INTERNATIONAL STANDARD

**ISO 15638-1**

First edition
2012-11-15

# Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) —

## Part 1: Framework and architecture

*Systèmes intelligents de transport — Cadre pour applications télématiques collaboratives pour véhicules de fret commercial réglementé (TARV) —*

*Partie 1: Cadre et architecture*



Reference number
ISO 15638-1:2012(E)



ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

 

# Contents

Page

 

# 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15638-1 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

ISO 15638 consists of the following parts, under the general title *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV)*:

— *Part 1: Framework and architecture*

The following parts are to be published:

— *Part 2: Common platform parameters using CALM*

— *Part 3: Operating requirements, 'Approval Authority' procedures, and enforcement provisions for the providers of regulated services*

— *Part 4: System security requirements*

— *Part 5: Generic vehicle information*

— *Part 6: Regulated applications*

— *Part 7: Other applications*

Subsequent parts of ISO 15638 will provide definitions for specific TARV application services.

# Introduction

Many *ITS* technologies have been embraced by commercial transport operators and freight owners, in the areas of fleet management, safety and security. Telematics applications have also been developed for governmental use. Such regulatory services in use or being considered vary from country to country, but include electronic on-board recorders, vehicle charging, digital tachograph, on-board mass monitoring, vehicle access monitoring, hazardous goods tracking and e-call. Additional applications with a regulatory impact being developed include, fatigue management, speed monitoring and heavy vehicle charging based on mass, location, distance and time.

In such an emerging environment of regulatory and *commercial applications (4.15),* it is timely to consider an overall *architecture (4.7)* (business and functional) that could support these functions from a single platform within a commercial freight vehicle that operates within such regulations. International standards will allow for a speedy development and *specification (4.40)* of new applications that build upon the functionality of a generic *specification* platform. A suite of standards deliverables is required to describe and define the *framework (4.20)* and requirements so that the on-board equipment and *back office (4.9)* systems can be commercially designed in an open market to meet common requirements of *jurisdictions (4.24)*.

This suite of standards addresses and defines the *framework (4.20)* for a range of cooperative telematics applications for *regulated commercial freight vehicles (4.37)* (such as access monitoring, driver fatigue management, speed monitoring, on-board mass monitoring and charging). The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to *regulated commercial freight vehicles (4.37),* using an on-board *ITS* platform. The *framework (4.20)* is based on a (multiple) *service provider (4.39)* oriented approach provisions for the approval and auditing of *service providers (4.40)*.

This suite of standards deliverables:

— provides the basis for future development of cooperative telematics applications for *regulated commercial freight vehicles (4.37).* Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications (4.41)* will use existing standards (such as *CALM*) wherever practicable.

— allows for a powerful platform for highly cost-effective delivery of a range of telematics applications for *regulated commercial freight vehicles (4.37).*

— presents a business *architecture (4.7)* based on a (multiple) *service provider (4.39)* oriented approach.

— addresses legal and regulatory aspects for the approval and auditing of *service providers (4.40)*.

This suite of standards deliverables is timely as many governments (Europe, North America, Asia and Australia/New Zealand) are considering the use of telematics for a range of regulatory purposes. Ensuring that a single in-vehicle platform can deliver a range of services to both government and industry through open standards and competitive markets is a strategic objective.

This part of the ISO 15638 provides the overall *framework (4.20)* description and *architecture (4.7)* for *TARV*, including the detailed *architecture (4.7) specification (4.40)* of the facilities layer.

NOTE 1 The definition of what comprises a ‘regulated’ vehicle is regarded as an issue for National decision, and may vary from country to country. This suite of standards deliverables does not impose any requirements on nations in respect of how they define a regulated commercial freight vehicle.

NOTE 2 The definition of what comprises a ‘regulated’ service is regarded as an issue for National decision, and may vary from country to country. This suite of standards deliverables does not impose any requirements on nations in respect



 

of which services for regulated commercial freight vehicles countries will require, or support as an option, but provides standardised sets of requirements descriptions for identified services to enable consistent and cost efficient implementations where implemented.

NOTE 3 *Cooperative ITS (4.14)* applications, in this context, are defined as the use of an in-vehicle *ITS* platform to meet both commercial and regulatory needs from a (functionally) single on-board platform.

# Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) —

## Part 1: Framework and architecture



## 1 Scope

This part of ISO 15638 provides the following for cooperative telematics applications for *regulated commercial freight vehicles (4.37)*:

a) A *framework (4.20)* for the provision of cooperative telematics application services for regulated commercial freight vehicles;

b) A description of the concept of operation, regulatory aspects and options and the role models;

c) A conceptual *architecture (4.7)* using an on-board platform and wireless communications to a *regulator (4.25)* or his agent;

d) References for the key documents on which the *architecture (4.7)* is based;

e) Details of the *architecture (4.7)* of the facilities layer;

f) A taxonomy of the organisation of generic procedures;

g) Common terminology for the ISO 15638 family of standards.

This part of ISO 15638 is based on a (multiple) *service provider (4.39)* oriented approach.

ISO 15638 has been developed for use in the context of regulated commercial freight vehicles. There is nothing however to prevent a jurisdiction extending or adapting the scope to include other types of regulated vehicles, as it deems appropriate.

NOTE The specific 'approval' procedures for specific application services are a matter for the jurisdiction (4.24) and are outside the scope of this (or any) part of 15638. However approval authorities (4.6) are encouraged to use the guidance of ISO 17000 and ISO/IEC 17065:2012 when developing and implementing such procedures.

## 2 Conformance

This part of ISO 15638 defines a general architecture (4.7), and has no specific conformance tests defined herein. Some aspects defined within may have conformance tests defined in other parts of ISO 15638.

Conformance declarations for the various parts of a CALM-compliant system shall be based on the relevant

CALM-related international standards.

Conformance to any other international standard or specification (4.40) referenced in this part of ISO 15638 shall be ascertained according to the requirements of the referenced deliverable.

Conformance to this part of ISO 15638 is therefore a matter of self declaration of compliance, or by submission to a test house to ascertain that the provisions of the clauses of this part of ISO 15638 have been adhered to.

## 3 Normative references

The following referenced documents are indispensable for the application 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 12859, *Intelligent transport systems — System architecture — Privacy aspects in ITS standards and systems*

ISO 15638-2 [1] , *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Common platform parameters using CALM*

ISO 15638-3 [2] , *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Operating requirements, 'Approval Authority' procedures, and enforcement provisions for the providers of regulated services*

ISO 15638-5 [3] , *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Generic vehicle information*

ISO/TS 15638-6 [4] , *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Regulated applications*

ISO 15638-7 [5] , *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Other applications*

ISO 21210, *Intelligent transport systems — Communications access for land mobiles (CALM) — IPv6 Networking*

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

ISO 21218, *Intelligent transport systems — Communications access for land mobiles (CALM) — Medium service access points*

ISO 24102, *Intelligent transport systems — Communications access for land mobiles (CALM) — Management*

ETSI TS 102 665, Digital Enhanced Cordless Telecommunications (DECT); DECT access to IP networks

NOTE 1 Subsequent parts of ISO 15638 will provide definitions for specific TARV application services.

NOTE 2 See Bibliography for references to other parts of ISO 15638 which are in various stages of ballot, but not yet published at the date of publication of this International Standard.

[1] To be published.

[2] To be published.

[3] To be published.

[4] To be published. Full International Standard approval procedures are in process.

[5] To be published.