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

GB/T 42193.1-2022

**Road vehicles - Communication between vehicle and external
equipment for emissions-related diagnostics - Part 1: General
information and use case definition**

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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 1 of GB/T 42193 "Communication of emissions-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 15031-1:2010 "Communication of emission-related diagnostics between road vehicles and external equipment Part 1

Section. General Information and Use Case Definitions.

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 is proposed to consist of 7 parts.

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

General information and use case definitions are intended to provide an overview of the series of documents.

--- Part 2. Guidelines for terms, definitions, abbreviations and abbreviations. The purpose is to provide emission-related diagnostics between the vehicle and external equipment

The terms, definitions, abbreviations and abbreviations of the communication provide guidance and aim to unify the rules.

--- Part 3. Requirements and use of diagnostic connectors and related circuits. The purpose is to provide an emission correlation between the vehicle and the external equipment

Diagnostic connectors and associated circuitry provide requirements for standard access to OBD data.

--- Part 4. External test equipment. The purpose is to give the communication establishment method and external test between the vehicle and the external test equipment

Equipment requirements designed to allow external test equipment to efficiently access the vehicle through OBD services.

--- Part 5. Emissions-related diagnostic services. The purpose is to give the emission-related diagnostic service requirements between the vehicle and the external equipment, aiming at On Unified Communications Requirements.

--- Part 6. Definition of diagnostic trouble codes. The purpose is to give a DTC format for emission-related diagnostics between the vehicle and external equipment

and description, aiming to unify the fault code format.

--- Part 7. Data link security. The purpose is to provide guidance for the vehicle diagnostic data link to protect road vehicle modules from illegal intrusion.

South, designed to provide guidance on protecting vehicles from unauthorized access through vehicle diagnostic connections.

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.

In order to achieve the above objectives, this document adopts ISO /IEC 7498-1 and GB/T 17967-2000 Open Systems Interconnection (OSI) basic

Reference model, which divides the communication system into 7 layers. When mapping the services described in GB/T 42193 to the model, it is divided into the following layers level (see 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)

session layer

(layer 5)

transport layer

(layer 4)

Network layer

(tier 3)

data link layer

(tier 2)

physical layer