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

Part 7: Other applications

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

Partie 7: Autres applications

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Foreword

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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. www.iso.org/directives

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The committee responsible for this document is 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*

— *Part 2: Common platform parameters using CALM*

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

— *Part 5:Generic vehicle information*

— *Part 6: Regulated applications* [Technical Specification]

— *Part 7: Other applications*

— *Part 8: Vehicle access monitoring (VAM)* [Technical Specification]

— *Part 9: Remote electronic tachograph monitoring (RTM)* [Technical Specification]

— *Part 10: Emergency messaging system/eCall (EMS)* [Technical Specification]

— *Part 11: Driver work records (work and rest hours compliance) (DWR)* [Technical Specification]

— *Part 12: Vehicle mass monitoring (VMM)* [Technical Specification]

— *Part 14: Vehicle access control (VAC)* [Technical Specification]

— *Part 15: Vehicle location monitoring (VLM)* [Technical Specification]

— *Part 16: Vehicle speed monitoring (VSM)* [Technical Specification]

— *Part 17: Consignment and location monitoring (CLM)* [Technical Specification]

— *Part 18: ADR (Dangerous Goods) transport monitoring (ADR)* [Technical Specification]

— *Part 19: Vehicle parking facilities (VPF)* [Technical Specification]

The following parts are under preparation:

— *Part 4: System security requirements* [Technical Specification]

— *Part 13: Mass Penalties and Levies (VMC)*

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 route-access and toll charging, digital tachographs, 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, it is timely to consider an overall architecture (business and functional) that could support these functions from a single platform within a commercial freight vehicle that operate within such regulations. International Standards will allow for a speedy development and specification 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 and requirements so that the on board equipment and back office systems can be commercially designed in an open market to meet common requirements of *jurisdictions [4.9]*.

This suite of standards addresses and defines the framework for a range of cooperative telematics applications for regulated commercial freights (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 freights, using an on-board ITS platform. The framework is based on a (multiple) *service provider [4.13]* oriented approach provisions for the approval and auditing of *service providers [4.12]*.

This suite of standards deliverables will:

- provide the basis for future development of cooperative telematics applications for regulated commercial freights. Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the specifications will use existing standards (such as *CALM*) wherever practicable.
- allow for a powerful platform for highly cost-effective delivery of a range of telematics applications for regulated commercial freights.
- a business architecture based on a (multiple) *service provider [4.13]* oriented approach
- address legal and regulatory aspects for the approval and auditing of *service providers [4.12]*.

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 family of standards deliverables provides specifications for the generic requirements for and specifications for candidate commercial (unregulated) applications that may also use the *TARV* platform (in addition to any regulated services).

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 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.

NOTE 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 freights countries will require, or support as an option, but will provide standardised sets of requirements descriptions for identified services to enable consistent and cost efficient implementations where implemented.

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

Part 7:
Other applications

1 Scope

This part of ISO 15638 provides business framework based on a (multiple) *service provider [4.13]* oriented approach for the provision of additional unregulated services to regulated commercial freight vehicles using a common on-board telematics platform, including:

a) Definition of the service that a 'Service Provider' [4.13] has to provide, including a given service level (the service definition comprises service elements such as "retrieve data from *IVS*", "map data to a map with access conditions", etc.)

b) Means to realise the service

c) Application data, naming content and quality that an *IVS* has to deliver

d) Development of (any) rules for the approval and auditing of *service providers [4.12]* for non-regulated service provision.

NOTE The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from country to country. This part of ISO 15638 does not impose any requirements on nations in respect of which services for regulated commercial freights countries will require, or support as an option, but provides standardized sets of requirement descriptions for identified services to enable consistent and cost efficient implementations where *Instantiated [4.8]*.

This part of ISO 15638 defines the requirements for the scope and framework for all *TARV* commercial (unregulated) applications. These applications may then be simply *instantiated [4.8]* as commercial applications conforming to the requirements of this part of ISO 15638, in which case no further standardization is required, so long as conformance can be demonstrated, and service offerings may vary from *service provider [4.13]* to *service provider.* Where it is decided that there is benefit in standardized *instantiation [4.8]* to a common format for a particular service, a separate standards deliverable will be required, but may be developed by the consensus of experts in that area of application by reference to this part of ISO 15638 in respect of the *TARV* technical aspects.

ISO 15638 has been developed for use in the context of regulated commercial freight vehicles (hereinafter referred to as 'regulated 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.

2 Conformance

This part of ISO 15638 defines requirements for additional regulated services, or non-regulated commercial services using the *TARV* communications platform within the *TARV* context, 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 that are normatively referenced in this part of ISO 15638.

Conformance to any other International Standard or specification 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 15638-1 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 1: Framework and architecture*

ISO 15638-2 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 2: Common platform parameters using CALM*

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

ISO/TS15638-4 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 4: System security requirements*[1]

ISO 15638-5 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 5: Generic vehicle information*

ISO/TS 15638-6 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 6: Regulated applications*

ISO/TS 15638-8 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 8: Vehicle access monitoring (VAM)*

ISO/TS 15638-9 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 9: Remote electronic tachograph monitoring (RTM)*

[1] Under preparation.

ISO/TS 15638-10 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 10: Emergency messaging system/eCall (EMS)*

ISO/TS 15638-11 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 11: Driver work records (work and rest hours compliance) (DWR)*

ISO/TS 15638-12 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 12: Vehicle mass monitoring (VMM)*

ISO/TS 15638-14 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 14: Vehicle access control (VAC)*

ISO/TS 15638-15 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 15: Vehicle location monitoring (VLM)*

ISO/TS 15638-16 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 16: Vehicle speed monitoring (VSM)*

ISO/TS 15638-17 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 17: Consignment and location monitoring (CLM)*

ISO/TS 15638-18 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 18: ADR (Dangerous Goods) transport monitoring (ADR)*

ISO/TS 15638-19 *Intelligent transport systems — Framework for cooperative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 19: Vehicle parking facilities (VPF)*

4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15638-1 and the following apply.

4.1
application service
service provided by a *service provider* [4.13] accessing data from the *IVS* of a regulated commercial freight via a wireless communications network

4.2
application service provider
service provider [4.13] who provides an application service [4.1]

4.3
authentication
function intended to establish and verify a claimed identity

4.4
basic vehicle data
data that shall be maintained/provided by all *IVS*

4.5
approval authority (digital)
organization which issues digital certificates for use by other parties, specifically in the context of communications security

4.6
approval authority (regulatory)
organization (usually independent) which conducts approval and ongoing audit for '*service providers* [4.12]

4.7
core application data
CoreData
basic vehicle data [4.4] plus any additional data required to provide an implemented *regulated application service* [4.11]

4.8
instantiated/instantiation
represented by an actual example/instance

4.9
jurisdiction
government, road or traffic authority which owns the Regulatory Applications

EXAMPLE Country, state, city council, road authority, government department (customs, treasury, transport), etc.

4.10
prime service provider
service provider [4.13] who is the first contractor to provide regulated *application services* [4.1] to the regulated commercial freight vehicle, or a nominated successor on termination of that initial contract

NOTE The prime service provider is also responsible to maintain the installed IVS; if the IVS was not installed during the manufacture of the vehicle the prime service provider is also responsible for installing and commissioning the IVS.

4.11
regulated application
approval arrangement utilized by *jurisdictions* [4.9] for granting certain categories of commercial vehicles rights to operate in regulated circumstances subject to certain conditions

NOTE Each *jurisdiction* [4.9] may use their own terminology including, but not limited to, permit, application, scheme, concession, exemption, gazettal and notice.

4.12
regulated application service
TARV *application service* [4.1] that is mandated by a regulation imposed by a *jurisdiction* [4.9], or is an option supported by a *jurisdiction*

4.13
service provider
party which is approved by an *approval authority (regulatory)* [4.6] as suitable to provide regulated or commercial ITS *application services* [4.1]

4.14
user
individual or party that enrols in and operates within a regulated or commercial/civic *application service* [4.1]

EXAMPLE Driver, transport operator, freight owner, etc.

5 Symbols (and abbreviated terms)

App
application

CALM
communications access for land mobiles

C-ITS
co-operative vehicle systems/co-operative ITS systems)

DRD
driver records device

IVS
In-vehicle system

LDT
local data tree

RFID
radio frequency identification device

ROAM
regime for open application management

TARV
telematics applications for regulated commercial freights

6 General overview and framework

ISO/TS 15638-1 provided a framework and architecture for *TARV*. It provided a general description of the roles of the actors in *TARV* and their relationships.

To understand clearly the *TARV* framework the reader is referred to ISO/TS 15638-1.

Figure 1 shows the role model conceptual architecture showing the key actors and their relationships.