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BSI Standards Publication

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

## Part 12: Vehicle mass monitoring (VMM)

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## National foreword

This Published Document is the UK implementation of ISO/TS 15638-12:2013.

The UK participation in its preparation was entrusted to Technical Committee EPL/278, Intelligent transport systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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TECHNICAL SPECIFICATION

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

## Part 12: Vehicle mass monitoring (VMM)

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

*Partie 12*

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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.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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]

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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 (4.36)* and freight owners, in the areas of fleet management, safety and security. *Telematics (4.49)* applications have also been developed for governmental use. Such regulatory services in use or being considered vary from *jurisdiction (4.30)* to *jurisdiction*, but include electronic on-board recorders, digital *tachograph (4.47)*, on-board *mass (4.34)* monitoring, 'mass' data for regulatory control and management *(4.35)* , vehicle *access (4.1) methods*, *hazardous goods* tracking and e-call *(4.20)*. Additional applications with a regulatory impact being developed include, fatigue management, speed monitoring and heavy vehicle penalties and levies imposed.

In such an emerging environment of regulatory and *commercial applications (4.13)*, it is timely to consider an overall *architecture (4.9)* (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 (4.46)* of new applications that build upon the functionality of a generic specification platform. A suite of standards documents is required to describe and define the *framework (4.23)* 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 (4.30)*.

This suite of standards addresses and defines the *framework (4.23)* for a range of cooperative *telematics (4.49)* applications for *regulated commercial freight vehicles (4.41)* (such as *access methods (4.4)*, driver *f*atigue management, speed monitoring, on-board *mass (4.34)* , 'mass' data for regulatory control and management *(4.34)*). The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to *regulated commercial freight vehicles (4.41)*, using an on-board ITS platform. The *framework* is based on a (multiple) *service provider (4.44)* oriented approach with provisions for the *approval (4.6)* and *auditing (4.10)* of *service providers*.

This suite of standards documents will:

- provide the basis for future development of cooperative *telematics (4.49)* applications for *regulated vehicles (4.41)*. Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications (4.46)* 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 (4.41)* .
- a business *architecture (4.9)* based on a (multiple) *service provider (4.44)* oriented approach
- address legal and regulatory aspects for the *approval (4.6)* and *auditing (4.10)* 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 (4.49)* 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 documents provides *specifications (4.46)* for vehicle 'mass' monitoring.

NOTE: The definition of what comprises a 'regulated' vehicle is regarded as an issue for national decision, and may vary from *jurisdiction (4.30)* to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of how they define a *regulated vehicle (4.41)*.

NOTE: The definition of what comprises a 'regulated' service is regarded as an issue for national decision, and may vary from *jurisdiction (4.30)* to *jurisdiction*. This suite of standards documents does not impose any requirements on nations in respect of which services for *regulated vehicles (4.41) 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 12:
## Vehicle mass monitoring (VMM)

## 1 Scope

This part of ISO 15638 addresses the provision of *"Vehicle 'Mass' Monitoring"* and specifies the form and content of such data required to support such systems, and *access methods (4.4)* to that data.

This part of ISO 15638 provides *specifications (4.46)* for common communications and data exchange aspects of the *application service (4.3)* "Vehicle 'Mass' Monitoring" that a *regulator (4.42)* may elect to require or support as an option, including:

a) high level definition of the service that a *service provider (4.44)* has to provide, (The service definition describes common service elements; but does not define the detail of how such an *application service (4.3)* is instantiated, not 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 (4.26))* has to deliver.

The definition of what comprises a 'regulated' service is regarded as an issue for National decision, and may vary from *jurisdiction (4.30)* to *jurisdiction*. This document does not impose any requirements on nations in respect of which services for *regulated commercial freight vehicles (4.41) 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.

ISO 15638 has been developed for use in the context of regulated commercial freight vehicles (hereinafter referred to as 'regulated vehicles' *(4.41))*. 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 (4.3)* described in this part of ISO 15638 shall be within the regulations imposed by the *jurisdiction (4.30)* 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.

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

## 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**
**access methods**
procedures and protocols to provision and retrieve data

**4.2**
**app**
small (usually) *Java™* *(4.29)* applets, organised as software bundles, that support *application services* *(4.3)* by keeping the *data pantry* *(4.17)* provisioned with up-to-date data

**4.3**
**application service**
service provided by a *service provider* *(4.44)* enabled by accessing data from the *IVS* *(4.26)* of a *regulated vehicle* *(4.41)* via a wireless communications network

**4.4**
**application service provider**
**ASP**
party that provides an *application service* *(4.3)*

[1] Under preparation.


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**4.5**
**app library**
separately secure area of memory in *IVS* *(4.26)* where apps are stored [with different access controls to *data pantry* *(4.17)*]

**4.6**
**approval**
formal affirmation that an applicant has satisfied all the requirements for appointment as an *application service provider* *(4.4)* or that an application service delivers the required service levels.

**4.7**
**approval agreement**
written agreement made between an *approval authority (regulatory)* *(4.8)* and a *service provider* *(4.44)*

NOTE An *approval authority (regulatory)* *(4.8)* approval agreement recognises the fact that a *service provider* *(4.44),* 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.*

**4.8**
**approval authority (regulatory)**
organisation (usually independent) which conducts *approval* *(4.6)* and ongoing *audit* *(4.10)* for *service providers* *(4.44)* on behalf of a *jurisdiction* *(4.30)*

**4.9**
**architecture**
formalised description of the design of the structure of *TARV* and its *framework* *(4.23)*

**4.10**
**audit/auditing**
review of a party's capacity to meet, or continue to meet, the initial and ongoing *approval agreements* *(4.7)* as a *service provider* *(4.44)*

**4.11**
**basic vehicle data**
data that shall be maintained/provided by all *IVS* *(4.26)* [regardless of *jurisdiction* *(4.30)*]

**4.12**
**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* *(4.50)* determined parameters by using a suite of standards based on ISO 21217 (*CALM* architecture) and ISO21210 (*CALM* networking) that provide a common platform for a number of standardised media using *ITS-stations* *(4.28)* to provide wireless support for applications, such that the application is independent of any particular wireless medium

**4.13**
**commercial application(s)**
ITS applications in *regulated vehicles* *(4.41)* for commercial (non-regulated) purposes

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

**4.14**
**consignment**
shipment of goods/cargo to a destination

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**4.15**
**cooperative ITS**
**C-ITS**
ITS applications for both regulatory and commercial purposes that require the exchange of data between uncontracted parties using multiple *ITS-stations* *(4.28)* communicating with each other and sharing data with other parties with whom they have no direct contractual relationship to provide one or more *ITS services* *(4.27)*

**4.16**
**core data**
*basic vehicle data* *(4.11)* plus any additional data required to provide an implemented *regulated application service* *(4.40)*

**4.17**
**data pantry**
secure area of memory in *IVS* *(4.26)* where data values are stored [with different access control to data to *app library* *(4.5)*]

**4.18**
**driver**
person driving the *regulated vehicle* at any specific point in time

**4.19**
**driver work records**
**DWR**
collection, collation, and transfer of *driver* *(4.18)* work and rest hours data from an *in-vehicle system* *(4.26)* to an *application service provider* *(4.4)*

**4.20**
**eCall**
specialised instantiation of an *EMS* *(4.21)* that provides incident messaging and communication with a public service assistance point via priority wireless telephone communications using its emergency call capabilities

**4.21**
**emergency message system**
**EMS**
collection, collation, and transfer of emergency message data from an *in-vehicle system* *(4.26)* to an *application service provider* *(4.4)*

**4.22**
**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

**4.23**
**framework**
particular set of beliefs, ideas referred to in order to describe a scenario or solve a problem

**4.24**
**global navigation satellite system**
**GNSS**
comprises several networks of satellites that transmit radio signals containing time and distance data that can be picked up by a receiver, allowing the user to identify the location of its receiver anywhere around the globe

**4.25**
**global positioning system**
**GPS**
instantiation of *GNSS* *(4.24)* controlled by the US Department of Defence


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**4.26**
**in-vehicle system**
**IVS**
*ITS-station* *(4.28)* and connected equipment on board a vehicle

**4.27**
**ITS service**
communication functionality offered by an *ITS-station* *(4.28)* to an *ITS-station* application

**4.28**
**ITS-station**
**ITS-s**
entity in a communication network, comprised of application, *facilities* *(4.22)*, networking and access layer components specified in ISO 21217 that operate within a bounded secure management domain

**4.29**
**Java™**
object oriented open source operating language developed by SUN systems

**4.30**
**jurisdiction**
government, road or traffic authority which owns the r*egulatory applications* *(4.39)*

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

**4.31**
**jurisdiction regulator**
agent of the *jurisdiction* *(4.30)* appointed to regulate and manage *TARV* within the domain of the *jurisdiction*; may or may not be the *approval authority (regulatory)* *(4.8)*

**4.32**
**local data tree**
**LDT**
frequently updated data concept stored in the on on-board *data pantry* *(4.17)* containing a collection of data values deemed essential for either a) *TARV regulated application service* *(4.40)*, or b) *cooperative intelligent transport systems* *(4.15)*

**4.33**
**map**
spatial dataset that defines the road system

**4.34**
**mass**
mass of a given heavy vehicle as measured by equipment affixed to the *regulated vehicle* *(4.41)*

**4.35**
**'mass' data for regulatory control and management**
**MRC**
collection, collation, and transfer of vehicle *mass* *(4.34)* data from an *in-vehicle system* *(4.26)* to an *application service provider* *(4.4)* to enable data provision to *jurisdictions* *(4.30)* for the control and management of equipped vehicles based on the *mass* of the *regulated vehicle* *(4.41),* or use of such data to enable compliance with the provisions of regulations.

**4.36**
**operator**
fleet manager of a *regulated vehicle*

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**4.37**
**prime mover**
heavy-duty commercial vehicle tractor unit which serves as a method of moving trailers (most often semi-trailers) by coupling to the trailer using some sort of mechanical lock system, usually a fifth wheel coupling; tractor units can couple to different types of trailers

**4.38**
**prime service provider**
*service provider (4.44)* who is the first contractor to provide *regulated application services (4.40)* to the *regulated vehicle (4.41),* or a nominated successor on termination of that initial contract

NOTE The *prime service provider (4.38)* is also responsible to maintain the installed *IVS (4.26)*; if the *IVS* was not installed during the manufacture of the vehicle the *prime service provider (4.38)* is also responsible to install and commission the *IVS (4.26).*

**4.39**
**regulated/regulatory application**
application arrangement using TARV utilised by *jurisdictions (4.30)* 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 can be mandatory or voluntary at the discretion of the *jurisdiction.*

**4.40**
**regulated application service**
*TARV application service* to meet the requirements of a regulated application that is mandated by a regulation imposed by a *jurisdiction (4.30),* or is an option supported by a *jurisdiction*

**4.41**
**regulated commercial freight vehicle/regulated vehicle *(4.41)***
vehicle that is subject to regulations determined by the *jurisdiction (4.30)* 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.

**4.42**
**regulator**
*see jurisdiction regulator (4.31)*

**4.43**
**remote tachograph monitoring (*RTM*)**
collection, collation, and transfer of data from an on-board electronic *tachograph (4.47)* system to an *application service provider (4.4)*

**4.44**
**service provider**
party which is approved by an *approval authority (regulatory) (4.8)* as suitable to provide regulated or commercial ITS *application services (4.3)*

**4.45**
**session**
wireless communication exchange between the *ITS-station (4.28)* of an *IVS (4.26)* and the *ITS-station* of its *application service provider (4.4)* to achieve data update, data provision, upload apps, or otherwise manage the provision of the *application service (4.3),* or a wireless communication provision of data to the *ITS-station* of an *IVS (4.26)* from any other *ITS-station*


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**4.46**
**specification**
explicit and detailed description of the nature and functional requirements and minimum performance of equipment, service or a combination of both

**4.47**
**tachograph**
sender unit mounted to a vehicle gearbox, a tachograph head and a digital driver card, which records the *regulated vehicle (4.41)* speed and the times at which it was driven and aspects of the *driver's (4.18)* activity selected from a choice of modes

**4.48**
**tamper/tampering**
conduct towards *IVS (4.26)* or a *service provider's (4.44)* system which is intended to prevent the *IVS (4.26)* or the *service provider's* system from functioning correctly

**4.49**
**telematics**
use of wireless media to obtain and transmit (data) from a distant source

**4.50**
**user**
individual or party that enrols in and operates within a regulated or *commercial application (4.13) service (4.3)*

EXAMPLE *Driver (4.18),* transport *operator (4.36),* freight owner, etc.

**4.51**
**vehicle access control**
**VAC**
control of *regulated vehicle*s ingress to and egress from controlled areas and associated regulatory control and management

**4.52**
**vehicle access management**
**VAM**
monitoring and management of *regulated vehicle*s approaching or within sensitive and controlled areas

**4.53**
**vehicle location monitoring**
**VLM**
collection, collation, and transfer of vehicle location data from an *in-vehicle system (4.26)* to an *application service provider (4.4)*

**4.54**
**vehicle mass monitoring**
**VMM**
collection, collation, and transfer of vehicle *mass (4.34)* data from an *in-vehicle system (4.26)* to an *application service provider (4.4)*

**4.55**
**vehicle parking facility**
**VPF**
system for booking and *access (4.1)* to and egress from a *vehicle parking facility (VPF) (4.55)*

**4.56**
**vehicle speed monitoring**
**VSM**
collection, collation, and transfer of vehicle speed data from an *in-vehicle system (4.26)* to an *application service provider (4.4)*

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## 5 Symbols (and abbreviated terms)

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

**app**
applet (JAVA™ application or similar) *(4.2)*

**AS**
application service

**ASP**
*application service provider (4.4)*

**CALM**
*communications access for land mobiles (4.12)*

**C-ITS**
*cooperative intelligent transport systems (4.15)*

**GCM**
gross combination *mass (4.34)*

**GNSS**
*global navigation satellite system (4.24)*

**Hz**
Hertz

**ID**
identity

**IP**
internet protocol

**ITS-S**
*ITS station (4.28)*

**IVS**
*In-vehicle system (4.26)*

**LDT**
*local data tree (4.32)*

**MMC**
*mass (4.34)* monitoring component

**MRC**
*'mass' data for regulatory control and management (4.35)*

**SE**
service element

**TARV**
*telematics (4.49)* applications for *regulated commercial freight vehicles (4.41)*

**UTC**
coordinated universal time


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**VMM**
*vehicle mass monitoring* *(4.54)*

**VMMU**
*vehicle mass monitoring* *(4.54)* unit

**VMMU-ID**
*vehicle mass monitoring* *(4.54)* unit identity/identification

**WORM**
write once read many times

## 6 General overview and framework requirements

ISO TS 15638-1 provided a *framework* *(4.23)* and *architecture* *(4.9)* for *TARV*. It provided a general description of the roles of the actors in *TARV* and their relationships.

To understand clearly the *TARV* framework, *architecture* *(4.9)* and detail and *specification* *(4.46)* of the roles of the actors involved, the reader is referred to ISO TS 15638-1.

ISO TS 15638-6 provides the core requirements for all regulated applications. To understand clearly the general context in to which the provision of this application service, the reader is referred to ISO TS 15638-6.

In order to be compliant with this part of ISO 15638, the overall architecture employed shall comply to ISO 15638-1.

In order to be compliant with this part of ISO 15638, the communications employed shall comply to ISO 15638-2.

In order to be compliant with this part of ISO 15638, the operating requirements employed shall comply to ISO 15638-3.

In order to be compliant with this part of ISO 15638, the security employed shall comply to ISO 15638-4.

In order to be compliant with this part of ISO 15638, the basic vehicle data shall comply to ISO 15638-5.

In order to be compliant with this part of ISO 15638, the generic conditions for this application service shall comply to ISO 15638-6.

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.

## 7 Requirements for services using generic vehicle data

The means by which the access commands for generic vehicle information specified in ISO 15638-5 can be used to provide all or part of the data required in order to support a *regulated application service* *(4.40)* shall be as defined in ISO 15638-6.

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# 8 Application services that require data in addition to basic vehicle data

## 8.1 General

Shall be conducted as defined in ISO 15638-6.

## 8.2 Quality of service requirements

This part of ISO 15638 contains no general requirements concerning quality of service. Such aspects shall be determined by a *jurisdiction (4.30)* as part of its *specification (4.46)* for any particular *regulated application service (4.40).* However, where a specified *regulated application service (4.40)* has specific Q of S requirements essential to maintain interoperability, these aspects shall be as specified in Clause 10.

## 8.3 Test requirements

This part of ISO 15638 contains no general requirements concerning test requirements. Such aspects shall be determined by a *jurisdiction (4.30)* as part of its *specification (4.46)* for any particular *regulated application service (4.40),* and issued as a formal test requirements *specification* document. However, where a specified *regulated application service (4.40)* has specific test requirements essential to maintain interoperability, these aspects shall be as specified in Clause 10 relating to this *regulated application service,* or in a separate standards document referenced within that Clause. And where multiple *jurisdictions* recognise a benefit to common test procedures for a specific *regulated application service,* this shall be the subject of a separate standards document.

## 8.4 Marking, labelling and packaging

This part of ISO 15638 has no specific requirements for marking labelling or packaging.

However, where the privacy of an individual may be potentially or actually compromised by any instantiation based on the ISO 15638 family of Standards, the contracting parties shall make such risk explicitly known to the implementing *jurisdiction (4.30)* and shall abide by the privacy laws and regulations of the implementing *jurisdiction* and shall mark up or label any contracts specifically and explicitly drawing attention to any loss of privacy and precautions taken to protect privacy. Attention is drawn to ISO TR 12859 in this respect.

# 9 Common features of regulated TARV application services

## 9.1 General

The details of the instantiation of *regulated application service (4.40)* are as designed by the application service system to meet the requirements of a particular *jurisdiction (4.30)* and are not defined herein. ISO 15638-6 specifies the generic roles and responsibilities of actors in the systems, and instantiations that claim compliance with this part of ISO 15638 shall also be compliant with the requirements of ISO 15638-6..

The means by which data is provisioned into the *data pantry (4.17)*, and the means to obtain the *TARV LDT (4.32)* and *core data (4.16)* are described in Clause 8 of ISO 15638-6.

In order to minimise demand on the *IVS (4.26))* (which it is assumed will be performing multiple *application services (4.3)* simultaneously, as well as supporting general safety related cooperative vehicle systems), and because national requirements and system offerings will differ, a ‘cloud’ approach has been taken in defining *TARV regulated application services (4.40)*.

The *TARV* approach is for the on-board *app (4.2)* supporting the application service to collect and collate the relevant data, and at intervals determined by the *app,* or on demand from the *application service provider (4.4)(ASP),* pass that data to the *ASP.* All of the actual application service processing shall occur in the mainframe system of the *ASP* (in the ‘cloud’).


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For further information see Clause 9 of ISO 15638-6.

At a conceptual level, The *TARV* system is therefore essentially simple, as shown in Figure 1. The process is similar to that for CoreData, but data is supplied to a different on-board file in the *data pantry* *(4.17)*.

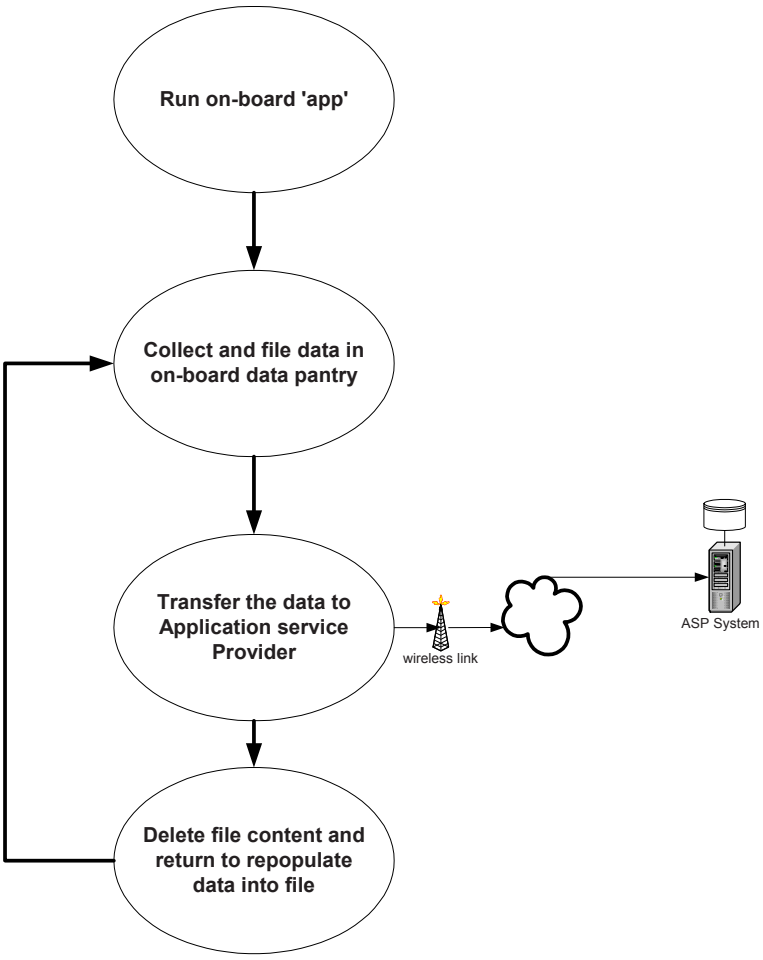


**Figure 1 — TARV Regulated application service on-board procedure**

At a common generic functional level for this application service, the process may be seen as shown in Figure 2 below, however the connected equipment may/may not be required in all cases.

## 9.2 Common role of the jurisdiction, approval authority, service provider and user.

The Common role of the jurisdiction, approval authority, application service provider and user shall be as defined in ISO 15638-6.

## 9.3 Common characteristics for instantiations of regulated application services

The common characteristics for instantiations of regulated application services shall be as defined in ISO 15638-6.

## 9.4 Common sequence of operations for regulated application services

The Common sequence of operations for regulated application services shall be as defined in ISO 15638-6.

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