

Event Data Recorders (EDR) — Recording Automotive Crash Event Data

by Chip Chidester¹ and Marcia Cunningham²

"EDRs are in most new vehicles and are already providing valuable safety information for our crash investigators and researchers."

Dr. Jeffrey W. Runge, M.D.
Administrator of the National Highway Traffic Safety Administration (NHTSA)

Although many people erroneously refer to Event Data Recorders (EDRs) as "black boxes," they have little in common with flight data recorders. Still, they provide significant information and may be of tremendous value to law enforcement officers, crash reconstructionists and prosecutors.

What they are

There are two basic types of EDRs; those that are integrated into a vehicle by the original equipment manufacturer (OEM), and aftermarket devices. The vast majority of EDRs are OEM. The type and amount of data recorded vary by automobile manufacturer and have increased over the years.

The EDR in most cars and trucks is a function or a capability included in the restraint control module. Automobile manufacturers began adding the capability to record some very basic information relevant to airbag deployment as early as the 1970s. Today, most modern restraint control modules use electronic accelerometers to generate crash pulse signals. Up to several hundred milliseconds of crash pulse data are fed into the microprocessor that controls the occupant protection systems. The goal is to activate the appropriate occupant protection system at the earliest possible moment in the crash sequence. Once the sensors detect an event of sufficient force to deploy the vehicle's airbags, or experience an impact-related change in longitudinal velocity resulting in a near-deployment event, the EDR records the information related to the event in a memory chip. These data are extremely valuable to the development and control of occupant protection systems.

The EDR data captured varies by manufacturer, year, make and models. Most include data centered on the occupant protection systems, including safety belt usage and crash severity. However, at least one manufacturer, General Motors, collects additional data related to crash events. These data, collected from multiple sensors around the car during the last five seconds prior to an event, include:

- Vehicle's indicated pre-crash speed
- Throttle position
- Engine RPM
- Brake on/off status

Software specific to a vehicle's particular EDR system is needed to download the data to a usable format for your crash reconstructionist. For a list of vehicles that have EDRs and more information on the software available for them, please see:

<http://www.vetronix.com/diagnostics/cdr/index.html>.

Of Note:

- NTLC is creating a Yahoo Group for prosecutors, highway safety personnel,

NHTSA estimates that 15 percent of the approximately 200 million light vehicles in the United States (30 million cars, pickups, vans, sport utility vehicles and multi-purpose vehicles) are equipped with EDRs that can be read easily, and that between 65 and 90 percent of new light vehicle models in model year 2004 will be equipped with some EDR capability.

NHTSA Proposes Requirements For Voluntarily Installed Event Data Recorders

The National Highway Traffic Safety Administration (NHTSA) recently proposed standard requirements for manufacturers that voluntarily install EDRs in their vehicles (the proposed rules would NOT require manufacturers to install EDRs).

NHTSA proposes, beginning in September 2008, to:

- Require that the EDRs voluntarily installed in light vehicles record a minimum set of specified data elements useful for crash investigations;
- Specify requirements for that data;
- Increase the survivability of the EDRs and their data by requiring that they function during and after front, side and rear crash tests;
- Require vehicle manufacturers to make publicly available information that would enable crash investigators to retrieve data from the EDR;
- Require vehicle manufacturers to include a brief, standardized statement in the owner's manual indicating that the vehicle is equipped with an EDR and describing the purposes of EDRs.

Additional Information

Further information on EDRs is available at <http://www-nrd.nhtsa.dot.gov/edr-site/>.

NTLC is compiling memoranda and court decisions on the admissibility of EDR evidence in criminal cases. For additional information contact us at trafficlaw@ndaa-apri.org or call (703) 549-4253.

law enforcement officers and victims.

- The site, which already contains over 200 links and multiple unpublished DRE opinions, will be a great resource for all members and allow us to exchange ideas more easily. To join, please contact [NTLC Director Stephen Talpins](#).
- You can access and download articles and summaries on a myriad of impaired driving topics by visiting our Web site at www.ndaa-apri.org/apri/programs/traffic/ntlc_home.html
- NTLC is publishing several more monographs during the next couple of months. You can look forward to monographs on: drug toxicology, breath testing, the national Drug Evaluation and Classification (DEC) Program, courtroom strategy and child occupant protection.
- You can locate nearby treatment facilities via <http://findtreatment.samhsa.gov>

Crawford "Made Simple" by Stephen K. Talpins

As you know, the United States Supreme Court dramatically altered the test governing the admissibility of hearsay statements in *Crawford v. Washington*, 541 U.S. ____, 158 L.Ed. 2d 177, 124 S. Ct. 1354 (2004). During the past month, we received several technical assistance requests in the wake of this landmark case.

Crawford essentially established a four-pronged approach for determining the admissibility of out of court declarations under the Sixth Amendment.

Is the declarant testifying at trial and available for cross-examination?

Crawford serves to protect a defendant's Sixth Amendment rights. Accordingly, if the declarant appears for trial and is subject to cross examination, *Crawford* is inapposite.

Is the evidence testimonial?

Crawford only applies to "testimonial" evidence. There is no universally accepted definition of "testimonial" evidence. However, the trend is to limit the concept to ex-parte in-court testimony or its functional equivalent created in anticipation of trial. Thus, prosecutors should argue that the term does not apply to business records like Intoxilyzer maintenance documents created pursuant to administrative rules or witness statements to non-police personnel.

Is the declarant available for trial (but the State chooses not to call the declarant)?

If the declarant is available, but the State chooses not to call the declarant, *Crawford* prevents the State from introducing the statement(s).

Did the defendant have a prior opportunity to examine the declarant?

Pursuant to *Crawford*, the State cannot introduce the statement unless the defendant had a prior opportunity to examine the declarant. In cases where the defendant could have deposed the declarant, cross-examined the witness at a prior hearing or otherwise questioned the declarant, the evidence should be admitted.

Note that statements admissible under *Crawford* remain subject to the rules governing hearsay.

American Prosecutors Research Institute (APRI) Senior Attorney Allie Phillips drafted and maintains a memorandum summarizing all of the post-*Crawford* cases. If you would like a copy, you may contact Ms. Phillips at (703) 518-4385.

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