TECHNICAL REPORT

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Intelligent transport systems — Cooperative ITS —

Part 2: Guidelines for standards documents

Systèmes intelligents de transport — Coopérative ITS —

Partie 2: Lignes directrices pour les documents normatifs

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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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 204, *Intelligent transport systems*.

ISO/TR 17465 consists of the following parts, under the general title *Intelligent transport systems — Cooperative ITS*:

— *Part 1: Terms and definitions*

— *Part 2: Guidelines for standards documents*

— *Part 3: Release procedures for standards documents*

This includes an Annex that provides examples of the way that the guidance it contains should be applied to multi-part standards.

Introduction

As Cooperative-ITS involves many services provided using a large number of applications all communicating with each other and sharing data, it is very likely that some standards will become very large. This will be particularly true where a particular standard documents the requirements for a particular service or set of applications. It is thus likely that in some instances, multi-part standards will be required so that finding particular aspects of a standard can be made easier.

In order for users to quickly find the standard's information that they require in multi-part standards, this part of ISO/TR 17465 provides guidance on the common structure to be used for the parts in these multi-part standards. This will mean that a specific number is always used for each part, so that Architecture/Application will always be part 1, ITS-station Management will always be part 2, Security Set will always be part 3, etc. This part of ISO/TR 17465 also describes the relations between the different parts of these standards, e.g. the relationship between architectural elements and data sets.

The use by multi-part standards of the structure described in this Technical Report does not remove the obligation for those creating standards to involve other Technical Committees and/or Working Groups in the creation of a particular standard. Thus, for example, the part of the standard that describes the provisions for protection of privacy data and requirements for security of data and data transmissions should be created in explicit coordination with the CEN/ISO working group responsible for overall C-ITS Security and Privacy.

The need for the involvement of other Technical Committees and/or Working Groups will depend on the scope and contents of the multi-part standard. There might be need for this involvement to be identified in the New Work Item Proposal from which the multi-part standard is to be created and for a template to be created so that this is done in a consistent way for all multi-part standards.

This Technical Report is thus only for use with standards that relate to Cooperative-ITS. Its contents need not be applied to the ISO TC 204 and CEN TC 278 standards that do not specify information exchanges because they are not relevant to those standards (such as standards for stand-alone systems that acquire information only from sensors).

Intelligent transport systems — Cooperative ITS —

Part 2:
Guidelines for standards documents

1 Scope

This part of ISO/TR 17465 provides guidance for the structure that is to be used in multi-part ISO/CEN standards for particular services or applications to be included in Cooperative-ITS. The guidance in this part of ISO/TR 17465 may also be considered for use in multi-part standards for other ITS services and applications.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
Cooperative-ITS
C-ITS
subset of overall *ITS* (2.2) that communicates and shares information between *ITS stations* (2.5) and *ITS applications* (2.3) to give advice or facilitate actions with the objective of improving safety, sustainability, efficiency, and comfort beyond the scope of stand-alone systems

Note 1 to entry: For further details and the justification of this definition, see ISO/TR 17465-1.

2.2
intelligent transport system
ITS
transport systems in which advanced information, communication, sensor and control technologies, including the internet, are applied to increase safety, sustainability, efficiency, and comfort

2.3
ITS application
instantiation of an *ITS service* (2.4) that involves an association of two or more complementary *ITS-S application processes* (2.6)

Note 1 to entry: Fragments of an application may also reside in nodes that are not *ITS stations* (2.5).

[SOURCE: ISO 21217:2014, 3.9]

2.4
ITS service
functionality provided to users of *intelligent transport systems* (2.2) designed to increase safety, sustainability, efficiency, or comfort

[SOURCE: ISO 21217:2014, 3.11]

2.5
ITS station
ITS-S
functional entity comprised of an ITS-S facilities layer, ITS-S networking and transport layer, ITS-S access layer, ITS-S management entity, ITS-S security entity, and ITS-S applications entity providing *ITS services* (2.4)

Note 1 to entry: From an abstract point of view, the term "ITS station" refers to a set of functionalities. The term is often used to refer to an instantiation of these functionalities in a physical unit. Often, the appropriate interpretation is obvious from the context. The proper name of the physical instantiation of an ITS-S is *ITS station unit (ITS-SU)* (2.8).

[SOURCE: ISO 21217:2014, 3.12]

2.6
ITS-S application process
element in an *ITS station* (2.5) that performs information processing for a particular application, and uses *ITS-S service* (2.7) to transmit and receive information

[SOURCE: ISO 21217:2014, 3.19]

2.7
ITS-S service
communication functionality of an ITS-S that provides the capability to connect to other nodes

[SOURCE: ISO 21217:2014, 3.37]

2.8
ITS station unit
ITS-SU
implementation of an *ITS-S* (2.5)

[SOURCE: ISO 21217:2014, 3.38]

3 Symbols and abbreviated terms

API	application programme interface
ODP	Open Distributed Processing
OMA	Open Mobile Alliance
SDO	Standards Development Organizations
TC	Technical Committee, within a Standards Development Organization

4 Organization of multi-part Cooperative-ITS standards

4.1 Overview

It is envisaged that standards for ITS-S application processes in Cooperative-ITS will need to cover many aspects of their design and operation. This is because by its very nature, Cooperative-ITS will involve a number of actors, data from different sources, and information being sent to a variety or recipients, possibly needing to use more than one communications mechanism and a variety of interfaces. There will also be other standards relating to more generic issues such as roles and responsibilities that will be needed.

To aid the use of these standards, it will be advantageous if the standards that relate to a particular Cooperative-ITS service and/or application have a single number. Each standard would be made up of a number of parts, the number being dependent on the scope of the service and/or application. The parts

would each be a separate standards document, written using the ISO template. This type of approach is already quite common for large and complex standards in other areas of ITS, but as yet the parts do not always follow a common structure. Although this lack of a "common structure" enables a very flexible approach to be adopted for standards creation, it can actually make the task of finding the appropriate part of a standard very difficult for their users. This is because if a user is only interested in a particular aspect of a standard (e.g. interfaces, data used, architecture), all the parts have to be searched to find the one containing the aspect that is of interest. What would make the task of searching much easier is the application of a common structure for the numbering of the parts in each standard.

4.2 Structure of parts for Cooperative-ITS standards

4.2.1 Overview

The common structure of parts for the aspects that are to be included in multi-part standards for Cooperative-ITS services and/or applications is shown in Table 1.

Table 1 — Organization of the parts in a multi-part Cooperative-ITS standard

Content	Part number
Architecture/Application base standard	1
ITS station management	2
Privacy	3
Data	4
Interfaces	5
Network/protocols	6
Identifiers	7
Facilities/API's	8
Conformance testing	9
Security	10

The possible identities of the standards that relate to each part will be discussed in more detail in 4.3.

4.2.2 Use of annexes instead of parts

It should be noted that the need for separate parts will depend on the application being covered by the standard. For some applications, annexes may be created and added to part 1 (the base standard) instead of one or more of different parts shown above.

If the result of the use of annexes as just described is that none of the other parts are required, then there is no need to call the remaining single standard part 1. This means that only a single standards document will be produced.

4.2.3 Contents of part 1

The set of documents for each Cooperative-ITS standard will always have a part 1. This is the "base" standard and should provide all the basic information for the ITS application(s) that the standard covers. In addition, part 1 should also contain a short description of all the other parts in the standard. Each part will also, as a minimum, contain a table (see Table 1) so that if the user does not initially open part 1, they will realize that they are looking at a multi-part standard and can easily identify which other parts are relevant.

The following example shows the different lists of parts that would appear in part 1 of a multi-part Cooperative-ITS standard. It has been assumed that the Cooperative-ITS application to which this

particular multi-part standard relates to does not have a scope that necessitates the use of the full range of parts shown in Table 1.

Part 1: Architecture/application base standard	this document
Part 2: ITS station management	ISO xxxxx–2
Part 3: Privacy	ISO xxxxx–3
Part 4: Data	not relevant
Part 5: Interfaces	ISO xxxxx–5
Part 6: Network/protocols	ISO xxxxx–6
Part 7: Identifiers	not relevant
Part 8: Facilities/API's	ISO xxxxx–8
Part 9: Conformance testing	ISO xxxxx–9
Part 10: Security	ISO xxxxx–10

NOTE The value "ISO xxxxx" represents a theoretical C-ITS standard that can be created.

4.2.4 Contents of part 2 to part 10

What needs to be defined for each of the other parts of the standard identified in Table 1 (part 2 to part 10) will be the subject of separate standards that are relevant to each part. Two examples of these standards are ITS Station Management, which will be defined in ISO 17423, and the identifier set which will be defined in ISO 17419.

The following example shows the different lists of parts that would appear in part 8 of a multi-part Cooperative-ITS standard. Again, it has been assumed that the Cooperative-ITS application to which this particular multi-part standard relates to does not have a scope that necessitates the use of the full range of parts shown in Table 1.

Part 1: Architecture/application base standard	ISO xxxxx–1
Part 2: ITS station management	ISO xxxxx–2
Part 3: Privacy	ISO xxxxx–3
Part 4: Data	not relevant
Part 5: Interfaces	ISO xxxxx–5
Part 6: Network/protocols	ISO xxxxx–6
Part 7: Identifiers	not relevant
Part 8: Facilities/API's	this document
Part 9: Conformance testing	ISO xxxxx–9
Part 10: Security	ISO xxxxx–10

NOTE The value "ISO xxxxx" represents a theoretical C-ITS standard that can be created.

4.2.5 Further illustration of arrangement of parts

Three further illustrations of how the Parts in multi-part Cooperative-ITS standards would be numbered using the principles set out in Table 1 is shown in Table 2.

Table 2 — Part numbers for a set of different standards

	ISO xxxxx	ISO yyyyy	ISO zzzzz
Aspect	**Part numbers**	**Part numbers**	**Part numbers**
Architecture/application base standard	ISO xxxxx-1	ISO yyyyy-1	ISO zzzzz-1
ITS station management	ISO xxxxx–2	ISO yyyyy–2	ISO zzzzz–2
Privacy	ISO xxxxx–3	ISO yyyyy–3	not relevant
Data	not relevant	ISO yyyyy–4	not relevant
NOTE The values "ISO xxxxx", "ISO yyyyy" and "ISO zzzzz" represent theoretical C-ITS standards that may be created.			

Table 2 *(continued)*

	ISO xxxxx	ISO yyyyy	ISO zzzzz
Aspect	**Part numbers**	**Part numbers**	**Part numbers**
Interfaces	ISO xxxxx–5	not relevant	ISO zzzzz–5
Network/protocols	ISO xxxxx–6	not relevant	ISO zzzzz–6
Identifiers	not relevant	ISO yyyyy–7	ISO zzzzz–7
Facilities/API's	ISO xxxxx–8	not relevant	ISO zzzzz–8
Conformance testing	ISO xxxxx–9	ISO yyyyy–9	ISO zzzzz–9
Security	ISO xxxxx–10	ISO yyyyy–10	ISO zzzzz–10
NOTE The values "ISO xxxxx", "ISO yyyyy" and "ISO zzzzz" represent theoretical C-ITS standards that may be created.			

Again, it should be noted that the need for all of the separate parts shown above will depend on the application being covered by the standard. For some applications, annexes may be created and added to part 1 (the base standard) instead of one or more of different parts shown above. As noted in a previous clause, if a consequence of the use of annexes is that none of the other parts are required, then there is no need to call the remaining single standard part 1. This means that only a single standards document will be produced.

4.2.6 What if a particular part is very small?

If the content of a part happens to be very small, i.e. less than three pages, then its contents should be included as annex to part 1. This means that the contents of Table 1 and Table 2 would not reference a particular part but would point to the relevant annex in part 1, e.g. "See ISO xxxxx–1, Annex A". This will avoid the need to obtain a separate standard for less than three pages of content.

4.2.7 What happens if a particular part is not needed?

If a part is not needed because the aspect that it should cover is not relevant to a particular Cooperative-ITS application, then it should be omitted and shown as being "not relevant" in the list of parts. In this case however, the numbering of the parts would always remain the same. This means that part 8 will always be the "Facilities/API Set" in every multi-part standard for Cooperative-ITS applications even if some or all of part 3 to part 7 do not exist.

4.2.8 Need for coordination

The use of multi-part standards of the structure described in the clauses of this Technical Report, does not remove the obligation for those creating standards to involve other Technical Committees and/or Working Groups in the appropriate aspects of the creation of a particular standard. Thus, for example, part 3 and part 11 of the multi-part standard that describe the provisions for protection of privacy data and requirements for security of data and data transmissions should be created in explicit coordination with the CEN/ISO working group responsible for overall C-ITS security and privacy.

The need for the involvement of other Technical Committees and/or Working Groups will depend on the scope and contents of the application(s) for which the multi-part standard is being created. It may in fact be beneficial to identify the need for and scope of this involvement to be identified in the New Work Item Proposal that describes the need for the creation of a multi-part standard. As an aid to this, a modified version of the existing New Work Item Proposals template could be created so that the identification is done in a consistent way for all multi-part standards