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

Part 9:
Remote electronic tachograph monitoring (RTM)

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

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

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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. 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. www.iso.org/patents

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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.

ISO 15638-9 was prepared by Technical Committee ISO/TC 204, Intelligent transport systems, Working Group 7, Freight and Fleet.

This International Standard edition cancels and replaces the first edition Technical Specification (ISO TS 15638-9 2013), and has been technically revised to include remote inspection using a short range wireless interrogator for enforcement inspection purposes.

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

- 15638 -1 TARV – Framework and architecture (4.8)
- 15638 -2 TARV – Common platform parameters using CALM
- 15638 -3 Operating requirements, 'Approval Authority' approval procedures, and enforcement provisions for the providers of regulated services
- 15638 -4 TARV – System security requirements
- 15638 -5 TARV – Generic vehicle information
- 15638 -6 TARV – Regulated applications
- 15638 -7 TARV – Other applications
- 15638 -8 Vehicle access management and monitoring

— 15638 -9 Remote digital tachograph monitoring (this Part)
— 15638 -10 Emergency messaging system/eCall
— 15638 -11 Driver work records
— 15638 -12 Vehicle mass monitoring
— 15638 -13 Mass information for control and enforcement
— 15638 -14 Vehicle access control
— 15638 -15 Vehicle location monitoring
— 15638 -16 Vehicle speed monitoring
— 15638 -17 Consignment and location monitoring
— 15638 -18 ADR (Dangerous Goods) monitoring
— 15638 -19 Vehicle parking facilities
— 15638 -20 Weigh in motion
— 15638 -21 Enhancement using roadside sensors

Introduction

Many ITS technologies have been embraced by commercial transport *operators* *(4.24)* and freight owners, in the areas of fleet management, safety and security. *Telematics* *(4.36)* applications have also been developed for governmental use. Such regulatory services in use or being considered vary from *jurisdiction* *(4.22)* to *jurisdiction*, but include electronic on-board recorders, digital *tachograph* *(4.35)*, on-board *mass* monitoring, 'mass' data for regulatory control and management *(4.24)*, vehicle *access* *(4.1)* methods, hazardous goods tracking and eCall. Additional applications with a regulatory impact being developed include fatigue management, speed monitoring and 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 operate within such regulations. International Standards will allow for a speedy development and *specification* *(4.34)* 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* *(4.17)* 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* *(4.22)*.

This suite of standards addresses and defines the *framework* *(4.17)* for a range of cooperative *telematics* *(4.36)* applications for *regulated vehicles* *(4.30)* (such as access methods, driver *f*atigue management, speed monitoring, on-board *mass* 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* *(4.30)*, using an on-board ITS platform. The *framework* is based on a (multiple) *service provider* *(4.32)* oriented approach with provisions for the *approval* *(4.5)* and *auditing* *(4.9)* of *service providers*.

This suite of standards documents both provides the means to achieve current requirements for telematics applications for regulated vehicles and provides basis for future development of cooperative *telematics* *(4.36)* applications for *regulated vehicles* *(4.30)*.

This suite of standards documents is timely as many governments (Europe, North America, Asia and Australia/New Zealand) are considering the use of *telematics* *(4.36)* for a range of regulatory purposes.

This part of the ISO 15638 family of standards documents provides *specifications* *(4.34)* for remote digital *tachograph* *(4.35)* monitoring and supports several defined communication *profiles* *(4.27)* in which this function may be performed.

NOTE 1: The definition of what comprises a 'regulated' vehicle is regarded as an issue for National decision, and may vary from *jurisdiction* *(4.22)* to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of how they define a *regulated vehicle* *(4.30)*.

NOTE 2: The definition of what comprises a 'regulated' service is regarded as an issue for National decision, and may vary from *jurisdiction* *(4.22)* to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of which services for *regulated vehicles* *(4.30)* *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.

Intelligent transport systems — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) — Part 9: Remote digital tachograph monitoring

1 Scope

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

The scope of this part of ISO 15638 is to provide *specifications (4.34)* for common communications and data exchange aspects of the *application service (4.2)* remote digital *tachograph (4.35)* monitoring that a jurisdiction *regulator (4.23)* may elect to require or support as an option, including:

a) High level definition of the service that a s*ervice provider (4.32)* 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)
b) Means to realise the service
c) Application data naming, content and quality that an *IVS (4.18)* has to deliver, including a number of *profiles (4.27)* for data (noting that requirements and constraints of what can/cannot be transmitted over the air may vary between jurisdictions)
d) Support for a number of defined communication *profiles (4.27)* to enable remote inspection.

This part of ISO 15638 is not applicable for analogue *tachograph (4.35)* equipment/systems.
The present version of this International Standard provides specifications for the following communication *profiles (4.27)*

Communication *Profile* C1: Roadside inspection using a short range wireless communication *interrogator* instigating a *physical roadside inspection* (master<>slave)
Profile C1a: via a hand aimed or temporary roadside mounted and aimed *interrogator* ***(4.19)***
Profile C1b: via a vehicle mounted and directed *interrogator*
Profile C1c: via a permanent or semi-permanent roadside or overhead gantry

Communication *Profile* C2: Roadside inspection using a short range wireless communication *interrogator* instigating a download of data to an *application service provider* via an ITS-station communication (master<>slave + peer<>peer)
Profile C2a: via a hand aimed or temporary roadside mounted and aimed *interrogator*
Profile C2b: via a vehicle mounted and directed *interrogator*
Profile C2c: via a permanent or semi-permanent roadside or overhead gantry

Communication *Profile* C3: Remote inspection addressed via an *ITS-station* instigating a download of data to an *application service provider* via a wireless communications interface (as defined in ISO 15638-2).

Subsequent versions of this International Standard may support additional communication *profiles (4.27)*.

Systems claiming compliance with this part of ISO 15638 (ISO 15638-9) may support one or multiple communication *profiles (4.27)* but shall clearly declare which communication *profiles (4.27)* of this International Standard that they support.

Systems that are designed around the 5.8 GHz DSRC defined in Annex B, that additionally wish to support other peer-to-peer (ITS-station<>ITS-station) TARV transactions, need to also support Communications Profile C3.

NOTE 1: *Jurisdictions* *(4.22)* requiring and regulating the use of remotely monitored *tachographs* *(4.35)* are recommended to specifically regulate in the case of the use of *Profiles* C1 and/or *Profile* C2. It is further recommended (but not required) that *jurisdictions* whose regulations require support of *Profile* C1 for regulatory enforcement purposes also at least encourage the *ability* to technically support *Profiles* C2 and C3 in addition (for later potential migration purposes).

NOTE 2: The definition of what comprises a 'regulated' service is regarded as an issue for National decision, and may vary from *jurisdiction* *(4.22)* to *jurisdiction*. This document does not impose any requirements on nations in respect of which services for *regulated vehicles jurisdictions* 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 instantiated.

NOTE 3: ISO 15638 has been developed for use in the context of regulated commercial freight vehicles (hereinafter referred to as 'regulated vehicles' *(4.30)*). 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* *(4.22)* where they are instantiated. Conformance requirements to meet the provisions of this International Standard are therefore deemed to be under the control of, and to the specification of, the *jurisdiction* where the *application service*(s) is/are instantiated.

Systems claiming conformance with this part of ISO 15638 (ISO 15638-9) may support one or more of communication *profiles* C1, C2 and C3 as defined in clause 1, but shall support at least one of these options. Systems that wish to claim conformance with *TARV* ITS-station<>ITS station communications, shall support at least communication *profile* C3, together with conformance to ISO 15638 Parts 1-6.
This part of ISO 15638 is not applicable for analogue *tachograph* *(4.35)* equipment/systems.

3 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 vehicles (TARV) — Part 1: Framework and architecture

ISO 15638-2 Intelligent transport systems – Framework for cooperative telematics applications for regulated vehicles (TARV) - Common platform parameters using CALM

ISO 15638-3 Framework for cooperative telematics applications for regulated vehicles (TARV) – Operating requirements, approval procedures, and enforcement provisions for the providers of regulated services

