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

Part 9: Remote electronic tachograph monitoring (RTM)

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

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Partie 9: Monitorage du tachygraphe électronique à distance (RTM)

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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)*:

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— *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]

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— *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' information for jurisdictional control and enforcement*

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Introduction

Many ITS technologies have been embraced by commercial transport *operators (4.30)* and freight owners, in the areas of fleet management, safety and security. *Telematics (4.41)* applications have also been developed for governmental use. Such regulatory services in use or being considered vary from *jurisdiction (4.25)* to *jurisdiction*, but include electronic on-board recorders, digital *tachograph (4.40)*, on-board *mass (4.28)* monitoring, 'mass' data for regulatory control and management *(4.29)*, vehicle *access (4.1) methods*, *hazardous goods (4.21)* tracking and e-call *(4.17)*. Additional applications with a regulatory impact being developed include fatigue management, speed monitoring and heavy vehicle penalties imposed based on location, distance and time.

In such an emerging environment of regulatory and *commercial applications (4.12)*, it is timely to consider an overall *architecture (4.8)* (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 (4.39)* of new applications that build upon the functionality of a generic specification platform. A suite of standards is required to describe and define the *framework (4.20)* 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 (4.25)*.

This suite of standards addresses and defines the *framework (4.20)* for a range of cooperative *telematics (4.41)* applications for *regulated vehicles (4.34)* [such as access methods, driver fatigue management, speed monitoring, on-board *mass (4.28)* monitoring, penalties and levies]. The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to *regulated vehicles (4.34)*, using an on-board ITS platform. The *framework* is based on a (multiple) *service provider (4.37)* oriented approach with provisions for the *approval (4.5)* and *auditing (4.9)* of *service providers*.

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This suite of standards will:

- provide the basis for future development of cooperative *telematics (4.41)* applications for *regulated vehicles (4.34)*. Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications (4.39)* 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 vehicles (4.34);*
- a business *architecture (4.8)* based on a (multiple) *service provider (4.37)* oriented approach;
- address legal and regulatory aspects for the *approval (4.5)* and *auditing (4.9)* of *service providers.*

This suite of standards deliverables is timely as many governments (Europe, North America, Asia and Australia/New Zealand) are considering the use of *telematics (4.41)* 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 *specifications (4.39)* for remote tachograph monitoring.

NOTE 1 The definition of what comprises a 'regulated' vehicle is regarded as an issue for national decision, and may vary from *jurisdiction (4.25)* to *jurisdiction*. This suite of standards does not impose any requirements on nations in respect of how they define a *regulated vehicle (4.34)*.

NOTE 2 The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction (4.25)* to *jurisdiction*. This suite of standards does not impose any requirements on nations in respect of which services for *regulated vehicle*s *(4.34) jurisdictions* 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.

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

Part 9:
Remote electronic tachograph monitoring (RTM)

1 Scope

This part of ISO 15638 addresses the provision of *'Remote Tachograph Monitoring'* and specifies the form and content of such data required to support such systems, and access methods to that data.

This part of ISO 15638 provides *specifications (4.39)* for common communications and data exchange aspects of the *application service (4.2)* remote tachograph monitoring that a *regulator (4.35)* may elect to require or support as an option, including:

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a) high level definition of the service that a *service provider (4.37)* has to provide [the service definition describes common service elements, but does not define the detail of how such an *application service (4.2)* is instantiated, nor the acceptable value ranges of the data concepts defined];

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b) means to realise the service;

c) application data, naming content and quality that an *IVS (4.22)* has to deliver.

The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction (4.25)* to *jurisdiction*. This part of ISO 15638 does not impose any requirements on nations in respect of which services for *regulated vehicles (4.34)* *jurisdictions* will require, or support as an option, but provides standardized sets of requirements descriptions for identified services to enable consistent and cost efficient implementations where instantiated.

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

Requirements to demonstrate conformance to any of the general provisions or specific *application services (4.2)* described in this part of ISO 15638 shall be within the regulations imposed by the *jurisdiction (4.25)* where they are instantiated. Conformance requirements to meet the provisions of this part of ISO 15638 are therefore deemed to be under the control of, and to the specification of, the *jurisdiction* where the *application service*(s) is/are instantiated.

The protocols defined in this part of ISO 15638 have been independently tested. Annex A (Informative) provides results of these tests. In any conformance assurance process undertaken by candidate systems, where appropriate the results may be used as part of its process of conformance compliance.

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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 collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 1: Framework and architecture*

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

ISO 15638-3 *Intelligent transport systems — Framework for collaborative 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 15638-4 *Intelligent transport systems — Framework for collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) — Part 4: System security requirements*[1]

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

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

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4 Terms and definitions

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

4.1
app
small (usually) *Java™ (4.24)* applets, organized as software bundles, that support *application services (4.2)* by keeping the *data pantry (4.14)* provisioned with up-to-date data

4.2
application service
service provided by a *service provider (4.37)* enabled by accessing data from the *IVS (4.22)* of a *regulated vehicle (4.34)* via a wireless communications network

4.3
application service provider
ASP
party that provides an *application service (4.2)*

4.4
app library
separately secure area of memory in *IVS (4.22)* where apps are stored [with different access controls to *data pantry (4.14)*]

1 Under preparation.

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4.5
approval
formal affirmation that an applicant has satisfied all the requirements for appointment as an *application service provider (4.3)* or that an application service delivers the required service levels

4.6
approval agreement
written agreement made between an *approval authority (regulatory) (4.7)* and a *service provider (4.37)*

NOTE An *approval authority (regulatory) (4.7)* approval agreement recognizes the fact that a *service provider (4.37),* having satisfied the *approval authority's* requirements for appointment as a *service provider,* is appointed in that capacity, and sets out the legal obligations of the parties with respect to the on-going role of the *service provider.*

4.7
approval authority (regulatory)
organization (usually independent) which conducts *approval (4.5)* and ongoing *audit (4.9)* for *service providers (4.37)* on behalf of a *jurisdiction (4.25)*

4.8
architecture
formalized description of the design of the structure of *TARV* and its *framework (4.20)*

4.9
audit/auditing
review of a party's capacity to meet, or continue to meet, the initial and ongoing *approval agreements (4.6)* as a *service provider (4.37)*

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4.10
basic vehicle data
data that shall be maintained/provided by all *IVS (4.22)*, regardless of *jurisdiction (4.25)*

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4.11
CALM communications access for land mobiles
layered solution that enables continuous or quasi continuous communications between vehicles and the infrastructure, or between vehicles, using such (multiple) wireless telecommunications media that are available in any particular location, and which have the ability to migrate to a different available media where required and where media selection is at the discretion of *user (4.42)* determined parameters by using a suite of standards based on ISO 21217 (*CALM* architecture) and ISO 21210 (*CALM* networking) that provide a common platform for a number of standardized media using *ITS-stations (4.23)* to provide wireless support for applications, such that the application is independent of any particular wireless medium

4.12
commercial application(s)
ITS applications in *regulated vehicles (4.34)* for commercial (non-regulated) purposes

EXAMPLE Asset tracking, vehicle and engine monitoring, cargo security, driver management, etc.

4.13
core data
basic vehicle data (4.10) plus any additional data required to provide an implemented *regulated application service (4.33)*

4.14
data pantry
secure area of memory in *IVS (4.22)* where data values are stored [with different access controls to *app library (4.4)*]

4.15
driver
person driving the *regulated vehicle* at any specific point in time

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4.16
driver work records
DWR
collection, collation, and transfer of *driver (4.15)* work and rest hours data from an *in-vehicle system (4.22)* to an *application service provider (4.3)*

4.17
eCall
specialized instantiation of an *EMS (4.18)* that provides incident messaging and communication with a public service assistance point via priority wireless telephone communications using its emergency call capabilities

4.18
emergency message system
EMS
collection, collation, and transfer of emergency message data from an *in-vehicle system (4.22)* to an *application service provider (4.3)*

4.19
facilities
layer that sits on top of the communication stack and helps to provide data interoperability and reuse, and to manage applications and enable dynamic real time loading of new applications

4.20
framework
particular set of beliefs, ideas referred to in order to describe a scenario or solve a problem

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4.21
hazardous goods
HAZMAT
see *dangerous goods (4.32)*/*Accord européen relatif au transport international des marchandises Dangereuses par Route (ADR) (4.6)*

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4.22
in-vehicle system
IVS
ITS-station (4.23) and connected equipment on board a vehicle

4.23
ITS-station
ITS-s
entity in a communication network, comprised of application, *facilities (4.19)*, networking and access layer components specified in ISO 21217 that operate within a bounded secure management domain

4.24
Java™
object oriented open source operating language developed by SUN systems

4.25
jurisdiction
government, road or traffic authority which owns the r*egulatory applications (4.32)*

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

4.26
jurisdiction regulator
agent of the *jurisdiction (4.25)* appointed to regulate and manage *TARV* within the domain of the *jurisdiction*

NOTE This may or may not be the approval authority (regulatory) (4.7).

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4.27
local data tree
LDT
frequently updated data concept stored in the on-board *data pantry (4.14)* containing a collection of data values deemed essential for either a) *TARV regulated application service (4.33)*, or b) *cooperative intelligent transport systems (4.30)*

4.28
mass
mass of a given heavy vehicle as measured by equipment affixed to the *regulated vehicle (4.34)*

4.29
'mass' data for regulatory control and management
MRC
collection, collation, and transfer of vehicle *mass (4.28)* data from an *in-vehicle system (4.22)* to an *application service provider (4.3)* to enable data provision to *jurisdictions (4.25)* for the control and management of equipped vehicles based on the *mass* of the *regulated vehicle (4.34),* or use of such data to enable compliance with the provisions of regulations

4.30
operator
fleet manager of a *regulated vehicle (4.34)*

4.31
prime service provider
service provider (4.37) who is the first contractor to provide *regulated application services (4.33)* to the *regulated vehicle (4.34),* or a nominated successor on termination of that initial contract

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NOTE The *prime service provider (4.31)* is also responsible for maintaining the installed *IVS (4.22)*; if the *IVS* was not installed during the manufacture of the vehicle, the *prime service provider (4.31)* is also responsible for installing and commissioning the *IVS (4.22).*

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4.32
regulated/regulatory application
application arrangement using TARV utilized by *jurisdictions (4.25)* for granting certain categories of commercial vehicles rights to operate in regulated circumstances subject to certain conditions, or indeed to permit a vehicle to operate within the *jurisdiction*

NOTE This may be mandatory or voluntary at the discretion of the *jurisdiction.*

4.33
regulated application service
TARV application service to meet the requirements of a regulated application that is mandated by a regulation imposed by a *jurisdiction (4.25),* or is an option supported by a *jurisdiction*

4.34
regulated vehicle
vehicle that is subject to regulations determined by the *jurisdiction (4.25)* as to its use on the road system of the *jurisdiction* in regulated circumstances, subject to certain conditions, and in compliance with specific regulations for that class of regulated vehicle

NOTE At the option of *jurisdictions*, this may require the provision of information via *TARV* or provide the option to do so.

4.35
regulator
see jurisdiction regulator (4.26)

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4.36
remote tachograph monitoring
RTM
collection, collation, and transfer of data from an on-board electronic *tachograph (4.40)* system to an *application service provider (4.3)*

4.37
service provider
party which is certified by an approval *authority (regulatory) (4.7)* as suitable to provide regulated or commercial ITS *application services (4.2)*

4.38
session
wireless communication exchange between the *ITS-station (4.23)* of an *IVS (4.22)* and the *ITS-station* of its *application service provider (4.3)* to achieve data update, data provision, upload apps, or otherwise manage the provision of the *application service (4.2),* or a wireless communication provision of data to the *ITS-station* of an *IVS (4.22)* from any other *ITS-station*

4.39
specification
explicit and detailed description of the nature and functional requirements and minimum performance of equipment, service or a combination of both

4.40
tachograph
sender unit mounted to a vehicle gearbox, a tachograph head and a digital driver card, which records the *regulated vehicle (4.34)* speed and the times at which it was driven and aspects of the *driver's (4.15)* activity selected from a choice of modes

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4.41
telematics
use of wireless media to obtain and transmit (data) from a distant source

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4.42
user
individual or party that enrols in and operates within a regulated or *commercial application (4.12) service (4.2)*

EXAMPLE D*river (4.15),* transport *operator (4.30),* freight owner, etc.

4.43
vehicle access control
VAC
control of *regulated vehicle*'s ingress to and egress from controlled areas and associated penalties and levies

4.44
vehicle access management
VAM
monitoring and management of *regulated vehicle*s approaching or within sensitive and controlled areas

4.45
vehicle location monitoring
VLM
collection, collation, and transfer of vehicle location data from an *in-vehicle system (4.22)* to an *application service provider (4.3)*

4.46
vehicle mass monitoring
VMM
collection, collation, and transfer of vehicle *mass (4.28)* data from an *in-vehicle system (4.22)* to an *application service provider (4.3)*

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4.47
vehicle parking facilities
VPF
system for booking and *access (4.1)* to and egress from a *vehicle parking facility (VPF) (4.47)*

4.48
vehicle speed monitoring
VSM
collection, collation, and transfer of vehicle speed data from an *in-vehicle system (4.22)* to an *application service provider (4.3)*

5 Symbols and abbreviated terms

ADR
Accord européen relatif au transport international des marchandises Dangereuses par Route (4.6) [*dangerous goods (4.32)*]

app
applet (JAVA™ application or similar) *(4.1)*

AS
application service

ASP
application service provider (4.3)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

CALM
communications access for land mobiles (4.11)

ISO/TS 15638-9:2013
https://standards.iteh.ai/catalog/standards/sist/af3a3bdc-4302-472f-b6ee-902aa17eb55e/iso-ts-15638-9-2013

CAN
controller area network (4.20)

DWR
driver work records (4.16)

EMS
emergency message system (4.18)

ID
identity

ITS-S
ITS station (4.23)

IVS
In-vehicle system (4.22)

LDT
local data tree (4.27)

MRC
'mass' data for regulatory control and management (4.29)

RTM
remote tachograph monitoring (4.36)

SE
service element

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