SLOVENSKI STANDARD
SIST-TS CEN/TS 16405:2017

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Nadomešča:

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Inteligentni transportni sistemi - E-klic - Koncept specifikacij za dodatne podatke za težka tovorna vozila

Intelligent transport systems - Ecall - Additional data concept specification for heavy goods vehicles

Intelligente Verkehrssysteme - E-Sicherheit - Zusätzliche Datenkonzept-Spezifikation für Lastkraftwagen

Systèmes de transports intelligents - Sécurité - Spécification de conception de données additionnelles pour les poids lourds

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03.220.20	Cestni transport	Road transport
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English Version

Intelligent transport systems - Ecall - Additional data concept specification for heavy goods vehicles

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This Technical Specification (CEN/TS) was approved by CEN on 13 October 2014 for provisional application.

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Foreword

This document (CEN/TS 16405:2017) has been prepared by Technical Committee CEN/TC 278 "Intelligent transport systems", the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 16405:2013.

A Technical Report on this subject, proposing these specifications, was approved in 2012 (CEN/TR 16405), for field testing. The proposed specifications have subsequently been tested in the field (by EC Project HeERO and others). The semantic content of this Technical Specification remains unchanged. However the parent Standard EN 15722 (eCall Minimum Set of Data) has been revised and updated, and this Technical Specification is consistent with the layout and specifications of the revised EN 15722.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

An *eCall* is an emergency call generated either automatically via activation of in-vehicle sensors or manually by the *vehicle occupants*; when activated, to provide notification and relevant location information to the most appropriate 'Public Safety Answering Points' (PSAP), by means of *mobile wireless communications networks* and carries a defined standardized 'Minimum Set of Data' (MSD), notifying that there has been an incident that requires response from the emergency services and establishes an audio channel between the occupants of the vehicle and the most appropriate PSAP.

The MSD (specified in EN 15722) contains static information regarding the vehicle, dynamic information regarding its location, direction of travel etc., at the time of the incident, and makes provision for additional data to be provided.

This Technical Specification provides specification for an optional additional data concept for commercial vehicles to provide dynamic data about the load that it is carrying at the time of the incident that triggered the *eCall*, with specific emphasis on identification of dangerous goods. Two variants are provided, one (schema A) for use where information about the goods (ADR classified or not) is known in the eCall device; the second variant (schema B) is for use where information about the load has to be fetched from other sources.

It is the intention that this Technical Specification is tested in demonstration projects (such as HeERO) with a view to becoming the basis for a future European or International Standard.

In order to claim conformance with this Technical Specification, communication is to be established using accepted wireless communication standards, and it is to be able to demonstrate that the MSD transferred together with any standardized optional data elements defined herein comply with the specifications of this Technical Specification, to the extent that such data are available from the vehicle.

1 Scope

This Technical Specification defines an additional data concept that may be transferred as an 'optional additional data concept' as defined in EN 15722 eCall MSD, that may be transferred from a goods vehicle to a PSAP in the event of a crash or emergency via an *eCall* communication session. Two variants are provided, one (schema A) for use where information about the goods (ADR classified or not) is known in the eCall device; the second variant (schema B) is for use where such information is to be fetched from elsewhere.

NOTE   This Technical Specification is complementary and additional to EN 15722; and contains as little redundancy as possible.

The communications media protocols and methods for the transmission of the *eCall* message are not specified in this Technical Specification.

Additional data concepts may also be transferred, and any such data concepts should be registered using a data registry as defined in EN ISO 24978. See www.esafetydata.com for an example.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15722, *Intelligent transport systems - ESafety - ECall minimum set of data*

ISO/IEC 8825-2, *Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER) — Part 2*

EN ISO 24978, *Intelligent transport systems - ITS Safety and emergency messages using any available wireless media - Data registry procedures (ISO 24978)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
112
single European emergency call number supporting Teleservice 12 [ETSI/TS 122 003]

3.2
ASN.1
abstract syntax notation one as specified in the various parts of ITU Recs 8824 and 8825 (ISO 8824 and ISO 8825 various parts)

3.3
commercial vehicle
mechanically propelled road vehicle (vehicle type N1, N2 or N3) that is of a construction primarily suited for the carriage of goods or burden of any kind (not including people) and travelling on a road laden

Note 1 to entry: This includes vehicles designed or adapted to have a maximum weight exceeding 3,500 tonnes, but explicitly excludes busses or other vehicles designed and constructed for the carriage of passengers (ie. vehicle types M1, M2 or M3)

3.4
dangerous goods
categories of goods carried by road defined by the 'European Agreement concerning the 'International Carriage of Dangerous Goods by Road' (ADR) as dangerous; these are characterised as articles or substances which are capable of posing a significant risk to health, safety or to property when transported

3.5
eCall
emergency call generated either automatically via activation of in-vehicle sensors or manually by the vehicle occupants; when activated it provides notification and relevant location information to the most appropriate 'Public Safety Answering Point', by means of mobile wireless communications networks, carries a defined standardized 'Minimum Set of Data' notifying that there has been an incident that requires response from the emergency services, and establishes an audio channel between the occupants of the vehicle and the most appropriate 'Public Safety Answering Point'

3.6
Kemler code

ADR Hazard Identification Number (HIN), carried on placards on tank cars and tank containers running by road under international ADR regulations

3.7
uniform resource identifier
URI
string of characters used to identify a name or a resource on the Internet

3.8
uniform resource locator
URL
URI that in addition to identifying a resource provides a means of locating the resource by describing its primary access mechanism

EXAMPLE   Its network location

4   Symbols and abbreviations

ADR   Accord européen relative au transport international des marchandises Dangereuses
       par Route

ETSI   European Telecommunications Standards Institute

M   Mandatory

MSD   Minimum set of data

O   Optional

PER   Packed Encoding Rules (ASN.1)

PSAP   Public Safety Answering Point

UPER   Unaligned Packed Encoding Rules (ASN.1)

5   Requirements

5.1 General

This Technical Specification describes an addendum to the standard defined in EN 15722 for the coding of the MSD message. Any requirement from EN 15722 shall be met for the exchange of information about loads in the additional data block

5.2 Concepts and formats

5.2.1 MSD data concepts

The MSD as defined in EN 15722 is a direct, timely message to the PSAP operator receiving the emergency call.

The MSD has an optional additional data block that will be used to add information elements containing information about the load of the vehicle involved.

The information elements in the additional data block of the MSD have been selected on the basis of their relevance in an emergency rescue situation.

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5.2.2 Representation of MSD data concepts

The MSD is represented in 'Abstract Syntax Notation' (ASN.1) using the 'Unaligned Packed Encoding Rules' (UPER) as defined in ISO/IEC 8825-2 using the ASN1 definitions defined in Annex A of EN 15722. The message shall be sent in the sequence defined in that same Annex.

The information about the load of the vehicle sending the MSD shall be represented in ASN.1 UPER as well, following the provision made in above named Annex.

5.2.3 Distribution of MSD data

The MSD shall be transmitted as described in EN 15722.

5.2.4 Commercial vehicles optional additional data concept 'Object Identifier'

The object identifier uniquely identifies the format and meaning of the data which follows in the optional additional data concept.

Both the syntax of the data structure and the semantic meaning of the content is referenced via this identifier so that it can be usefully applied.

The uniqueness of each specific relative identifier is ensured by a specific international standardizations body, and maintained in a data registry operated in accordance with EN ISO 24978. These identifiers are all relative to a specific root. And the root of all *eCall* relative OID's shall be the same.

eCall has been allocated the OID 1.0.14817.106.2.1. Within this, arc '.2' has been defined to contain 'Optional Additional Data concepts'. The OID for this deliverable shall be 1.0.14817.106.2.1.2.1.

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This deliverable defines two schemes that each have their own unique OID:

Schema A: 1.0.14817.106.2.1.2.1.1
Schema B: 1.0.14817.106.2.1.2.1.2

The OID for 'Optional Additional Data concepts' (1.0.14817.106.2.1.2) is fixed and shall not be transmitted over the air as part of the optional additional data. The MSD data element 'oid' is defined as RELATIVE-OID and shall contain 1.1 if Schema A is used, or 1.2 if Scheme B is used.

For further detail regarding the use of OIDs in eCall, see EN 15722.

5.2.5 Commercial vehicle optional additional data concept 'data'

The objective of the commercial vehicle data concept is to provide the PSAP with data concerning the load of the affected vehicle transmitting the MSD.

Two variants are provided, one (schema A) for use where information about the goods (ADR classified or not) is known in the eCall device; the second variant (schema B) is for use where load information should be fetched from elsewhere.

Paramount priority is given to the transmission of data relating to dangerous/dangerous goods Provision is also made to transfer data concerning other (non ADR) cargos. While these cargoes may not be classified as dangerous/dangerous, in the event of an accident they may cause increased risk of accident or problems for the emergency services – for example livestock; small materials such as ball bearings, liquids, manure or other materials likely to affect the surface tension of the roadway surface or present obstacles on the roadway.

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The data concept will take up slightly less than the amount of bytes available for the optional additional data, using the GSM/UMTS maximum message length limit as defined in EN 16062 (140 bytes). As such there is no risk of the complete MSD to exceed the maximum number of bytes allowed by using this data concept.

5.3 Contents of the 'Minimum Set of Data' (MSD)

The following subclauses provide the definition of the minimum set of data that shall be sent from the vehicle in case of an emergency call.

5.3.1 Basic contents of MSD

Table 1 provides a summary of the semantic contents of the MSD, for a full description please refer to EN 15722.

Table 1 — Contents/format of the MSD data concept

M   Mandatory data field   _____

O   Optional data field   _____

MSD					
	msdVersion	INTEGER (1..255)	-	M	
	msd				
		msdStructure			
		optionalAdditionalData		O	
		oid	RELATIVE-OID		
		data	OCTET STRING		

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This document describes the contents of the optionalAdditionalData block.

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5.3.2 Contents of the optionalAdditionalData for Schema A

Table 2 provides a summary of the semantic contents of the optionalAdditionalData part of the MSD for Schema A.

The sequence of data presentation shall be as specified in Table 2, represented as described in this clause and distributed as described in this clause.

For clarity the 'type' used in Table 2 is a semantic representation of the type used in the ASN.1 definition. The exact representation is found in Annex A.

The real position of the element in the data-stream is defined by the ASN.1 'unaligned packet encoding rules (uPER), following the definition in Annex A. Elements therefore do not necessarily start or end on a byte boundary.

Table 2 — Contents/format of Commercial vehicle additional data Schema A

M   Mandatory data field (ie. mandatory if this encoding scheme is used)

O   Optional data field

optionalAdditionalData				
	oid	RELATIVE OID		M	Fixed value: 1.1
	data				*encoded as OCTET STRING*
		commercialVehicleType	ENUM	M	The supported types are: - unknown - tanker, one compartment - tanker, more compartments - piece cargo
		consignorPhone	NumericalString	M	Consignor contact telephone number or telephone number displayed on goods container as contact number in case of emergency. NOTE: the number should be specified as international number, thus including the country- and area code (without zero)
		alarmInfo		O	*Information about sensors present is encoded. Each sensor is optional and should be left out if not present.* *If a sensor is generating an alarm its value should be set to true, if a sensor is available but not generating an alarm its value is false* *IMPORTANT NOTE: Emergency services* *need to be aware that the absence of an alarm* *indicates only that there was no alarm showing as activated at the time of compiling the data.* *Alarms raised post the population of/sending of the MSD will not be transmitted. These codes therefore only indicate status before or at the point of the incident, and cannot be taken as the current status post incident.*
			leakageAlarm	BOOLEAN	O	True if leakage has been detected
			fireAlarm	BOOLEAN	O	True if fire has been detected
			highTempAlarm	BOOLEAN	O	True if high temperature has been detected