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

Part 23: Tyre pressure monitoring (TPM)

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

Partie 23: Suivi de la pression des pneus

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Foreword

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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. Telematics 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, tyre pressure monitoring, vehicle access methods, hazardous goods tracking and eCall. Additional applications with a regulatory impact currently under development include fatigue management, speed monitoring and vehicle penalties imposed based on location, distance and time.

The ISO 15638 series addresses and defines the framework for a range of cooperative telematics applications for regulated vehicles such as access methods, driver fatigue management, speed monitoring, on-board mass monitoring, remote tachograph monitoring, ADR (agreement concerning the international carriage of dangerous goods by road) management, etc. 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 provides both the means to achieve current requirements for telematics applications for regulated vehicles, and a basis for the future development of cooperative telematics applications for regulated vehicles.

The ISO 15638 series has been developed over several years with the objective of enabling telematics applications with whatever wireless communications are available at a given time and location, and providing a migration path to the cooperative ITS technologies and techniques that are steadily emerging.

Many new freight tractors/trucks use “tyre pressure monitoring systems” (TPMSs) to inform the operator of whether or not tyres on the vehicle are properly inflated (or are missing entirely). However, older freight tractors/trucks and most trailers do not use this technology. As a result, many freight vehicles operate with underinflated or missing tyres. These vehicles are potentially unsafe as their braking performance is degraded, their stability is compromised, their fuel efficiency is reduced, thus increasing greenhouse gas emissions, and they are non-compliant with roadway and bridge weight limitations, thus reducing pavement and bridge life resulting in increased roadway infrastructure costs. This document is designed to improve freight vehicle road transport safety and timely freight delivery while reducing accidents.

This document addresses the realization of safer road transport for freight vehicles utilizing the existing ISO 15638 series basic architecture framework, together with ISO 21750 and UNECE Regulation 141.[22]

In the system described in this document, a vehicle on-board sensor identifies whether a tyre is underinflated or missing and provides these data to an in-vehicle system (IVS). Either at predetermined intervals, upon registering an anomaly, or on request from the service provider, the IVS sends the most recent TPMS data to a predetermined address provided by the service provider.

The service provider notifies vehicle operators or commercial vehicle enforcement agencies in order for corrective action to be taken to correct the tyre deficiency, as necessary.

This document provides specifications for tyre pressure monitoring and supports several defined communication profiles by which this function may be performed.

As with other parts of the ISO 15638 series, this document neither prescribes nor proscribes particular modes of operation, but instead provides a number of defined communication and data profiles within which jurisdictions and operators can achieve their objectives for tyre pressure monitoring within the objectives and constraints of their regulations. This document recognizes that those requirements and constraints will differ between jurisdictions.

NOTE 1 The ISO 15638 series 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.