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

GB/T 42193.4-2022

**Road vehicles - Communication between vehicle and external
equipment for emissions-related diagnostics - Part 4: External
test equipment**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is part 4 of GB/T 42193 "Communication of emission-related diagnostics between road vehicles and external equipment".

GB/T 42193 has issued the following parts.

- Part 1. General information and use case definitions;
- Part 2. Guidelines for terms, definitions, abbreviations and abbreviations;
- Part 3. Requirements and use of diagnostic connectors and related circuits;

--- Part 4.External test equipment;

--- Part 7.Data link security.

This document is equivalent to ISO 15031-4:2014 "Communication of emission-related diagnostics between vehicles and external equipment on road vehicles Part 4

Section. External Test Equipment".

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

GB/T 42193 consists of multiple parts, which together provide a coherent and organized set of specifications for the convenience of emissions

Close diagnostics.

GB/T 42193 consists of 7 parts.

--- Part 1.General information and use case definitions. The purpose is to provide a general overview of emission-related diagnostics between the vehicle and external equipment

Information and use case definitions intended to provide an introduction to the series of documents.

--- Part 2.Guidelines for terms, definitions, abbreviations and abbreviations. Communication of emission-related diagnostics between the vehicle and external equipment

Terms, definitions, abbreviations and abbreviations provide guidance and aim to unify the rules.

--- Part 3.Requirements and use of diagnostic connectors and related circuits. Connection of emissions-related diagnostics between the vehicle and external equipment

Provides requirements for connectors and associated circuitry designed to enable standard access to OBD data.

--- Part 4.External test equipment. It specifies the communication establishment method between the vehicle and the external test equipment and the requirements of the external test equipment.

The request is designed to allow external test equipment to effectively access the vehicle through OBD services.

--- Part 5.Emissions-related diagnostic services. Specifies the emission-related diagnostic service requirements between vehicles and external equipment, aiming to unify

Communication requirements.

--- Part 6. Definition of diagnostic trouble codes. Specifies the format and description of fault codes for emissions-related diagnostics between vehicles and external equipment

The aim is to unify the fault code format.

--- Part 7. Data link security. Provides guidance on vehicle diagnostic data link protection of road vehicle modules against illegal intrusion, aiming at

Provides guidance on protecting your vehicle from unauthorized access through the vehicle diagnostics connection.

GB/T 42193 includes within the scope of emission-related on-board diagnostics (OBD), between the OBD system of the vehicle and the test equipment passing the vehicle communication between.

To achieve the above objectives, this document uses ISO /IEC 7498-1 and ISO /IEC 10731, the basic reference for Open Systems Interconnection (OSI).

model, which divides the communication system into seven layers. When mapping the services described in GB/T 42193 to the model, it can be divided into the following levels

(Table 1).

---Application layer (layer 7), see.

* ISO 15031-5 (emission related OBD);

* ISO 27145-3 (WWH-OBD).

--- Presentation layer (layer 6), see.

* ISO 15031-2, SAEJ1930-DA;

* ISO 15031-5, SAEJ1979-DA;

* ISO 15031-6, SAEJ2012-DA(OBD);

* ISO 27145-2, SAEJ2012-DA (WWH-OBD).

---Session layer (layer 5), see.

* ISO 14229-2 supports ISO 15765-4DoCAN and ISO 14230-4DoK-Line protocols;

* ISO 14229-2 is not applicable to SAEJ1850 and ISO 9141-2 protocols.

---Transport layer (layer 4), see.

* DoCAN. ISO 15765-2 transport layer protocol and network layer services;

* SAEJ1850. ISO 15031-5 emissions-related diagnostic services;

* ISO 9141-2. ISO 15031-5 emissions-related diagnostic services;

* DoK-Line. ISO 14230-4, ISO 15031-5 emissions-related diagnostic services.

---Network layer (layer 3), see.

* DoCAN. ISO 15765-2 transport layer protocol and network layer services;

* SAEJ1850. ISO 15031-5 emissions-related diagnostic services;

* ISO 9141-2. ISO 15031-5 emissions-related diagnostic services;

* DoK-Line. ISO 14230-4, ISO 15031-5 emissions-related diagnostic services.

---Data link layer (layer 2), see.

* DoCAN. ISO 15765-4, ISO 11898-1;

* SAEJ1850;

* ISO 9141-2;

* DoK-Line. ISO 14230-2.

---Physical layer (layer 1), see.

* DoCAN. ISO 15765-4, ISO 11898-1, ISO 11898-2;

* SAEJ1850;

* ISO 9141-2;

* DoK-Line. ISO 14230-1.

Table 1 Statutory emission-related OBD/WWH-OBD diagnostic specifications applicable to OSI layers

Applicability OSI Layer 7 emission-related OBD communication requirements
emission-related WWH-OBD communication requirements

according to

ISO /IEC

7498-1 and

ISO /IEC

7 floors

application layer

(layer 7)

presentation layer

(layer 6)