



SURFACE VEHICLE RECOMMENDED PRACTICE	J2284™-5	NOV2022
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Superseded by J2284-5 SEP2016		
High-Speed CAN (HSC) for Vehicle Applications at 500 kbps with CAN FD Data at 5 Mbps		

RATIONALE

ISO 11898-1 secondary sample point provides a method to delay the receive sample of transmitted data to ensure proper reception of CAN FD messages when transmitting. Currently, the usage of this is defined in OEM-specific documents. CAN diagnostic tool vendors generally don't have access to the OEM documents. If this is missed, especially at 5 Mbps data rate, there may be CAN bus errors which are likely to cause the tool to go bus off. SAE J2534 references SAE J2284-4 for CAN requirements for 5 Mbps CAN FD and they would like to see it updated to include this information.

FOREWORD

The objective of SAE J2284-5 is to define a level of standardization in the implementation of a 500 kbps arbitration bus with CAN FD data at 5 Mbps for a point to point connection between a vehicle and on-board tools using the controller area network (CAN) protocol. The goal is to achieve a standard electronic control unit (ECU) physical layer, data link layer, and media design criteria which will allow ECU and tool manufacturers to satisfy the needs of multiple end users with minimum modification to a basic design. Likewise, end users will benefit in lower ECU cost achieved from the high volumes of the basic design.

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1. SCOPE

This SAE Recommended Practice will define the physical layer and portions of the data link layer of the open systems interconnection model (ISO 7498) for a 500 kbps arbitration bus with CAN FD data at 5 Mbps high-speed CAN (HSC) protocol implementation. Both ECU and media design requirements for networks will be specified. Requirements will primarily address the CAN physical layer implementation.

Requirements will focus on a minimum standard level of performance from the High-Speed CAN (HSC) implementation. All ECUs and media shall be designed to meet certain component level requirements in order to ensure the HSC implementation system level performance at 500 kbps arbitration bus with CAN FD Data at 5 Mbps. The minimum performance level shall be specified by system level performance requirements or characteristics described in detail in Section 6 of this document.

This document is designed such that if the electronic control unit (ECU) requirements defined in Section 6 are met, then the system level attributes should be obtainable.

This document will address only requirements which may be tested at the ECU and media level. No requirements which apply to the testing of the HSC implementation as integrated into a vehicle are contained in this document. However, compliance with all ECU and media requirements will increase the possibility of communication compatibility between separately procured components and will greatly simplify the task of successfully integrating an HSC communication system in a vehicle.

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 J551-15	Vehicle Electromagnetic Immunity - Electrostatic Discharge (ESD)
SAE J1213-1	Glossary of Vehicle Networks for Multiplexing and Data Communications
SAE J1930	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to IEC/ISO TR 15031-2
SAE J1962	Diagnostic Connector
SAE J2190	Enhanced E/E Diagnostic Test Modes
SAE J2962-2	Communication Transceivers Qualification Requirements - CAN
SAE 970290	CAN Bit Timing Requirements

2.1.2 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 7498	Data Processing Systems - Open Systems Interconnection Standard Reference Model
ISO 7637-1	Road Vehicles - Electrical Disturbance by Conduction and Coupling
ISO 10605	Road Vehicles - Test Methods for Electrical Disturbances from Electrostatic Discharge