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Road vehicles — Open diagnostic data exchange (ODX) —

Part 2: Emissions-related diagnostic data

Véhicules routiers — Échange de données de diagnostic ouvert (ODX) —

Partie 2: Données de diagnostic relatives aux émissions

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22901-2 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 22901 consists of the following parts, under the general title *Road vehicles — Open diagnostic data exchange (ODX)*:

— *Part 1: Data model specification*

— *Part 2: Emissions-related diagnostic data*

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Introduction

This International Standard has been established in order to define the data format for transferring standardized emissions-related diagnostic data of the vehicle's OBD system between system supplier, vehicle manufacturer and service dealerships and diagnostic tools of different vendors.

The standardized information is contained in the following standards:

— Diagnostic protocol information:

  — ISO 9141-2:1994, *Road vehicles — Diagnostic systems — Part 2: CARB requirements for interchange of digital information,*

  — ISO 9141-2:1994/Amd.1:1996, *Road vehicles — Diagnostic systems — Part 2: CARB requirements for interchange of digital information — Amendment 1*,

  — ISO 14230-4:2000, *Road vehicles — Diagnostic systems — Keyword Protocol 2000 — Part 4: Requirements for emissions-related systems*,

  — ISO 15765-4, *Road vehicles — Diagnostic communication over Controller Area Network (CAN) — Part 4: Requirements for emissions-related systems*,

  — SAE J1850, *Class B Data Communications Network Interface*

  — ISO 15031-5, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 5: Emissions-related diagnostic services*;

— Emissions-related OBD data:

  — ISO 15031-4, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 4: External test equipment*,

  — ISO 15031-5, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 5: Emissions-related diagnostic services*,

  — ISO 15031-6, *Road vehicles — Communication between vehicle and external test equipment for emissions-related diagnostics — Part 6: Diagnostic trouble code definitions,*

  — SAE J1979-DA, *Digital Annex of E/E Diagnostic Test Modes*,

  — SAE J2012-DA, *Digital Annex of Diagnostic Trouble Code Definition*;

— OBD Conformance test cases:

  — SAE J1699-3, *OBD II Compliance Test Cases*.

The automotive industry mostly utilizes an informal description to document diagnostic data stream information of vehicle ECUs. Each user, who desires to use the ECU diagnostic data stream documentation to setup development tools or service diagnostic test equipment, has a requirement for a manual transformation of this documentation into a format readable by these tools. This effort will no longer be required if the diagnostic data stream information is provided in ODX format and if those tools support the ODX format.

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Road vehicles — Open diagnostic data exchange (ODX) —

Part 2:
Emissions-related diagnostic data

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1 Scope

This part of ISO 22901 is intended to ensure that diagnostic data stream information is available to diagnostic tool application manufacturers to simplify the support of the aftermarket automotive service industry. The ODX modelled diagnostic data are compatible with the software requirements of the Modular Vehicle Communication Interface (MVCI) (ISO 22900-2 and ISO 22900-3). The ODX modelled diagnostic data can enable an MVCI device to communicate with the vehicle [ECU(s)] and interpret the diagnostic data contained in the messages exchanged between the external test equipment and the ECU(s). For ODX-compliant external test equipment, no software programming is necessary to convert diagnostic data into technician-readable information for display by the external test equipment.

This part of ISO 22901 contains emissions-related OBD data examples described in ODX. The data examples derive from ISO 15031 (all parts).

EXAMPLES Diagnostic trouble codes, data parameters, identification data and communication parameters.

The emissions-related OBD ODX modelled diagnostic data describe

— the protocol specification from diagnostic communication of emissions-related ECUs;

— the communication parameters for the emissions-related OBD protocols and data link layers and for emissions-related ECU software;

— the related vehicle interface description (connectors and pin-out);

— the functional description of diagnostic capabilities of a network of ECUs.

This part of ISO 22901 is based on emissions-related diagnostic data derived and formatted according to the ISO 15765-4 DoCAN protocol. The definitions and XML representation is exemplary for all other protocols that are referenced in ISO 15031-5.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15031 (all parts), *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics*

ISO 15765-4, *Road vehicles — Diagnostic communication over Controller Area Network (CAN) — Part 4: Requirements for emissions-related systems*

ISO 22901-1, *Road vehicles — Open diagnostic data exchange (ODX) — Part 1: Data model specification*

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