
**Intelligent transport systems —
Hybrid communications — Access
technology support**

*Systèmes intelligents de transport — Communications hybrides —
Support à la technologie d'accès*

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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).

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 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 Technical Committee ISO/TC 204, *Intelligent transport systems*.

This third edition cancels and replaces the second edition (ISO 21218:2013), which has been technically revised. It also incorporates the Amendment ISO 21218:2013/Amd 1:2014.

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

- ASN.1 has been aligned with the latest developments in ISO/TC 204;
- provisioning for path and flow management has been added;
- normative annex related to conformance testing, that contains the PICS proforma, has been added;
- management commands have been added;
- minor technical and editorial improvements.

Introduction

This document is part of a family of International Standards for communications in Intelligent Transport Systems (ITS) based on the ITS station and communication architecture specified in ISO 21217.

Hybrid communications, i.e. simultaneous support of different communication protocol stacks with different access technologies, is essential for ITS.

This document supports

- hybrid communications as requested, e.g. for Cooperative ITS in Europe, and
- path and flow management, enabling abstraction of applications from communications details.

It determines general technical details related to the access layer of an ITS station specified in ISO 21217 and illustrated in [Figure 1](#) which are applicable to all or several access layer technologies. This includes especially:

- the IN-SAP offered to the ITS-S networking & transport layer for communication purposes;
- functions of the service primitives in the MI-SAP with reference to the generic services of the MI-SAP specified in ISO 24102-3.

The IN-SAP and the MI-SAP are presented in [Figure 1](#). The specification of the SI-SAP is not within the scope of the present version of this document.

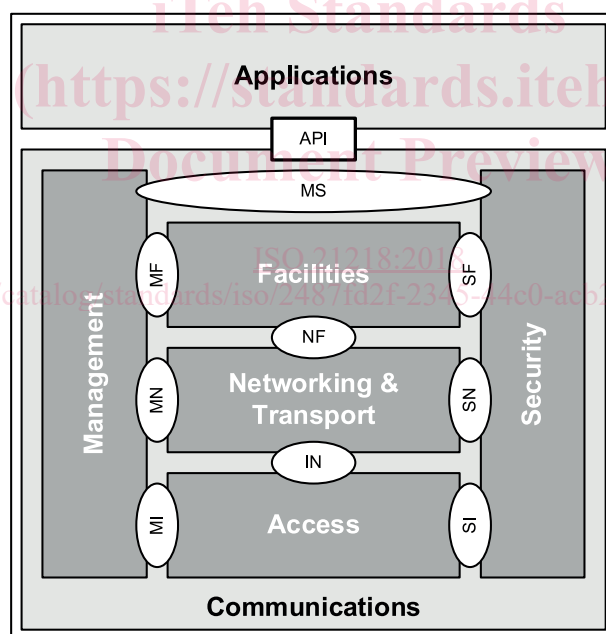


Figure 1 — ITS station reference architecture with named interfaces

This third edition cancels and replaces the second edition which has been revised and harmonized with newly developed C-ITS standards.

Intelligent transport systems — Hybrid communications — Access technology support

1 Scope

This document specifies general technical details related to the access layer of the ITS station reference architecture specified in ISO 21217 including:

- the service access point (SAP) of a communication interface (CI) as provided by the communication adaptation layer (CAL) for communication, named IN-SAP, and related service primitives and service primitive functions;
- the SAP provided by the CI management adaptation entity (MAE) for management of the communication interface, named MI-SAP, and related service primitives by reference to ISO 24102-3, and service primitive functions.

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/IEC 8825-2, *Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER) — Part 2*

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

ISO 24102-3, *Intelligent transport systems — ITS station management — Part 3: Service access points*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21217, ISO 24102-3 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

(V)CI identifier

unique identifier of a (virtual) CI

3.2

communication interface

CI

instantiation of a specific ITS-S access layer technology and protocol

EXAMPLE An example of an ITS-S access layer technology and protocol is IR specified in [9].