CEN/TC 278 PT1605

Webinar #1

Session 1

C-ITS standardization landscape

(13:10 – 13:25)

Hans-Joachim Fischer

TR 21186-1

This session gives an overview on

- ✓ TR 21186-1, *Cooperative intelligent transport systems (C-ITS) — Guidelines on the usage of standards — Part 1: Standardization landscape and releases*.

and

- ✓ a comprehensive Brochure.

A more detailed presentation will be provided in a subsequent webinar.

Topics of this session:

1. Standardization at SDOs (who is doing what)
2. Standardization areas and categories
3. Evaluation of selected standards
4. Example release
5. Methods for C-ITS service provisioning

Standardization at SDOs

Standard Development Organizations (SDOs) involved in global activities on Cooperative Intelligent Transport Systems (C-ITS) are:

1. ISO/TC 204 (International) – ITS in general
2. CEN/TC 278 (Europe) – ITS in general
3. ETSI TC ITS (Europe) – vehicle-centric C-ITS
4. IEEE 1609 WG (USA) – ITS for USA
5. SAE (USA) – ITS for USA

Standardization in general is the process of generating specifications by a recognized SDO, applying the principle of consensus finding prior to formal approval by voting according to the rules of the SDOs. This may be a somehow slow process compared to the development of "private" specifications.

Standards may be enabling, and thus require profiling by system specifications in order to ensure interoperability and portability of applications.

Goals of standardization

The goal is to enable or facilitate service provisioning of the respective standardization domain, i.e. C-ITS services provided by ITS applications for the ITS service domains. Particularly, the purpose of standardization is manifold, aiming on e.g.:

- ✓ technical interoperability at observable interfaces;
- ✓ portability of applications, enabling e.g. online download of applications from station management centres and execution of them on different technical platforms;
- ✓ syntactical and semantical interoperability in terms of data and messages;
- ✓ minimum (/maximum) functionality from the users point of view;
- ✓ minimum performance to ensure reliable execution of use-cases;
- ✓ facilitation of implementations;
- ✓ reliable protected operations in terms of privacy and (cyber) security;
- ✓ provision of commonly agreed terms and definitions, i.e. a common language;
- ✓ commonly agreed modes of operation, i.e. work methods;
- ✓ a global market;
- ✓ prevention of vendor-lock-in;
- ✓ evidence of compliance.

Service provisioning methods

- ✓ Services for information dissemination based on broadcast messages. Examples:
  - Cooperative awareness service.
  - Decentralized Environmental notification service.
  - Signal, phase and timing service.

  → Information received from other stations is shared amongst various applications, e.g. using a "Local Dynamic Map" or a subscribe mechanism.
- ✓ Services based on service announcement (localized communication).
  - ITS-AID [1)] to identify an available ITS service provided by ITS application.
  - Information services (all info contained in the service announcement).
  - Info on a broadcast service using different communications
  - Session-based services.
  - Voluntary and mandatory services.
- ✓ Services initiated by / requested from a central station (IPv6 networking).

Cybersecurity is based on IEEE 1609.2 certificates, both for signing of broadcast messages and for sessions (TS 21177). Similarly, access rights inside an ITS station unit are managed with certificates and "service specific permissions" (SSP).

[1)] ITS-AID and Provider Service Identifier (PSID) are synonyms, sharing a common number space.

Cooperation of SDOs

CEN/TC 278	ISO/TC 204
WG1: Electronic Fee Collection (EFC)	WG5: Fee and Toll Collection
WG4: Traffic and Traveller Information (TTI)	WG10: Traveller Information Systems
WG16: Cooperative ITS (C-ITS)	WG18: Cooperative Systems (C-ITS)
WG17: Mobility Integration	WG19: Mobility Integration
WG3: Public Transport	WG1: Architecture
WG7: ITS Spatial Data	WG3: ITS Database Technologies
WG8: Road Traffic Data	WG7: General Fleet Management and Commercial / Freight
WG15: eSafety (eCall)	WG8: Public Transport / Emergency
	WG9: Integrated Transport, Management and Control
	WG14: Vehicle / Roadway Warning and Control Systems
	WG16: ITS Communications (C-ITS, DSRC)
	WG17: Nomadic devices in ITS

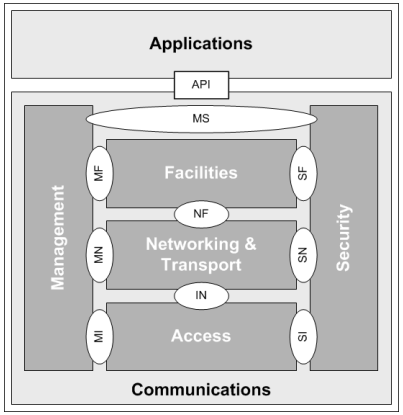
CEN and ISO are the major "advocates" for ITS, and partly cooperate under the "Vienna Agreement" to produce CEN/ISO deliverables.

Working Groups (WGs) are "dynamic" elements in a TC developing standards in a specific technical field.

Areas and categories

Standard deliverables can be classified as shown below using the concept of "standardization areas" and "standardization categories".

A-1: System level issues
A-2: Station architecture
A-3: ITS applications, messages, data
A-4: Station management
A-5: Security
A-6: Access layer technologies
A-7: Network and transport layer technologies
A-8: Facility layer technologies
A-9: Protocol stack / cross-layer



Most of the areas map to the entities and layers of the ITS station and communication architecture (on next slide)

C-1: Preparatory investigations
C-2: Functional requirements
C-3: Use cases
C-4: Data and messages
C-5: Protocols
C-6: Profiles
C-7: Testing
(C-8: Regulations)
(C-9: Registries)
C-10: Tutorials and guidelines
C-11: Reports
(C-12: Research)
C-13: Process

Evaluation of standards

Just one example how standards are presented in TR 21186-1:

Reference:	Latest edition:	Other editions:	SDO:	Status:	Standard area	Standard category
ISO 21217 [38]	2	None	ISO	Published	A-2	C-2

Description:
Describes the communications reference architecture of nodes called "ITS station units" designed for deployment in intelligent transport systems (ITS) communication networks.

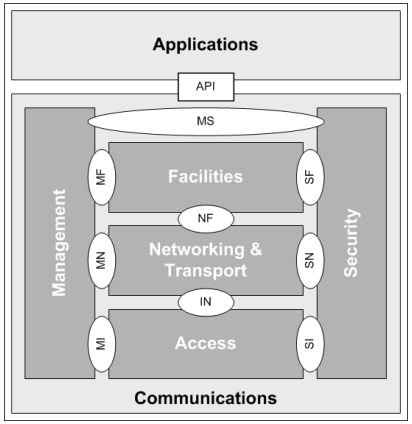
Describes the various communication modes for peer-to-peer communications over various networks between ITS communication nodes. These nodes can be ITS station units as described in ISO 21217 or any other reachable nodes.

Specifies the minimum set of normative requirements for a physical instantiation of the ITS station based on the principles of a bounded secured managed domain.

Comments:
Edition 2 (2014) includes EN 302 665 [78].

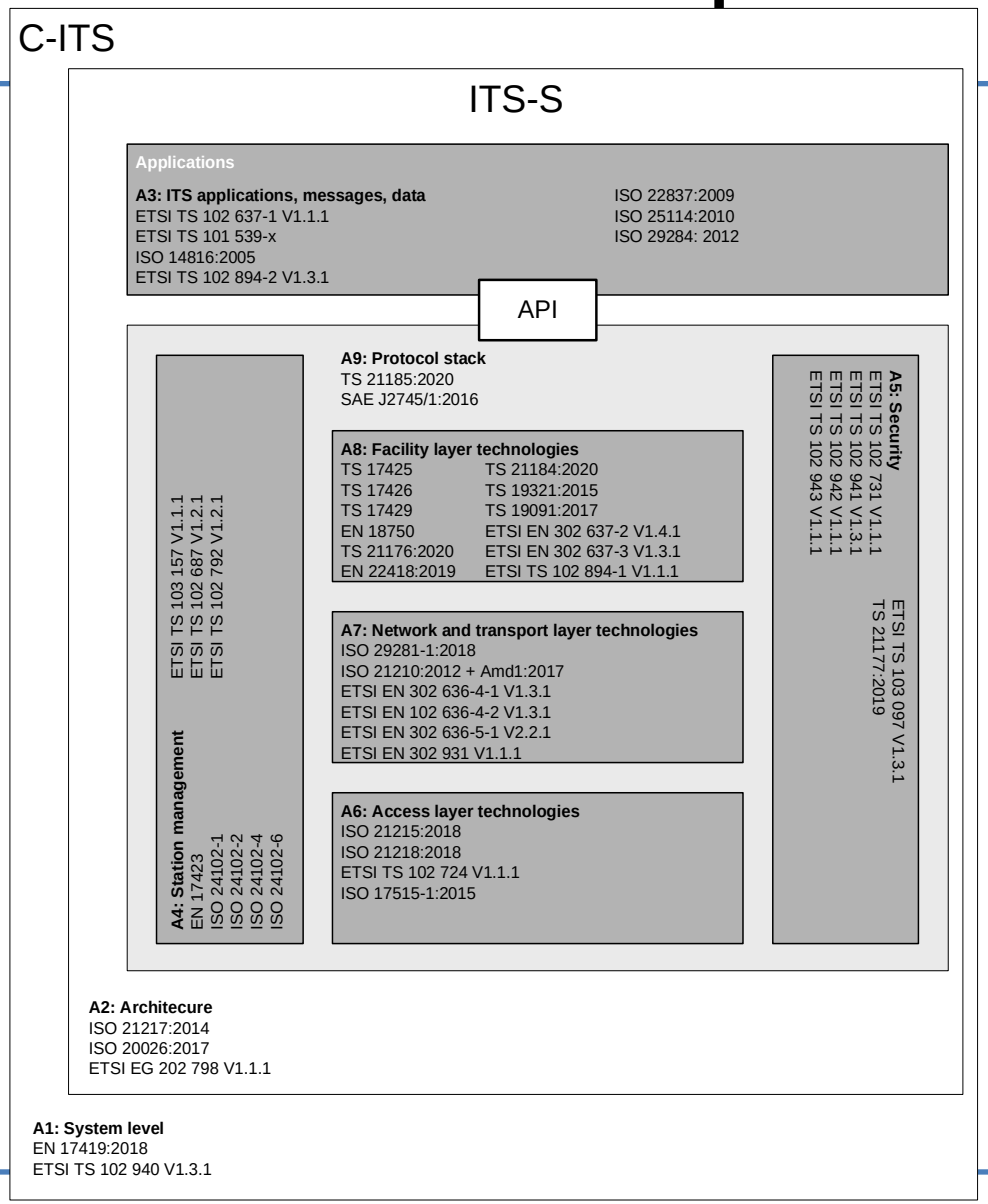
Under revision in 2020 to align with latest developments in C-ITS standardization..

Testing:
Conformance testing is not applicable.



The "famous" ITS station architecture from ISO 21217 / EN 302 665.

Example release



This "example release" covers the technology specified in the Technical Annex of the C-ITS Delegated Act from the European Commission, extended by suitable functionality for further C-ITS services currently investigated in field trials.

Interested in more details?

You may notify your interest for attendance at the subsequent webinar on TR 21186-1. Simply send an email to webinar@its-standards.eu presenting your interest. Once we know the date, you will be informed by email, and may then register for the webinar.
Or you may regularly check our web at http://its-standards.eu/PTs/PT1605/index.html.

The plan is to present the following details (in one or several webinars):

- Who is doing what, and what is about co-operations.
- Service provisioning methods
- Concept of releases

You must understand that we are not allowed to disclose the whole content of TR 21186-1 due to the business model of CEN and ISO. You may purchase TR 21186-1. However, there will be soon a Brochure available for free download, complementing TR 21186-1.

You may also hire the independent consultants from PT1605 for your C-ITS project.

Agenda webinar #1

- **Session 1**: 13:10 – 13:25
  C-ITS standardization landscape (TR 21186-1)
- **Session 2**: 13:25 – 14:00 – Thierry Ernst
  Hybrid communications for C-ITS service deployment
  (TR 21186-2, TS 17496)
- **Session 3**: 14:00 – 14:15)
  Generic position, velocity and time information for C-ITS services (TS 21176)
- **Break**: 14:15 – 14:30
- **Session 4**: 14:30 – 15:15
  Generic access to sensor and control data for C-ITS services (TS 21184)
- **Session 5**: 15:15 – 16:00
  Cybersecurity for C-ITS services (TS 21177, TR 21186-3)
- Questions and discussions: 16:00 – 17:00

Subsequent webinars will present in more detail these technologies.

Members of PT1605

http://its-standards.eu/PTs/PT1605/
https://www.itsstandards.eu/cits/shc

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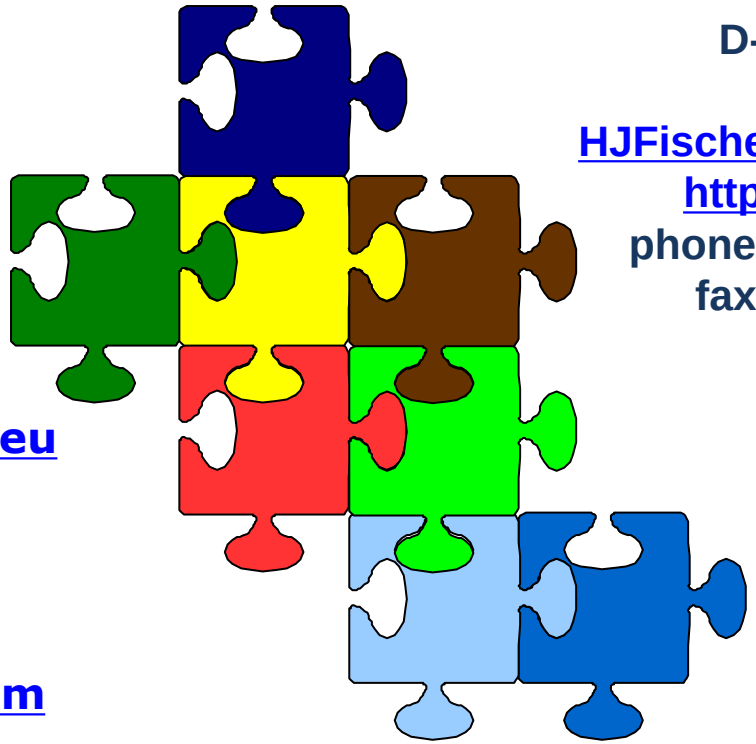

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