



BSI Standards Publication

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

Part 10: Emergency messaging system/eCall
(EMS)

National foreword

This Published Document is the UK implementation of ISO/TS 15638-10:2013.

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.

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

ISBN 978 0 580 80654 4

ICS 03.220.20; 35.240.60

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2013.

Amendments issued since publication

Date	Text affected
------	---------------

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

Part 10:
**Emergency messaging system/eCall
(EMS)**

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

Partie 10: Système de messagerie d'urgence/appele électronique (EMS)





COPYRIGHT PROTECTED DOCUMENT

© ISO 2013

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction.....	vii
1 Scope	1
2 Conformance	1
3 Normative references	2
4 Terms and definitions	2
5 Symbols and abbreviated terms	7
6 General overview and framework requirements	8
7 Requirements for services using generic vehicle data	9
8 Application services that require data in addition to basic vehicle data	9
8.1 General	9
8.2 Quality of service requirements.....	9
8.3 Test requirements	9
8.4 Marking, labelling and packaging.....	9
9 Common features of regulated TARV application services.....	10
9.1 General	10
9.2 Common role of the jurisdiction, approval authority, service provider and user	11
9.3 Common characteristics for instantiations of regulated application services.....	11
9.4 Common sequence of operations for regulated application services.....	11
9.5 Quality of service.....	11
9.6 Information security	11
9.7 Data naming content and quality.....	11
9.8 Software engineering quality systems.....	11
9.9 Quality monitoring station.....	11
9.10 Audits.....	11
9.11 Data access control policy	11
9.12 Approval of IVSs and service providers	11
10 TARV Emergency messaging/eCall System (EMS).....	12
10.1 TARV EMS service description and scope	12
10.1.1 TARV EMS use case.....	12
10.1.2 Description of TARV EMS regulated application service.....	13
10.1.3 Description of eCall regulated application service.....	13
10.2 Concept of operations for TARV EMS.....	14
10.2.1 General	14
10.2.2 Statement of the goals and objectives of the TARV EMS	14
10.2.3 Strategies, tactics, policies, and constraints affecting the TARV EMS	14
10.2.4 Organisations, activities, and interactions among participants and stakeholders in TARV EMS	14
10.2.5 Clear statement of responsibilities and authorities delegated for TARV EMS	15
10.2.6 Operational processes for the TARV EMS.....	16
10.2.7 Role of TARV EMS service provider.....	16
10.2.8 Role of TARV EMS user	16
10.3 Concept of operations for eCall via TARV	16
10.3.1 General concept of TARV eCall	16
10.3.2 Statement of the goals and objectives of the TARV eCall system.....	17
10.3.3 Strategies, tactics, policies, and constraints affecting the TARV eCall system.....	17

10.3.4	Organisations, activities, and interactions among participants and stakeholders for TARV eCall	17
10.3.5	Clear statement of responsibilities and authorities delegated in TARV eCall	18
10.3.6	Operational processes for the TARV eCall system.....	18
10.3.7	Role of service provider in TARV eCall	18
10.3.8	Role of user in TARV eCall	19
10.4	Sequence of operations for TARV eCall.....	19
10.5	Sequence of operations for TARV EMS	22
10.6	TARV EMS naming content and quality	22
10.7	Specific TARV EMS data naming content and quality	23
10.7.1	eCall Minimum set of data	23
10.7.2	HGV eCall dataset.....	23
10.7.3	Other TARV EMS emergency messages	23
10.8	TARV EMS service elements	23
10.8.1	TARV EMS SE1: TARV eCall.....	23
10.8.2	TARV EMS SE2: Establish 'TARV Emergency Call' (TARV EMS) jurisdiction regulations or system specification	23
10.8.3	TARV EMS SE3: Request system approval	23
10.8.4	TARV EMS SE4: User (operator) contracts with prime service provider.....	23
10.8.5	TARV EMS SE5: User (operator) equips vehicle with a means to provide consignment data.....	23
10.8.6	TARV EMS SE6: User contracts with application service provider.....	24
10.8.7	TARV EMS SE7: application service provider uploads software into the TARV equipped vehicles of the operator	24
10.8.8	TARV EMS SE8: Recording of vehicle consignment data.....	24
10.8.9	TARV EMS SE9: EMS Trigger.....	24
10.8.10	TARV EMS SE10: Make TARV EMS emergency call	25
10.8.11	TARV EMS SE11: Obtain/request consignment data.....	25
10.8.12	TARV EMS SE12: Contact emergency responder	25
10.8.13	TARV EMS SE13: Notification to <i>operator</i> (4.35).....	26
10.8.14	TARV EMS SE13: Emergency response.....	26
10.9	TARV EMS Emergency messaging access methods to provision and retrieve data	26
10.10	TARV EMS application service specific provisions for quality of service.....	30
10.11	TARV EMS application service specific provisions for test requirements.....	30
10.12	TARV EMS application specific rules for the approval of IVSs and 'Service Providers'	30
11	Declaration of patents and intellectual property	30
Annex A	(informative) Independent testing of the protocols defined in this Part of ISO 15638	32
A.1	Objectives	32
A.2	TEST SCRIPT 4 EMS EMERGENCY MESSAGE	33
CTP 4.1.1	Instigated Emergency Message System using 2G	35
CTP 4.1.2	Interrogated Emergency Message System using 2G	37
CTP 4.1.3	Interrogated Emergency Message System using 5.9GHz and responding using 2G or 3G	39
CTP 4.2.1	Instigated Emergency Message System using 3G	41
CTP 4.2.2	Interrogated at 5.9 GHz and send of Emergency Message System using 3G.....	43
CTP 4.3.1	Instigated Emergency Message System using 802.11p (WAVE) 5.9 GHz	45
CTP 4.3.2	Interrogated Emergency Message System using 802.11p (WAVE) 5.9 GHz	47
CTP 4.4.1	Instigated Emergency Message System using Mesh WiFi	49
CTP 4.4.2	Interrogated Emergency Message System using Mesh WiFi	51
Bibliography	53

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]

- *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*

Introduction

Many ITS technologies have been embraced by commercial transport *operators* (4.35) and freight owners, in the areas of fleet management, safety and security. *Telematics* (4.45) 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*, on-board *mass* (4.33) monitoring, 'mass' penalties and levies, vehicle *access methods* (4.1), *hazardous goods* (4.25) tracking and e-call (4.20). 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*, 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 operates within such regulations. International Standards will allow for a speedy development and *specification* (4.44) 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* (4.22) 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* (4.22) for a range of cooperative *telematics* (4.45) applications for *regulated commercial freight vehicles* (4.39) [such as *access methods* (4.1), driver fatigue management, speed monitoring, on-board *mass* (4.33) 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 commercial freight vehicles* (4.39), using an on-board ITS platform. The *framework* is based on a (multiple) *service provider* (4.42) oriented approach with provisions for the *approval* (4.6) and *auditing* (4.10) of *service providers*.

This suite of standards will:

- provide the basis for future development of cooperative *telematics* (4.45) applications for *regulated commercial freight vehicles* (4.39). Many elements to accomplish this are already available. Existing relevant standards will be referenced, and the *specifications* (4.44) 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 commercial freight vehicles* (4.39);
- a business *architecture* (4.9) based on a (multiple) *service provider* (4.42) 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* (4.45) 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 ISO 15638 provides *specifications* (4.44) for emergency messaging system/eCall.

NOTE 1 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 does not impose any requirements on nations in respect of how they define a *regulated vehicle* (4.39).

NOTE 2 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 does not impose any requirements on nations in respect of which services for *regulated vehicles* (4.39) *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 collaborative Telematics Applications for Regulated commercial freight Vehicles (TARV) —

Part 10: Emergency messaging system/eCall (EMS)

1 Scope

This part of ISO 15638 addresses the provision of '*Emergency messaging system/eCall*' and specifies the form and content of such data required to support such systems, and *access methods* (4.1) to that data.

This part of ISO 15638 provides *specifications* (4.44) for common communications and data exchange aspects of the *application service* (4.3) '*Emergency Messaging System/eCall*' that a *regulator* (4.40) may elect to require or support as an option, including:

- a) high level definition of the service that a *service provider* (4.42) 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, 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* (4.26) 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 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* (4.3) 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 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)* 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.