
**Intelligent transport systems —
Framework for cooperative telematics
applications for regulated commercial
freight vehicles (TARV) —**

**Part 20:
Weigh-in-motion monitoring**

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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 (see 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 (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 15638 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Many ITS technologies have been embraced by commercial transport operators and freight owners, in the areas of fleet management, safety and security. On-board applications have also been developed for governmental use. Such regulatory services in use or being considered vary from jurisdiction to jurisdiction, but include electronic on-board recorders, digital tachograph, on-board mass monitoring, 'mass' data for regulatory control and management, weigh-in-motion, vehicle access 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.

The ISO 15638 series of standards defines and addresses the framework for a range of cooperative telematics applications for regulated vehicles (e.g. access methods, driver fatigue management, speed monitoring, on-board mass monitoring, Remote Tachograph Monitoring, ADR management). The overall scope includes the concept of operation, legal and regulatory issues, and the generic cooperative provision of services to regulated vehicles, using an on-board ITS platform. The framework is based on a (multiple) service provider-oriented approach with provisions for the approval and auditing of service providers.

The ISO 15638 series of standards provides both the means to achieve current requirements for telematics applications for regulated vehicles and the basis for future development of cooperative telematics applications for regulated vehicles.

The ISO 15638 series of standards 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.

This document provides specifications for weigh-in-motion and on-board weighing monitoring and supports several defined communication profiles in which this function may be performed.

Consistent with other parts of the ISO 15638 series of standards, this document does not prescribe nor proscribe particular modes of operation. Rather, it provides a number of defined communication and data profiles within which jurisdictions may achieve their objectives for remote weigh-in-motion monitoring within the objectives and constraints of their regulations. This document recognizes that those requirements and constraints will differ between jurisdictions.

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Intelligent transport systems — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV) —

Part 20: Weigh-in-motion monitoring

1 Scope

This document addresses the provision of ‘weigh-in-motion monitoring’ and specifies the form and content of the transmission of such data required to support such systems, and access methods to that data.

This document provides specifications for both on-board weighing (WIM-O) systems and in-road “weigh-in-motion” (WIM-R) systems, and provides a profile where the vehicle weight measured is recorded on-board using equipment already installed for “Remote Tachograph Monitoring”.

This document provides specifications for common communications and data exchange aspects of the application service weigh-in-motion monitoring (WIM-O and WIM-R) that a jurisdiction regulator can elect to require or support as an option, including:

- a) High level definition of the service that a service provider has to provide (the service definition describes common service elements, but does not define the detail of how such an application service is instantiated, nor the acceptable value ranges of the data concepts defined);
- b) Means to realize the service;
- c) Application data naming, content and quality that an IVS has to deliver, including a number of profiles for data (noting that requirements and constraints of what can/cannot be transmitted over the air can vary between jurisdictions);
- d) Support for a number of defined communication profiles to enable remote inspection.

The present version of this document provides specifications for the following application profiles:

- **Application Profile A1: Vehicle weight measurement from “On-Board Weighing” systems (WIM-O);**
- **Application Profile A2: Vehicle weight measurement from in-road ‘weigh-in-motion’ systems where data is transferred to the IVS (WIM-R).**

NOTE 1 Vehicle weight measurement from in-road ‘weigh-in-motion’ systems where data is linked to a specific vehicle by ANPR or other techniques and sent via landline or cellular communications to a processing centre is also a viable and alternate option, but as it does not include carrying data on-board the vehicle is not a TARV use case.

The present version of this document provides specifications for the following communication profiles:

- **Communication Profile 1: 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;
 - Profile C1b: via a vehicle mounted and directed interrogator;