INTERNATIONAL STANDARD

ISO 21202

First edition
2020-04

Intelligent transport systems — Partially automated lane change systems (PALS) — Functional / operational requirements and test procedures

Systèmes de transport intelligents — Systèmes de changement de voie partiellement automatisés (PALS) — Exigences fonctionnelles et opérationnelles et procédures d'essai

Reference number
ISO 21202:2020(E)

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

Published in Switzerland

Contents

Page

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In general, driving assist systems and automated driving systems equipped in a vehicle reduce the burden of the drivers and contribute to safe driving. For a lane change operation, there are many drivers who are not good at performing a lane change. To support such drivers, Partially Automated Lane Change Systems (PALS) execute an automatic lane change manoeuvre following the request of the driver and under the supervision of the driver, on a road with visible lane markings, where non-motorized vehicles and pedestrians are prohibited.

PALS acquire information not only on the position of the vehicle within the lane, but also on adjacent lanes and obstacles in the vicinity of the subject vehicle (SV). PALS evaluate whether or not a lane change to an adjacent lane is possible and send commands to the actuators which control lateral movement of the vehicle to perform a lane change. This document specifies how PALS support drivers for a lane change and describes PALS' operations.

Intelligent transport systems — Partially automated lane change systems (PALS) — Functional / operational requirements and test procedures

1 Scope

This document contains the basic control strategy, minimum functionality requirements, basic driver interface elements, minimum requirements for reaction to failure, and performance test procedures for PALS.

PALS perform part or all of lane change tasks under the driver's initiation and supervision. PALS are intended to function on roads with visible lane markings, where non-motorized vehicles and pedestrians are prohibited (e.g. access controlled highway), and to perform a lane change into a lane with traffic moving in the same direction. Support on sections of roadway with temporary or irregular lane markings (such as roadwork zones) is not within the scope of this document.

This document does not describe functionalities based on combinations with longitudinal control systems such as those standardized in ISO 22839 (FVCMS) or ISO 15622 (ACC).

The driver always assumes responsibility for this system and the driver's decisions and operations take priority at all times.

Use of PALS is intended for light-duty and heavy-duty vehicles (heavy trucks and buses).

This document does not address any functional or performance requirements for detection sensors, nor any communication links for co-operative solutions.

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 15037-1, *Road vehicles — Vehicle dynamics test methods — Part 1: General conditions for passenger cars*

ISO 15037-2, *Road vehicles — Vehicle dynamics test methods — Part 2: General conditions for heavy vehicles and buses*

ISO 17387, *Intelligent transport systems — Lane change decision aid systems (LCDAS) — Performance requirements and test procedures*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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