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SURFACE VEHICLE RECOMMENDED PRACTICE

(R) Vehicle Event Data Interface—Vehicular Output Data Definition

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1.   Scope

This recommended practice aims to establish a common output format of crash-related data recorded and stored within certain electronic components currently installed in many light-duty vehicles. This document pertains only to the post-download format of such data and is not intended to standardize the format of the data stored within any on-board storage unit, or to standardize the method of data recording, storing, or extraction.

Historically, crash data recording technology in light-duty vehicles has developed and evolved based on differing technical needs of manufacturers and their customers without industry standards or government regulation. As a result, wide variations currently exist among vehicle manufacturers regarding the scope and extent of recorded data. This document is intended to be a compilation of data elements that various manufacturers are currently recording, as well as those elements reasonably predicted to be recorded in the foreseeable future, and establishes a common output format of those data elements.

The scope of this document is deliberately restricted to providing output data formatting guidelines, only. It is not intended to standardize or mandate the recording of any specific data elements or to specify a minimum data set. This restriction in the scope is to avoid imposing constraints on the type of data recorded, the method of gathering and storing data, and the pre-and/or post-processing of data that may be used by various vehicle/device manufacturers as a matter of proprietary design. The committee recognized that, given the lack of societal consensus regarding the acceptability of on-board data recording devices, and has therefore avoided specific recommendations concerning whether event data recorders should be equipped on motor vehicles, and whether, when implemented, a particular type, quantity, and manner of data collection should be used.

Readers of this series of documents are advised to examine the validity and accuracy of VEDI event data in conjunction with the results from the traditional accident reconstruction practice. Since VEDI event data are acquired only from the on-board electronics systems, they may have not accurately capture the actual dynamics of the vehicle during the accident, or may not contain the full range or length of data during the event.

This document is one of a multi-volume J1698 series of documents and provides general concepts and common definitions of event data recording. J1698-1 provides definitions of event data and J1698-2 provides data extraction protocols.

1.1   Purpose

Vehicular event data recording and extraction has several potential uses. These include diagnostic and operational information of the on-board occupant protection system, crash reconstruction, improved highway safety, and support of crash notification systems. A standard format for vehicle event data outputs will help facilitate these uses by improving the efficient use of the extracted data.

Collection of various types of data for a variety of commercial and non-commercial uses is of significant interest to many entities. The Committee passes no judgment on the appropriateness of any particular use of recorded data, but has recognized in the statement of purpose for this document those uses of recorded data that best serve the public interest, namely, the use of data to enhance the knowledge of those tasked with designing vehicles and roadways and with shaping traffic safety policy. Other uses of recorded data are beyond the scope and purpose of this Document.

1.2 Rationale

Need new rationale statement.

2. References

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein.   Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1   SAE PUBLICATIONS

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1692—Diagnostic Connector
SAE J1698-1—Vehicle Event Data Interface—Vehicular Output Data Definition
SAE J1698-1—Vehicle Event Data Interface—Output Data Definition
SAE J1698-2—Vehicle Event Data Interface—Vehicular Data Extraction

3. Terms and Definitions

3.1 Vehicle Event Data Interface

The term "vehicle event data interface" (VEDI) is used in this document to describe a concept of event data format standardization and it is not the name for software/hardware that converts data from a vehicle system into a common format. This series of documents only define common output formats of event data (J1698-1) and methods to identify proper data extraction protocol (1698-2), and does not define the types and methods of data transactions within the vehicle. Technical content in this series of documents can be applied to any event data recording architectures, however event data recording is not considered as a dedicated box added to a vehicle.

Figure 1 illustrates the VEDI concept.

A vehicle electronics system (area surrounded by dotted lines in Figure 1) can transmit, receive, record and/or store any necessary data and information as designed by the vehicle manufacturer. Data related to some events are exchanged on the vehicle electric bus system as part of normal vehicle on-board data communications and thus event-related data may be stored in several electronic control units (ECUs). In addition, event data recording is considered a functionality that reports event-related data, and not as a single device, such as an aviation data recorder often called a "Black Box."

Event data may be extracted from ECUs using a data extraction tool which may use proprietary communication protocols and interfaces or which may be common across several vehicle lines. This document does not aim to standardize this data extraction tool. Once event data are extracted from a vehicle, some or all of those event data may be reported or converted into the common VEDI format. The event data in the common VEDI format are then converted into user-specific format to be saved in accident databases which provide event data in user-specific or VEDI-style output format.

The J1698-1 document defines the name, definition, values and signal values of those data elements, but does not define the communication protocols or message structure.
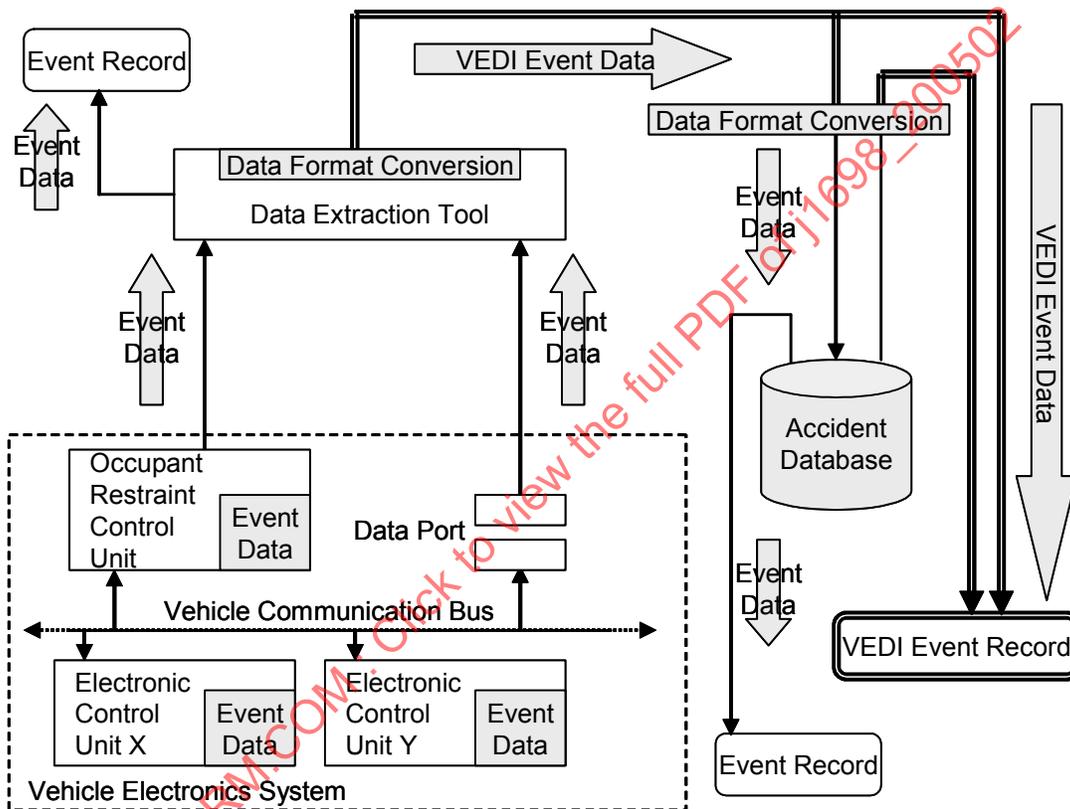

FIGURE 1—ILLUSTRATION OF VEHICLE EVENT DATA INTERFACE (VEDI) CONCEPT

3.1.1   EVENT DATA RECORDING

Event data recording is the functional process of storing event-related vehicle data for a specified period of time using existing vehicle electronics systems and capabilities. Event-related data may be stored in one electronic control unit (ECU) or in several ECUs depending on the vehicle electronics architecture.