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Second edition
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Intelligent transport systems — Traffic and travel information messages via traffic message coding —

Part 1:
Coding protocol for Radio Data System — Traffic Message Channel (RDS-TMC) using ALERT-C

Systèmes intelligents de transport — Informations sur le trafic et le tourisme via le codage de messages sur le trafic —

Partie 1: Protocole de codage pour le système de radiodiffusion de données (RDS) — Canal de messages d'informations sur le trafic (RDS-TMC) avec ALERT-C

Reference number
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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, *Intelligent transport systems*.

This second edition cancels and replaces the first edition (ISO 14819-1:2003), which has been technically revised.

ISO 14819 consists of the following parts, under the general title *Intelligent transport systems — Traffic and travel information messages via traffic message coding*:

— *Part 1: Coding protocol for Radio Data System — Traffic Message Channel (RDS-TMC) using ALERT-C*

— *Part 2: Event and information codes for Radio Data System — Traffic Message Channel (RDS-TMC) using ALERT-C*

— *Part 3: Location referencing for Radio Data System — Traffic Message Channel (RDS-TMC) using ALERT-C*

— *Part 6: Encryption and conditional access for the Radio Data System — Traffic Message Channel ALERT C coding*

Compared to previous releases, this version includes the following additions:

— Precise location referencing

— Tendencies of Traffic Queue Lengths (TTQL)

— Coding of parking POIs

— Coding of interrupted roads

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- Coding of other isolated POIs (except parking POIs)
- Coding of parallel roads
- Version identification of TMC location tables
- Location Table Exchange Format
- North American Safety Events in TMC
- Explicit Location Table Country Code transmission in TMC
- Guidelines for Service Providers and Terminal Manufacturers for Implementation of explicit Location Table Country Code transmission
- Coding of link roads
- GB-English - List of Quantifiers
- Additional Event Codes identified by Germany
- Additional TMC Events from Danish proposal
- Additional TMC Supplementary Information: Unconfirmed Report
- RDS-TMC delivery of IVR Telephone Number
- Coding of link roads

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Introduction

Traffic and traveller information (TTI) may be disseminated through a number of services and means of communication to the end user, including static displays (e.g. Variable Message Signs), broadcast audio to car radios, broadcast data services to in-vehicle equipment (e.g. installed navigation system) and to nomadic device terminals (e.g. portable navigation device).

For all such services, the data to be disseminated and the message structure involved in the various interfaces require clear definition and standard formats, in order to allow competitive products to operate with any received data.

This part of ISO 14819 describes the data specification for TTI messages, together with their network layer and their service layer, which shall be conveyed by the RDS-TMC feature, specified in IEC 62106 (Second edition - 2009).

The TTI information chain, from event to end-user is quite complex and the TISA (the Traveller Information Services Association) value chain shown in Figure 1 helps to understand the key components:

Figure 1 — The Traveller Information Services Association TTI value chain

A number of entities (e.g. companies, businesses) take part in one or more activities to complete the activities shown in the value chain. Two, in particular are described, for improved understanding:

> **Service Provider:** An organisation that constructs a data service, by gathering data, processing data and supplying the data service. A Service Provider then negotiates for the use of the necessary data bandwidth with a Broadcaster and/or Transmission Operator. A Service Provider is responsible for the "quality" of the content to his customers and must provide suitable customer support.
>
> **Broadcaster:** A traditionally incorporated organisation responsible for a continuous strand of audio programmes and their quality. A broadcaster may also be responsible for overall co-ordination of "broadcast transmissions" (often a Broadcaster is the licensee of a national regulator). A Broadcaster may also be a Service Provider.

TTI services for travellers, using spoken radio reports and in-vision reports occupy broadcast air-time and whilst valuable to some, they are considered less useful by others. Furthermore, only some are useful for travellers on the move. Due to the widespread adoption of the Radio Data System, in VHF/FM broadcasting on Band II there is the possibility of transmitting coded TTI messages digitally and "silently" using the RDS-TMC feature, which avoids the interruption of planned programmes. This TTI delivery method has a number of advantages: TTI messages can be decoded into the language of the end user, regardless of location, more messages can be made available and planned broadcast programme interruption is avoided, so make delivery of TTI messages more timely and topical.

The ALERT-C protocol defined in this part of ISO 14819 supports a data broadcasting service for travellers, providing information about many kinds of traffic and travel events. Messages include traffic incident information relating to national and regional routes and some urban roads and other information required by a traveller, such as roadworks and weather information.

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This part of ISO 14819 is based on the ALERT-C traffic message coding protocol, which was a product of DRIVE Project V1029, "RDS Advice and Problem Location for European Road Traffic". The RDS-ALERT project aimed to define standards for RDS-TMC, working in conjunction with the European Broadcasting Union (EBU) and the European Conference of Ministers of Transport (ECMT).

The international standard has been implemented in many countries worldwide and, as a result of very extensive implementation experience, it has matured with many changes from the earliest version of the ALERT-C proposal of 1990. At that time CEN TC 278 Sub-working group (SWG) 4.1 developed the coding protocol, herein and the event list described in ISO 14819-2; meanwhile CEN TC 278 SWG 7.3 developed the location referencing method which is described in ISO 14819-3. Subsequently the TMC Forum was responsible for collecting specific additions and improvements intended for inclusion in this part of ISO 14819. Latterly, the Traveller Information Services Association (TISA) took over all responsibility (including TMC Forum legacy) for maintenance of this part of ISO 14819, which now includes an up to date set of industry supported enhancements to RDS-TMC.

The RDS system is fully described in IEC 62106 (Second edition, 2009) and it contains the 'hooks' to RDS-TMC, detailed in this part of ISO 14819. It employs a group structured data protocol. It uses type 3A groups defined to carry Open Data Application (ODA) identification and service and network layer information. This enables signalling of the TMC feature in other data groups. It uses type 8A groups defined to carry RDS-TMC messages and location information, together with TMC service tuning information.

Broadly, two types of RDS-TMC services are required: one that is, in effect, free of charge at the point of use by an end user and thus uses un-encrypted data, and one that is paid-for using encrypted data. The conditional access capability was developed by the TMC Forum and is described in ISO 14819-6.

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