ICS 35.240.60, 43.040.15 PREDBEŽNÁ SLOVENSKÁ TECHNICKÁ NORMA Február 2021

STN P	**Inteligentné dopravné systémy Kooperatívne IDS Slovník informačných dátových štruktúr vo vozidle (IVI) (ISO/TS 19321: 2020)**	**STN P CEN ISO/TS 19321** 01 8517

Intelligent transport systems - Cooperative ITS - Dictionary of in-vehicle information (IVI) data structures (ISO/TS 19321:2020)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/21

Táto predbežná STN je určená na overenie. Pripomienky zasielajte ÚNMS SR najneskôr do 18. 5. 2022.

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Oznámením tejto normy sa ruší
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CEN ISO/TS 19321

October 2020

ICS 35.240.60; 43.040.15 Supersedes CEN ISO/TS 19321:2015

English Version

Intelligent transport systems - Cooperative ITS - Dictionary of in-vehicle information (IVI) data structures (ISO/TS 19321:2020)

Systèmes intelligents de transport - Coopérative STI - Dictionnaire de structures de données d'informations dans les véhicules (IVI) (ISO/TS 19321:2020)

Intelligente Transportsysteme - Kooperative ITS - Verzeichnis von Datenstrukturen fahrzeuginterner Informationen (IVI) (ISO/TS 19321:2020)

This Technical Specification (CEN/TS) was approved by CEN on 18 May 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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European foreword

This document (CEN ISO/TS 19321:2020) 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.

This document supersedes CEN ISO/TS 19321:2015.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO/TS 19321:2020 has been approved by CEN as CEN ISO/TS 19321:2020 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 19321

Second edition
2020-09

Intelligent transport systems — Cooperative ITS — Dictionary of in-vehicle information (IVI) data structures

Systèmes intelligents de transport — Coopérative STI — Dictionnaire de structures de données d'informations dans les véhicules (IVI)

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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 the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Intelligent transport systems (ITS)*, in collaboration with Technical Committee ISO/TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO/TS 19321:2015) which has been technically revised.

The main changes compared to the previous edition are as follows.

— The Scope has been edited.

— Several containers have been renamed or newly introduced and an "Automated Vehicle Container" has been added to better manage automated vehicles.

— The abstract syntax notation one (ASN.1) code in Annex A has been captured separately. This edition is backwards compatible with the previous edition in that it adds information elements (e.g. data elements and data frames) to the IVI Structure by using ASN.1 extensions. The ASN.1 extension feature ensures that implementations of the previous edition can correctly parse IVI Structures compliant with this edition and process the information specified in the previous edition without needing knowledge about the extensions.

— The former Annex B has been replaced with new visual examples.

— C-Roads and Eco-AT documents have been added to the Bibliography.

— Data types are imported from ISO 14823 which are backwards compatible with the first edition of this document.

— Data types are imported from updated editions of ISO 14906, ISO 17419 and ETSI/TS 102 894-2, which are backwards compatible with the first edition of this document.

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 a Cooperative Intelligent Transport System (C-ITS), presenting information related to the traffic situation or regulation of a road to the driver of a vehicle is an important component of road operations. The road operators are responsible for road setup, operation, signage, and maintenance for traffic management and road safety, and in some countries, also for the enforcement of road laws. For road operators, efficient transport of vehicles on roadways ensures a safe and predictable trip for all road users. Road operators, together with equipment manufacturers, whether of vehicles or of roadside equipment, contribute to how road information is properly presented to drivers.

So far, one defined C-ITS method for notifying road users of road and/or traffic situations and events is by transmission of messages such as Cooperative Awareness Messages (CAM), Decentralized Environment Notification Messages (DENM), or Basic Safety Messages (BSM).

This document supports mandatory and advisory road signage such as contextual speeds and road works warnings. In-vehicle information can be sent by an ITS Station (ITS-S) and either corresponds to physical road signs such as static or variable road signs or does not correspond to physical road signs (a virtual sign) or corresponds to road works. In-vehicle information (IVI) does not include identification of road events as already provided by DENM.

This document provides a toolbox of information elements for IVI. It can be used to fulfil the requirements of the service provider considering the needs of receiving ITS-S. The container concept provides a way for an ITS-S to manage the relevant IVI information, determine where the IVI is relevant, and to provide details for the application of IVI. The description of data elements encompasses the data syntax and semantics, i.e. a definition of data format and content, together with a description of how to use those data elements.

This document is of an enabling nature. It does not specify which information is necessary for a certain service, but it supports those IVI information elements that can be necessary to be transmitted to a receiving ITS-S to carry out a certain service. Usage of the IVI information elements depends on the specific context and application of IVI for a specific service and usage is established as mandatory or optional only for messaging purposes, not for application purposes. The IVI Structure is intended to be profiled to fulfil the requirements of a specific service.

This document refers to ISO 14823 as one system of standardized codes for existing road signs codes.

NOTE ISO 14823 does not contain codes for specific national or regional signs that are not commonly used, and it does not represent a catalogue of road sign pictograms for all applicable nations.

Intelligent transport systems — Cooperative ITS — Dictionary of in-vehicle information (IVI) data structures

1 Scope

This document specifies the in-vehicle information (IVI) data structures that are required by different intelligent transport system (ITS) services for exchanging information between ITS Stations (ITS-S). A general, extensible data structure is specified, which is split into structures called containers to accommodate current-day information. Transmitted information includes IVI such as contextual speed, road works warnings, vehicle restrictions, lane restrictions, road hazard warnings, location-based services, re-routing. The information in the containers is organized in sub-structures called data frames and data elements, which are described in terms of its content and its syntax.

The data structures are specified as communications agnostic. This document does not provide the communication protocols. This document provides scenarios for usage of the data structure, e.g. in case of real time, short-range communications.

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 639-1:2002, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 14823:2017, *Intelligent transport systems — Graphic data dictionary*

ISO 14906:2018, *Electronic fee collection — Application interface definition for dedicated short-range communication*

ISO/TS 19091:2019, *Intelligent transport systems — Cooperative ITS — Using V2I and I2V communications for applications related to signalized intersections*

ISO 24534-3:2016, *Intelligent transport systems — Automatic vehicle and equipment identification — Electronic registration identification (ERI) for vehicles — Part 3: Vehicle data*

ETSI/TS 102 894-2 V1.3.1 (2018-08), *Intelligent Transport Systems (ITS); Users and applications requirements; Part 2: Applications and facilities layer common data dictionary*