or rearward [longitudinal] acceleration, vehicle speed, driver steering angle, right front passenger safety belt status, engagement of electronic stability control system, antilock brake activity, side airbag deployment time for driver and right front passenger, and seat track positions for both the driver and right front passenger.

⁷ 49 C.F.R. § 563.7(a) (2010), Table 1 as summarized in "Q&As: Event data recorders, Nov. 2009, <http://www.iihs.org/research/qanda/der.html>, printed 1/11/2010.

⁸ 49 C.F.R. § 563.8 (b) (2010), Table 2 as summarized in "Q&As: Event data recorders, Nov. 2009, <http://www.iihs.org/research/qanda/der.html>, printed 1/11/2010.

Occupant size and position for drivers and right front passengers may also be recorded."⁸

The NHTSA rule requires that the information be recorded "in accordance with the range, accuracy, resolution, and filter class" set forth in Table 3 of 49 C.F.R. § 563.8, and also has rules about when the data capture must occur, how crash proof the EDR must be, and what disclosure must be made about the existence of an EDR.⁹ Finally, the rule requires that each manufacturer "ensure by licensing agreement or other means that a tool(s) is commercially available that is capable of accessing and retrieving the data stored in the EDR that are required by this part."¹⁰

Many existing EDR's do not measure and store all of the information set out in the NHTSA rule. If they do measure some piece of information, it is important to understand how they measure and store the information, when the information was collected and how one piece of information synchronizes with another piece of information. Data recovered from an EDR has the potential to seem unimpeachable – juries can be expected to take the information at its word.¹¹ But, like breathalyzers,¹² data from an EDR can be subject to challenges from parties opposing its admission on the basis of accuracy and reliability.

USE OF EDR DATA IN LITIGATION

There are several practical limitations to obtaining and using EDR data in litigation. One study revealed that crash investigators were unable to retrieve EDR data in approximately one third of all attempts catalogued in a NHTSA database.¹³ The cited reasons for failed retrievals in 2003 broke down as follows: technical/training issues – 10%;

⁹ 49 C.F.R. § 563.9, 10 and 11 (2010).

¹⁰ 49 C.F.R. § 563.12 (2010).

¹¹ See Donald E. Shelton, Young S. Kim, Gregg Barak, *A Study of Juror Expectations and Demands concerning Scientific Evidence: Does the CSI Effect Exist*, 9 Vand. J. Ent. & Tech. L. 331 (2006-2007) (examining whether law-related television programs affect juror perceptions of scientific evidence); *State v. Ash*, 2008 WL 2965555, 7 (Minn. App. 2008) (holding that prosecutor's reference to "CSI effect" in closing argument did not impermissibly shift burden to defense and was "no more than a request that the jury not look for something beyond the state's burden of proof").

¹² *State v. Underdahl*, 767 NW 2d 677, 686 (Minn. 2009) (holding that district court did not abuse discretion in concluding that source code for Intoxilyzer, sought to challenge the reliability of the Intoxilyzer, was relevant to guilt or innocence and therefore discoverable).

permission refused to access/read EDR – 62%; data collection failed/no recording – 5%; vehicle damage prevented downloading EDR data – 23%.¹⁴

This study reveals that failed recordings account for only a small percentage of unsuccessful retrieval attempts. This may be attributable in part to the fact that EDR technology is based on air-bag technology, which has been operational for much longer than EDR technology. Typically, the crash data recording process begins when the air bag module observes acceleration along one of the vehicle axes, which is sufficient to “wake-up” the module’s crash sensing algorithm. The airbag control module’s microcomputer will then evaluate the incoming data and make a decision as to whether deployment of the vehicle’s supplemental restraints is warranted. But if the event is not of a sufficient magnitude, the “algorithm enable” will not occur and no data will be recorded.

The study reveals that vehicle damage is a significant factor in unsuccessful retrieval attempts. It is not uncommon for modules to be left in the elements for an extended period of time or to be damaged in an accident, which may compromise the integrity of the data stored in the module. Nonetheless data has been successfully downloaded in some cases from modules that have been submerged in water, frozen, or burned.

The fact that failure to obtain permission to download EDR data accounts for the vast majority of failed attempted downloads demonstrates that ownership and control rights over EDR data is a significant issue for parties to litigation where EDR data may be valuable. Several states including North Dakota have adopted legislation that requires automobile dealers to disclose EDR capability to buyers and protects the rights of vehicle owners to control EDR data.¹⁵

Minnesota’s legislature has not yet passed legislation addressing EDR data, but came close to doing so in 2006. Partially in response to concerns about vehicle-owners’ pri-

¹³ Hampton C. Gabler, Douglas J. Gabauer, Heidi L. Newell, Michael E. O’Neill, “Use of Event Data Recorder (EDR) Technology for Highway Crash Data Analysis” Transportation Research Board of the National Academies, 114 (2004).

¹⁴ *Id.* at 115.

¹⁵ See, e.g., N.D. Cent. Code § 51-07-28 (2009). The North Dakota law also prohibits insurers from conditioning insurance of a motor vehicle upon access the EDR data. See *id.* at § 51-07-28(6).

vacuity,¹⁶ members of Minnesota’s legislature proposed four separate bills in 2006 requiring disclosure of EDR capabilities upon the sale of a new vehicle and prohibiting anyone other than the owner of a vehicle from retrieving EDR data except with the owner’s consent, by court order, or for purposes of research or repairing the vehicle.¹⁷ None of the bills were enacted, and Minnesota remains in the majority of states that have not enacted EDR legislation.¹⁸

Notwithstanding the lack of legislation protecting the right of an owner to control EDR data, the practice in many crash investigations is for law enforcement officers to request authorization from the vehicle owner to download the data, presumably to avoid Fourth Amendment challenges in criminal proceedings. However, even if EDR data was obtained without an owner’s consent, it would still be admissible in civil proceedings given that there is no exclusionary rule for civil matters.¹⁹

EDR USE AT TRIAL

Like all scientific evidence or expert testimony based on scientific techniques and principles, EDR data and related expert testimony will be admitted in Minnesota’s state courts only if the proponent demonstrates under the *Frye-Mack* standard that the scientific theory is generally accepted in the applicable medical or scientific community, and that the principles and methodology used are reliable.²⁰ The expert must, at a minimum, be competent to testify as to the general acceptance and reliability of EDR devices.²¹ To be admissible

¹⁶ Andrew Askland, *The Double Edged Sword That Is the Event Data Recorder*, 25 Temp. J. Sci. Tech. & Env’tl. L. 8 (2006) (discussing privacy concerns surrounding use of EDR data).

¹⁷ H.F. No. 3447, 84th Leg. Sess. (2006); H.F. No. 3013 84th Leg. Sess. (2006); S.F. No. 3028, 84th Leg. Sess. (2006); S.F. No. 3555, 84th Leg. Sess. (2006).

¹⁸ The presence of an EDR is set forth in the owner’s manual of most new vehicles.

¹⁹ See *Tucker v. Pahkala*, 268 N.W.2d 728, 730 (Minn. 1978) (citing *United States v. Janis*, 428 U.S. 433, 96 S. Ct. 3021 (1976)).

²⁰ *Goeb v. Tharaldson*, 615 N.W.2d 800, 814 (Minn. 2000) (citing *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923) and *State v. Mack*, 292 N.W.2d 764, 768 (Minn. 1980)).

²¹ See *Minn. R. Evid. 702*; *Bowman v. CSX Transp., Inc.*, 931 So. 2d 644 (Miss. Ct. App. 2006) (holding that expert witness who had no previous experience with EDR’s not competent to testify as expert as to EDR’s, rejecting argument that information was “self-evident” and expertise not required to interpret data)

in the Federal District Court, EDR data and related expert testimony must satisfy the *Daubert* standard, which requires that the testimony about the evidence “will assist the trier of fact to understand the evidence or to determine a fact in issue” and that the proposed expert (1) is testifying based upon sufficient facts or data, (2) is testifying based on reliable principles and methods, and (3) has applied the principles and methods reliably to the facts of the case.²² Whether a method is reliable under the second prong depends on (1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known or potential rate for error; and (4) whether the theory or technique has received general or widespread acceptance.²³

There are no federal decisions applying the *Daubert* test to determine the admissibility of EDR data or related testimony.²⁴ Similarly, no Minnesota appellate court has ruled on the admissibility of EDR data or related testimony. However, there are a handful of decisions from other states that provide helpful guidance. Some of those decisions are from criminal cases, but the evidentiary reasoning applies equally to civil actions because the standard for admissibility of EDR data and related expert testimony in criminal proceedings is the same as in civil proceedings.²⁵

In *Matos v. State*, the defendant was charged with two counts of manslaughter for crashing his vehicle into another vehicle and killing two teenage girls.²⁶ The defense expert testified that the defendant was traveling at approximately 57 m.p.h. *Id.* at 405. The state’s expert testified that the defendant was traveling at approximately 80-100 miles per hour based upon traditional crash-reconstruction techniques. The EDR data showed that the defendant was traveling at 103 m.p.h. one second before impact.

²² *DG&G, Inc. v. FlexSol Packaging Corp. of Pompano Beach*, 576 F.3d 820, 827 (8th Cir. 2009).

²³ *Id.* (citing *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 593-94, 113 S. Ct. 2786 (1993)); see also Fed. R. Evid. 702.

²⁴ *But see Harris v. General Motors Corp.*, 201 F. 3d 800, 805 (6th Cir. 2000) (reversing federal district court grant of summary judgment based on EDR data and remanding for court to conduct *Daubert* inquiry as to reliability of EDR data).

²⁵ *Compare State v. MacLennan*, 702 N.W.2d 219, 230 (Minn. 2005), with *Donnelly Bros. Const. Co. v. State Auto Property and Cas. Ins. Co.*, 759 N.W. 2d 651 (Minn. App. 2009).

²⁶ 899 So. 2d 403, 405 (Fla. App. 2005).

In support of admission of the EDR data, the plaintiff presented testimony from an accident reconstructionist and a senior member of the Society of Automotive Engineers that EDR technology is recognized in the crash-reconstruction community and that the technology is used for research by organizations and agencies such as the NHTSA. Based on this testimony, the Florida Court of Appeal affirmed the trial court’s ruling that the EDR technology was generally accepted under the *Frye* standard and therefore admissible.²⁷

The *Matos* court relied in part on the 2002 Illinois Appellate Court decision in *Bachman v. General Motors Corp.*²⁸ In *Bachman*, the plaintiff alleged that the airbag in her vehicle malfunctioned and deployed unexpectedly, causing her to lose control of her vehicle and crash into another vehicle.²⁹ GM sought to introduce the EDR data to show that the airbag could not have deployed in the manner alleged, and the plaintiff filed a *motion in limine* to exclude the EDR data.³⁰ The key data point at issue was the change in the vehicle’s velocity immediately prior to deployment, which is expressed as “delta-v.” GM experts testified that the delta-v is usually one to three miles per hour in cases of inadvertent air-bag deployment, and that the delta-v recorded on the EDR would be helpful in proving whether the airbag in *Bachman*’s car had in fact malfunctioned. Based on testimony from engineers who designed GM’s EDR, the trial court ruled that the EDR data was reliable under the “*Frye*-plus-reliability” standard adopted in Illinois.

At the trial, GM introduced evidence that the delta-v at the time of deployment was approximately 16 miles per hour, well above the range typical of an inadvertent deployment, therefore indicating that the airbag deployed as the result of a crash event. *Id.* at 278. The plaintiff’s expert witness admitted that he had not relied on the EDR data because “[i]t was meaningless to [him].”³¹ Based on this evidence, the jury returned a verdict in favor of the defendants. The appellate court affirmed the district court’s ruling and the jury’s verdict.³²

²⁷ *Id.* at 406-07.

²⁸ 776 N.E. 2d 262 (Ill. App. 2002).

²⁹ *Id.* at 271.

³⁰ *Id.* at 272-73.

³¹ *Id.* at 278.

³² *Id.* at 283.

ARTICLES FROM PAST ISSUES

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The arguments favoring admissibility have only gotten stronger since the *Matos* and *Bachman* decisions. As noted above, the NHTSA has promulgated regulations providing guidelines for EDR's in automobiles, thus strengthening the argument that EDR technology is generally accepted. Courts addressing the issue of admissibility have followed the reasoning in *Matos* and *Bachman* and cited to the growing body of scholarly articles published on the operation and use of EDR data.³³

Notwithstanding the general trend of admitting EDR data and related expert testimony and the growing acceptance of this technology, opponents in Minnesota still have valid bases on which to challenge the admissibility of EDR data. As noted above, both state and federal courts in Minnesota require that scientific evidence not only be generally accepted, but that it be reliable. Questions remain about the reliability of EDR technology and the use of that technology by crash investigators. For example, the vehicle speed reported by any event data recorder may not be conclusive and must be evaluated as part of a situationally complete collision analysis. Factors such as wheel slip or spin, the vehicle becoming airborne, vehicle wheels losing contact with the road surface, or changes to original equipment (i.e. tire size, rear axle ratio) can all affect the accuracy of the data reported by the event data recorder.

In sum, EDR data, when properly evaluated, can be used to complement conventional accident reconstruction methods. Parties seeking to use or oppose the use of EDR data should be aware of the limitations of EDR data and the possible bases for challenging its admissibility. The ever-increasing installation of EDR's in vehicles and the continued advancements in EDR technology will make challenging the use of EDR data in trials more difficult and will also make EDR data a more prominent part of auto-accident litigation. ▲

³³ See *Commonwealth v. Zimmermann*, 70 Mass. App. Ct. 357 (Mass. App. Ct. 2007) (affirming trial court ruling denial of motion to exclude EDR data based on testimony of expert accredited by Accreditation Commission for Traffic Accident Reconstruction who had published in area of crash reconstruction and use of EDR data); *State v. Shabazz*, 946 A. 2d 626 (N.J. Sup. Ct. App. Div. 2005) (citing W.R. Rusty Haight, *Automobile Event 632 Data Record (EDR) Technology*, 1-2 (2004) and H. Clay Gabler, *Use of Event Data Recorder (EDR) Technology for Highway Crash Data Analysis*, 1-2 (2004)); Askland, *supra*, at 3 (noting that "EDR's have consistently satisfied the "general acceptance" standard in *Frye* hearings.")