SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 19091:2019

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Nadomešča:
SIST-TS CEN ISO/TS 19091:2017

Inteligentni transportni sistemi (ITS) - Kooperativni ITS - Uporaba komunikacij V2I in I2V za aplikacije v zvezi s signali v križiščih (ISO/TS 19091:2019)

Intelligent transport systems - Cooperative ITS - Using V2I and I2V communications for applications related to signalized intersections (ISO/TS 19091:2019)

Intelligente Transportsysteme - Kooperative ITS - Nutzung von V2I und I2V-Kommunikation für Anwendungen bezogen auf Signalanlagen an Kreuzungen (ISO/TS 19091:2019)

Systèmes intelligents de transport - Coopérative ITS - Utilisation de communications V2I et I2V pour des applications relatives aux intersections signalées (ISO/TS 19091:2019)

Ta slovenski standard je istoveten z: **CEN ISO/TS 19091:2019**

ICS:

03.220.20	Cestni transport	Road transport
35.240.60	Uporabniške rešitve IT v prometu	IT applications in transport

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TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN ISO/TS 19091

July 2019

ICS 03.220.20; 35.240.60

Supersedes CEN ISO/TS 19091:2017

English Version

Intelligent transport systems - Cooperative ITS - Using V2I and I2V communications for applications related to signalized intersections (ISO/TS 19091:2019)

Systèmes intelligents de transport - Coopérative ITS - Utilisation de communications V2I et I2V pour des applications relatives aux intersections signalées (ISO/TS 19091:2019)

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This Technical Specification (CEN/TS) was approved by CEN on 14 June 2019 for provisional application.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (CEN ISO/TS 19091:2019) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 “Intelligent transport systems” the secretariat of which is held by NEN.

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

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Endorsement notice

The text of ISO/TS 19091:2019 has been approved by CEN as CEN ISO/TS 19091:2019 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 19091

Second edition
2019-06

Intelligent transport systems — Cooperative ITS — Using V2I and I2V communications for applications related to signalized intersections

Systèmes intelligents de transport — Coopérative ITS — Utilisation de communications V2I et I2V pour des applications relatives aux intersections signalées

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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 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*.

This second edition cancels and replaces the first edition (ISO/TS 19091:2017), which has been technically revised.

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

Cooperative-ITS (C-ITS) is a promising and remarkable advancement of intelligent transport systems (ITS). Numerous cooperative applications are specified that open up new possibilities to make traffic safer, more efficient, and smarter. Technologies are developed and improved to realize and support those new services and applications. To enable those applications, information needs to be reliably communicated between the stationary infrastructure and mobile vehicles.

This document describes the use cases for several applications that address safety, mobility, and ecological sustainability. Each use case has information needs that communication between vehicles and the infrastructure facilitate. It then identifies the information needs for the applications and the requirements to satisfy them. In turn, it maps the requirements into data frames and data elements to fulfil the requirements within the specified message set.

ISO 22951 has a relationship to this document. PRESTO addresses its user needs through the implementation of a specific system architecture similar to that described in NTCIP 1211. This architecture includes traffic signals, message signs, routing systems, human machine interfaces, and fixed detection locations. Many of PRESTO's data value details are “left undefined to allow for discretional definition by each country.” The PRESTO architecture detects priority requesting vehicles by installing specific detection equipment at these locations.

This document uses a similar set of user needs to develop the message set between vehicles and the roadside equipment they interface. This document does not address the system architecture other than data needed to fulfil the user needs that will be managed elsewhere in the architecture. It details data values and structures in order to define the interface between these two devices. Routing information is supported in the architecture through other mechanisms and is not a need supported by the vehicle to roadside equipment information flows. The user needs also provide for priority by approach, a preconfigured strategy, and ingress/egress lane requests. This document is based on vehicles periodically broadcasting their location and trajectory information to other vehicles and the roadside infrastructure. This document complements ISO 22951 as it provides for vehicle location and request information directly from connected vehicles rather than the detection of the vehicles from other fixed sensing equipment. It does not address the architecture data flows and operations that are detailed within ISO 22951. In other terms, this document provides a connected vehicle alternative for request and status communication without impacting the back office or local intersection operations of priority management.