



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39851.2-2021

**Road vehicles - Diagnostic communication over Controller Area
Network (DoCAN) - Part 2: Transport protocol and network layer
services**

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Foreword

GB/T 39851 "Road vehicles - Diagnostic communication over Controller Area Network (DoCAN)" has issued and plans to issue the following parts.

- Part 2. Transport protocol and network layer services;
- Part 3. Requirements for emission-related systems;

This Part is Part 2 of GB/T 39851.

This Part is drafted in accordance with the rules given in GB/T 1.1-2009.

This Part uses the redraft law to modify and adopt ISO 15765-2:2016 "Road vehicles - Diagnostic communication over Controller Area Network (DoCAN) - Part 2. Transport protocol and network layer services".

Compared with ISO 15765-2:2016, the structure of this Part has been adjusted as follows.

- For the convenience of readers, the subclause composed of multiple paragraphs is subdivided into several articles without title;
- According to the content added in Clause 5, add 5.1 "Open Systems

Interconnection (OSI) model", 5.2 "Diagnostic network architecture", and

5.3 "Overview of DoCAN use cases". Adjust the content of Clause 5 of the

international standard to 5.1.8.

The technical differences between this Part and ISO 15765-2:2016 and their reasons are as follows.

- ADD the content of "Open Systems Interconnection model" (see 5.1);
- ADD the content of "Diagnostic network architecture" (see 5.2);
- ADD the content of "Overview of DoCAN use cases" (see 5.3).

This Part has made the following editorial change.

- In accordance with the requirements of GB/T 1.1-2009, standardize the compilation of the "Scope" clause.

This Part was proposed by Ministry of Industry and Information Technology of the PRC.

This Part shall be under the jurisdiction of National Technical Committee of Auto Standardization (SAC/TC 114).

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1 Scope

This Part of GB/T 39851 specifies a transport protocol and network layer services tailored to meet the requirements of CAN-based vehicle network systems on controller area networks as specified in ISO 11898-1:2015.

2 Normative references

The following documents are indispensable for the application of this document.

For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

ISO/IEC 7498-1 Information technology - Open systems interconnection - Basic reference model - Part 1. The basic model

3 Terms, definitions and abbreviated terms

Configures the maximum usable payload length in bytes of the data link layer in the transmitter for the application that implements the network layer as defined in this Part.

For the purposes of this document, the following abbreviated terms apply.

4 Conventions

This Part is based on the conventions discussed in the OSI service conventions (ISO/IEC 10731) as they apply for diagnostic services.

5 Overview

The DoCAN protocol use cases are derived from the following areas of use for diagnostic communications.

6 CAN data link layer extension

If a CAN FD protocol device is used, this Part can be configured to create either CLASSICAL CAN or CAN FD type frames. When CAN FD type frames are enabled for the data link layer, two new options need to be supported as follows.

7 Network layer overview

The service interface defines a set of services that are needed to access the functions offered by the network layer, i.e. transmission/reception of data and

setting of protocol parameters. Two types of service are defined.

8 Network layer services

Description. This parameter contains the status relating to the outcome of a service execution. If two or more errors are discovered at the same time, then the network layer entity shall use the parameter value found first in this list when indicating the error to the higher layers.

9 Transport layer protocol

The payload data length CAN_DL of the received CAN frame has to match the RX_DL value which was determined in the reception process of the FirstFrame (FF). Only the last CF in the multi-frame transmission may contain less than RX_DL bytes.

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