



SURFACE VEHICLE RECOMMENDED PRACTICE

J1698™-1A

APR2021

Issued 2016-03
Stabilized 2021-04

Superseding J1698-1A MAR2016

SAE J1698-1A Pedestrian Protection EDR Output Data Definition
Appendix to SAE J1698-1 Event Data Recorder - Output Data Definition

RATIONALE

This document will no longer be used for new designs as the information and data elements have been incorporated into Appendix A of SAE J1698-1.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Event Data Recorder Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2021 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE J1698_1A_202104

For more information on this standard, visit
https://www.sae.org/standards/content/J1698/1A_202104

Documents

Document Sharing Hub

TABLE OF CONTENTS

1.	SCOPE.....	2
1.1	Purpose	2
2.	REFERENCES.....	2
2.1	Applicable Documents	2
2.1.1	SAE Publications.....	2
3.	DEFINITIONS	2
3.1	Clipping Flag (Reference SAE J1698 §6.10).....	2
3.2	Active and Passive Systems.....	2
3.3	Beginning of a Pedestrian Protection Event: Time Zero	3
3.4	End of Pedestrian Protection Event	3
3.5	Locked and Unlocked Events	3
4.	DATA ELEMENTS	3
4.1	Data Element Classifications	3
4.1.1	Classification I	3
4.1.2	Classification II	3
4.1.3	Classification III	3
4.2	Data Element Types.....	4
4.2.1	Time series data.....	4
4.2.2	Static data	4
4.3	Data Element Values	4
4.3.1	Data/signal not available	4
4.3.2	Invalid data	4
4.3.3	Status of the data element.....	4

4.4	Data Element Definitions.....	4
4.4.1	Ambient temperature at pedestrian protection time zero (Reference SAE J1698-1 §6.5)	4
4.4.2	Antilock brake system status (Reference SAE J1698-1 §6.6)	4
4.4.3	Brake application (Reference SAE J1698-1 §6.9)	5
4.4.4	Service brake, on and off (Reference SAE J1698-1 §6.38).....	5
4.4.5	Ignition cycle (Reference SAE J1698-1 §6.22)	5
4.4.6	Indicator status (Reference SAE J1698-1 §6.23)	6
4.4.7	Pedestrian protection deployment criteria met	7
4.4.8	Pedestrian protection non-deployment event status.....	7
4.4.9	Pedestrian protection event recording complete flag (Reference SAE J1698-1 §6.15.6 Event data recording complete)	7
4.4.10	Sensor data	8
4.4.11	Speed vehicle indicated (Reference SAE J1698-1 §6.39).....	8
4.4.12	Steering input (Reference SAE J1698-1 §6.40)	9
4.4.13	Throttle position (Reference SAE J1698-1 §6.43)	9
4.4.14	Time from pedestrian protection time zero (contact-based) to time 1 st deployment commanded	9
4.4.15	Time from pedestrian protection time zero (contact-based) to time N th deployment commanded	10
5.	NOTES	10
5.1	Revision Indicator	10

1. SCOPE

SAE J1698-1A creates an appendix to SAE J1698-1. The appendix contains EDR Record parameters and definitions related to light duty passenger vehicle pedestrian protection systems.

1.1 Purpose

SAE J1698-1A establishes pedestrian protection parameters and definitions as outlined in the scope. The parameters shall be those engineering quantities useful in analyzing pedestrian protection system operation or reconstructing pedestrian crashes.

2. REFERENCES

2.1 Applicable Documents

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

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J1698-1 Event Data Recorder - Output Data Definition

3. DEFINITIONS

3.1 CLIPPING FLAG (Reference SAE J1698 §6.10)

Indicates the point in time at which a sensor first reaches the maximum value of the specified range of that sensor.

3.2 ACTIVE AND PASSIVE SYSTEMS

Active is used to describe those pedestrian protection systems that actively command a device or function. Passive is used to describe a pedestrian protection system that integrates the protective characteristics as part of the vehicle structure.

3.3 BEGINNING OF A PEDESTRIAN PROTECTION EVENT: TIME ZERO

The beginning of an impact event (time zero) is defined by:

- (1a) for systems with “wake-up” pedestrian protection control algorithms, the time at which the pedestrian protection control algorithm is activated,

Or

- (1b) for continuously running pedestrian protection control algorithms, the time when the pedestrian protection control algorithm determines that the specific Time Zero criteria, as defined for the sensing technology and application, has been met. Pedestrian protection may employ a variety of sensing technologies which require definition of Time Zero criteria appropriate for their capabilities and particular application.

NOTE: The beginning of a contact event (defined herein) shall not be interpreted as the moment when the subject vehicle makes a first physical contact with another object. The beginning of an event also does not mark the condition that determines whether to record the event data associated with the event for subsequent retrieval. The purpose of defining the beginning of an event is to enable the alignment of data elements from multiple recording devices on a vehicle.

3.4 END OF PEDESTRIAN PROTECTION EVENT

When the pedestrian protection control algorithm resets. In a continuously running algorithm, the end of event can be end of the data capture time.

3.5 LOCKED AND UNLOCKED EVENTS

Pedestrian protection utilizes multiple technologies, some of which are resettable or reversible. There may also be instances of mis-applied deployments. Due to the nature of pedestrian protection technology, events do not need to be locked. Events that do not result in the commanded firing of a non-reversible device or the firing of a reversible device may be recorded. The system shall be capable of recording at least one event (Reference SAE J1698 §3.18).

4. DATA ELEMENTS

Electronic data file(s) stored in non-volatile memory in one or more specified vehicle ECUs following the occurrence of an event. (Reference SAE J1698 Event Data Recorder §3.10)

4.1 Data Element Classifications

The data element classifications are for the purpose of characterizing the general availability of the data elements. The classifications listed below are not intended to indicate which data elements must be included in an EDR.

Each data element included in this document has been classified using the following classifications:

4.1.1 Classification I

Data elements currently found either in the ECU(s) or on the communications bus in most vehicles across the industry except some low volume vehicles

4.1.2 Classification II

Data elements currently found either in the ECU(s) or on the communications bus in some vehicles but not industry wide

4.1.3 Classification III

Data elements either 1) not found in the ECU(s) or on the communications bus in any current vehicles or 2) only found in a small percentage of vehicles. Further, this data element may be proprietary or not retrievable.