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Road vehicles — Controller area network (CAN) conformance test plan —

Part 2: High-speed medium access unit — Conformance test plan

Véhicules routiers — Gestionnaire de réseau de communication (CAN) plan d'essai de conformité —

Partie 2: Unité d'accès au medium haute vitesse — Plan d'essai de conformit

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

This second edition cancels and replaces the first edition (ISO 16845-2:2014), which has been technically revised and includes the following changes:

— several clauses, subclauses, tables and figures have been technically revised. In particular, the test cases and test requirements to verify if the CAN transceiver with implemented selective wake-up functions conform to the specified functionalities within ISO 11898-6:2013 were extended. This was done to provide a conformance test plan for the whole CAN medium access unit implementations compliant with ISO 11898-2:2016 (which is the result of the merge of ISO 11898-2:2003, ISO 1898-5:2007 and ISO 11898-6:2013).

A list of all the parts in the ISO 16845 series can be found on the ISO website.

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Introduction

ISO 16845 was first published in 2004 to provide a test plan for conformance testing of the CAN data link layer and physical signalling as standardized in ISO 11898-1. With ISO 11898-6:2013, CAN high-speed medium access units were standardized, which partly implements a CAN data link layer, in order to provide selective wake-up functionality. This standard was merged together with ISO 11898-5:2007 and ISO 11898-2:2003 to produce ISO 11898-2:2016. In order to provide a conformance test plan for CAN medium access unit implementations compliant with ISO 11898-2:2016, this document has been developed. It comprises static tests and dynamic tests.

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Road vehicles — Controller area network (CAN) conformance test plan —

Part 2:
High-speed medium access unit — Conformance test plan

1 Scope

This document specifies the conformance test plan for the CAN physical layer as standardized in ISO 11898-2:2016. It specifies static and dynamic tests. The dynamic tests includes the test cases for the partly implemented Classical CAN protocol and CAN FD protocol as standardized in ISO 11898-1:2015. The static tests describe the data to be given in datasheets.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 11898-1:2015, *Road vehicles — Controller area network (CAN) — Part 1: Data link layer and physical signalling*

ISO 11898-2:2016, *Road vehicles — Controller area network (CAN) — Part 2: High-speed medium access unit*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11898-2:2016 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
implementation under test
IUT
HS-PMA which will be conformance tested according to this document

EXAMPLE Standalone transceiver or SBC.

3.2
lower tester
LT
part of the test system, which emulates the interfaces of the underlying OSI layer from sight of the IUT

3.3
normal mode
mode, in which biasing as well as RX and TX are enabled and low-power mode is disabled

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3.4
system under test
SUT
system, which embeds the IUT as a part or contains the IUT, because it cannot operate as a stand-alone component

3.5
test system
TS
system, which fulfils in this case all requirements to perform the tests defined in this specification

3.6
upper tester
UT
part of the test system, which emulates the interfaces of the overlying OSI layer from sight of the IUT

3.7
valid frame
syntactically correct CAN frame

3.8
invalid frame
syntactically incorrect CAN frame with CAN conform error treatment

3.9
sync frame
syntactically correct CAN frame which is present on the bus while the IUT is in low power mode.

Note 1 to entry: It could be a WUF or non WUF.

3.10
sync sequence
group of sync frames which the IUT may use to calibrate or fine tune internal parameter to be prepared to detect a WUF

4 Symbols and abbreviated terms

The following symbols and abbreviated terms are used in this document:

ACK acknowledge

ASP abstract service primitives

CAN controller area network

CBFF classical base frame format

CEFF classical extended frame format

CRC cyclic redundancy check

DLC data length code

EOF end of frame

FBFF FD base frame format

FEC frame error counter

FEFF FD extended frame format

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