
**Intelligent transport systems (ITS) —
Guidance protocol via personal ITS
station for advisory safety systems —**

**Part 3:
Road guidance protocol (RGP)
conformance test specification**

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*Systemes intelligents de transport — Protocole d'orientation par
station ITS personnelle pour systemes à avis de sécurité —*

*Partie 3: Spécification d'essai de conformité du protocole
d'orientation routière*

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

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. (standards.iteh.ai)

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

A list of all the parts in the ISO 13184 series, can be found on the ISO website. www.iso.org/iso/13184-series

Introduction

This document specifies a real-time decision support system for guidance information, designed to enhance mobility and vehicle safety and to provide a parking guide service using the Personal-ITS-Station (P-ITS-S). The purpose of the system is to transmit guidance or warning messages to drivers and pedestrians in real-time, enhance the user's convenience and avoid congestion in parking facilities by preventing accidents and enabling easy parking.

This document covers subjects related to traffic safety including pedestrians in addition to vehicle drivers. This Data eXchange Message (DXM) implementation describes how the safety-related services are provided using the P-ITS-S.

This system is based on the following assumptions:

- The P-ITS-S has limited resources and the implementation design considers these limitations.
- Use cases related to the safety warning and parking guide service can be classified in various ways. These use cases can be added or deleted frequently depending on the specific circumstances of roads and parking spaces. Therefore, the DXM implementation needs to be designed to be flexible and extendable, which enables the addition or deletion of the use cases conveniently.
- The DXM implementation of road guidance contains data elements to configure the message transmitted between the ITS Stations.
- The major use cases include safety warnings at roads and parking guide services to be used between the Roadside ITS Station (R-ITS-S) and the P-ITS-S.

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Intelligent transport systems (ITS) — Guidance protocol via personal ITS station for advisory safety systems —

Part 3: Road guidance protocol (RGP) conformance test specification

1 Scope

This document specifies conformance tests for a self-conformance assessment of the supplier's P-ITS-S system. The conformance test cases follow the use case definition of ISO/TR 13184-1 and the requirements stated in ISO 13184-2 based on the Data eXchange Message (DXM) at the application level regarding the safety warning and parking guide services between

- the Vehicle ITS Station (V-ITS-S) installed in the vehicle, or
- a Personal ITS Station (P-ITS-S), e.g. Nomadic Device, in a vehicle or used by a pedestrian, and
- a Roadside ITS Station (R-ITS-S) installed at the roadside.

The primary but not exclusive purpose of this document is to provide information to the P-ITS-S system provider to build and test the P-ITS-S system against the conformance test cases. This final step in the development process of the P-ITS-S system ensures providers that their P-ITS-S system meets a high degree of functional requirements expected by the end user.

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/TR 13184-1, *Intelligent transport systems (ITS) — Guidance protocol via personal ITS station for advisory safety systems — Part 1: General information and use case definitions*

ISO 13184-2, *Intelligent transport systems (ITS) — Guidance protocol via personal ITS station for advisory safety systems — Part 2: Road guidance protocol (RGP) requirements and specification*

ISO/TS 17419, *Intelligent transport systems — Cooperative systems — Classification and management of ITS applications in a global context*

ISO/TS 17423, *Intelligent transport systems — Cooperative systems — ITS application requirements and objectives for selection of communication profiles*

ISO 21217, *Intelligent transport systems — Communications access for land mobiles (CALM) — Architecture*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TR 13184-1, ISO 13184-2, ISO/TS 17419, ISO/TS 17423 and ISO 21217 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 <http://www.iso.org/obp>

4 Abbreviated terms

DXM	data eXchange message
ITS	intelligent transport systems
OSI	open systems interconnection
P-ITS-S	personal-intelligent transport system-station
R-ITS-S	roadside-intelligent transport system-station
RGP	road guidance protocol
V-ITS-S	vehicle-intelligent transport system-station

5 Conventions

This document is based on the conventions discussed in ISO/IEC 10731^[1] OSI service conventions, as they apply for communication services. The vehicle data transfer protocol is applicable to OSI layers 5, 6 and 7.

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6 Conformance test basic principles and clustering

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6.1 Basic principles for conformance test case definition

Basic principles (BP) have been established as a guideline to define the road guidance protocol via DXM implementation conformance test cases:

- BP1: The primary objective of the conformance test is to support a company which has developed a P-ITS-S in the assessment of self-conformance of the P-ITS-S system. The conformance test is not limited to usage by such company. Some test cases may not be performed by third parties due to the nature of the test cases.
- BP2: The person performing the conformance test is qualified, i.e. test experience, knowledge about Cooperative ITS systems, familiarity and understanding of the relevant ISO 13184 series of standards, and shall have a keen understanding of the business application of the P-ITS-S system.
- BP3: The conformance test should address the RGP implementation.
- BP4: The conformance test tests the proper functioning of the RGP implementation, i.e. correct input data provide correct output data.
- BP5: The person performing the conformance test verifies that the purpose of the use case is achieved following the descriptions of the RGP regarding the implementation of the use case and the steps to enter the input and to obtain the output according to ISO/TR 13184-1.
- BP6: The name of the test case should be the same as the name of the use case (see ISO/TR 13184-1) or requirement (see ISO 13184-2).
- BP7: Each test case should have a preamble (setup state).
- BP8: Classification for each test case is included in order to support the classification criteria specified for use cases and requirements.
- BP9: A test case is only applicable if the use case or requirement is supported by the P-ITS-S.

- BP10: Some test cases may require payment or a valid subscription before processing the next step.

CAUTION — The person performing the conformance test is responsible for entering valid data and correctly executing necessary actions in order to maintain integrity of the implementation of the RGP implementation between the P-ITS-S and other ITS-Stations.

6.2 Test case structure

6.2.1 Conformance test case — General structure

6.2.1.1 Test case reference number and title [RGP-CT_...] [title]

Each test case is structured into six (6) subclauses:

- Overview,
- Test purpose,
- Configuration,
- Preamble (setup state),
- Test execution,
- Postamble.

Details and examples for each of these titles (ordered list) are given below.

A reference to the corresponding test case requirement is specified via a unique abbreviation, number and title as follows:

- [RGP-CT_UCx.y] of ISO/TR 13184-1, <https://www.iso.org/standard/62111.html> [ISO 13184-3:2017](https://www.iso.org/standard/62111.html)
<https://www.iso.org/standard/62111.html> [ISO 13184-3:2017](https://www.iso.org/standard/62111.html)
<https://www.iso.org/standard/62111.html> [ISO 13184-3:2017](https://www.iso.org/standard/62111.html)

where:

- 'x', 'y' are numeric numbers as assigned in ISO/TR 13184-1.

6.2.1.2 Overview

This is a conformance test for checking the UC x.y followed by the subject description as specified in ISO 13184-2.

6.2.1.3 Test purpose

The test purpose gives a short description of the relevant test cases and a reference to the corresponding requirement specified in ISO/TR 13184-1 and ISO 13184-2.

NOTE The test case approach depends on the definition of the referenced requirement in ISO/TR 13184-1 and ISO 13184-2.

6.2.1.4 Configuration

The configuration describes the test scenario prerequisites.

6.2.1.5 Preamble (setup state)

The preamble defines preconditions which are used for preparation and initialization of the road guidance protocol with a view to performing the specific test. For example, a precondition could be the successful establishment of a connection between the P-ITS-S and the R-ITS-S.