

Useful Information for Cases Involving Electronic Evidence

How the Data is Secured

When you want to make sure all electronic crash data is collected, we suggest contacting an expert as soon as possible because much of the electronic data is short-lived. Having the answers to the following questions at hand will help your expert quickly determine what data may be available:

- What was the year, make, model, and trim level of the vehicle?
- What is the seventeen-digit serial number, or vehicle identification number?
- Did any airbags deploy in the event?
- Has the vehicle been repaired?
- Has the vehicle been driven after the crash?
- Has the vehicle been involved in other crashes?

When cars crash, on-board systems record electronic data that can answer important forensic questions. Air bag systems, advanced safety systems, infotainment and navigation modules, fleet tracking equipment, and dashcams are increasingly common sources of electronic data. But this evidence may not last for long, and can be difficult to locate. This guide will help you secure all of the data for your case.

Data is typically secured during a physical inspection of the vehicle. In many cases, specialized software is run on a laptop connected to a plug under the vehicle's dashboard. Sometimes, a direct connection to a specific computer module is required, or a specific computer chip or memory card must be removed from a module or camera and interrogated. Generally, a download involves making a duplicate of all the available data on the electronic module, or device, without erasing or changing anything. For more complicated downloads, or cases where there is a risk of damaging data, detailed protocols are developed, shared with all involved parties, agreed to, and followed closely.



The longer the wait before the search for electronic data starts, the greater the chance that some will be lost. Much of the data will eventually be deleted or overwritten should vehicle use resume. For example, airbag control modules are equipped with event data recorders (EDRs), similar to a plane's black box, which record a non-deployment event if no airbags or seatbelt pre-tensioners fire as a result of a collision. There is usually a limit to the number of non-deployment events that can be stored, so a new event may overwrite an old one.

There is some good news: if airbags deploy during a crash, EDRs record a deployment event which is permanently locked and will not be overwritten. However, if the vehicle is repaired, and the airbag module that contains the data is replaced, even though the data is locked within it, the module will likely be lost. If the vehicle is written off and salvaged, the airbag module can be thrown away or destroyed. Sometimes, we find important data years after an accident, but inspecting and securing as soon as possible is preferred.

Where Electronic Data is Found

Event Data Recorders

The airbag systems of almost all newer cars come equipped with an event data recorder (or black box) that must record a basic set of crash information that includes impact severity, seat belt use, pre-crash speed, and airbag deployment timing. Driver inputs are also recorded, like brake application, gas pedal and sometimes steering.

ADAS

Many modern cars have advanced driver assistance systems (ADAS) that automatically apply the brakes, or steer if a crash hazard is detected. Some of these cars save information about speed, steering, braking and acceleration. Because cameras are integral to these systems, they may also contain images taken immediately before, or after a crash.

Infotainment Systems

Built-in infotainment and navigation systems may store a vehicle's location history. They also link to, and share information with phones and other smart devices, which could identify occupants and provide evidence of cell phone use, or text messaging at the time of a crash.

Fleet Tracking and Vehicle Connectivity

Vehicles that are part of a fleet, like heavy trucks or taxis, are sometimes fitted with GPS tracking systems that broadcast their location. Some high-tech cars, like Teslas, broadcast a much wider range of data. While some of this information may be stored on-board, it is generally logged in an external fleet management system.

Engine Control Modules

Heavy trucks and buses may save data in their engine control modules when a sudden deceleration or a maintenance issue is detected. Typically, this information provides speed, engine RPM, and brake application information going back about one minute before the event.

Video Systems

Trains, buses, taxis, and ride-share vehicles often have aftermarket video systems, or dashcams, that record what is happening outside and inside. These days, many accidents are also captured on traffic cameras or the surveillance systems of nearby businesses or homes.

Personal Electronics

Personal electronics, such as cell phones, smart watches, or bicycle computers can record GPS location and time data. This data can be useful for confirming the path and speed of a pedestrian or cyclist.

