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**Inteligentni transportni sistemi - e-Varnost - Izbirni nabor dodatnih podatkov pri e-klicu za sistem e-klica v težkih tovornih vozilih**

Intelligent transport systems - ESafety - ECall additional optional data set for heavy goods vehicles eCall

Intelligente Transportsysteme - eSicherheit - Zusätzliche optionale Datenmenge im Schwerkraftverkehr für eCall

Systèmes de Transports Intelligents - ESafety - Ensemble optionnel de données additionnelles ECall pour l'ECall des poids Lourds

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13.200	Preprečevanje nesreč in katastrof	Accident and disaster control
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English Version

**Intelligent transport systems - ESafety - ECall additional optional  
data set for heavy goods vehicles eCall**Systèmes de Transports Intelligents - ESafety - Ensemble  
optionnel de données additionnelles ECall pour l'ECall des  
poids LourdsIntelligente Transportsysteme - eSicherheit - Zusätzliche  
optionale Datenmenge im Schwerekraftverkehr für eCall

This Technical Report was approved by CEN on 30 July 2012. It has been drawn up by the Technical Committee CEN/TC 278.

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## Foreword

This document (CEN/TR 16405:2013) has been prepared by Technical Committee CEN/TC 278 “Road transport and traffic telematics”, 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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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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 standardised 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 Report provides potential specification for an optional additional data concept for HGVs 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 dangerous goods (ADR classified); the second variant (schema B) is for use where no ADR classified load is known.

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

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

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.

## 1 Scope

This Technical Report defines an additional data concept that may be transferred as an 'optional additional data concept' as defined in 'Block 12' of CEN 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 dangerous goods (ADR classified); the second variant (schema B) is for use where no ADR classified load is known.

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

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.

## 2 Conformance

In order to claim conformance with this deliverable, 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 standardised optional data elements defined herein comply with the specifications of this Technical Report, to the extent that such data is available from the vehicle.

## 3 Normative references

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

EN 15722:2011, *Intelligent transport systems — eSafety — eCall minimum set of data (MSD)*

EN 16062, *Intelligent transport systems — eSafety — eCall high level application requirements (HLAP)*

EN 16072, *Intelligent transport systems — eSafety — Pan European eCall operating requirements*

EN 16102, *Intelligent transport systems — eCall — Operating requirements for third party support*

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

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

## 4 Terms and definitions

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

### 4.1

#### 112

single European emergency call number supporting Teleservice 12

[SOURCE: ETSI TS 122 003]

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**4.2**  
**ASN.1**  
 abstract syntax notation one as specified in the various parts of ITU Recs 8824 and 8825 (ISO 8824 and 8825 various parts)

**4.3**  
**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 PSAP, by means of *mobile wireless communications networks*, carries a defined standardised 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*

**4.4**  
**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

**4.5**  
**goods vehicle**  
**GV**  
 mechanically propelled road vehicle that is of a construction primarily suited for the carriage of goods or burden of any kind and travelling on a road laden

**4.6**  
**heavy goods vehicle**  
**HGV**  
 mechanically propelled road vehicle that is of a construction primarily suited for the carriage of goods or burden of any kind and designed or adapted to have a maximum weight exceeding 3,500 kilograms when in normal use and travelling on a road laden

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**4.7**  
**uniform resource identifier**  
**URI**  
 string of characters used to identify a name or a resource on the Internet

**4.8**  
**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 (e.g., its network location)

**5 Symbols and abbreviations**

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
MSD	Minimum Set of Data
PER	Packed Encoding Rules (ASN.1 :ITU/Rec 8825-2/X/691)
PSAP	Public Safety Answering Points



## 6 General overview of the eCall HGV/GV data concept within the context of eCall

In the introduction to this European Technical Report, *eCall* was described as "an emergency call generated either automatically via activation of in-vehicle sensors or manually by the *vehicle occupants* (the *eCall generator*); when activated, it provides notification and relevant location information to the most appropriate PSAP, by means of *mobile wireless communications networks* and carries a defined standardised 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*".

Pan-European *eCall* effects this service using a 'Circuit Teleservice' supported by a 'Public Land Mobile Network' (PLMN) (Teleservice 12/TS12) ETSI TS 122 003 as specified in EN 16062 and EN 16072.

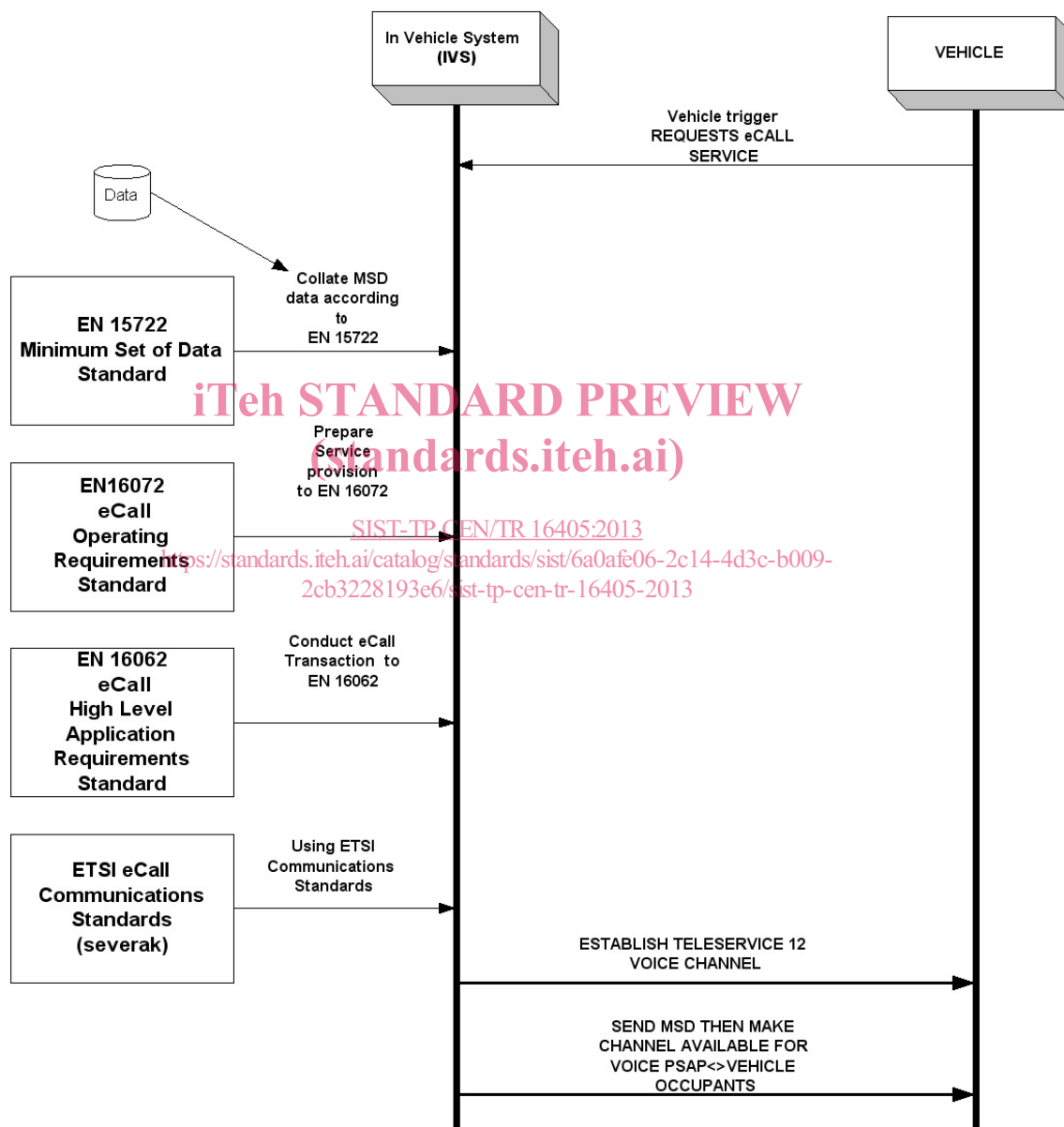


Figure 1 — Relationship of eCall transaction to standards

EN 16102 provides specification for Third party services supporting *eCall*.

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## 7 Requirements

NOTE The MSD is important information to assist the provision of the most appropriate services to the crash or emergency site and to speed up the response. The MSD makes it possible for the PSAP operator to respond to the *eCall* even without the voice connection.

### 7.1 Concepts and formats

#### 7.1.1 MSD data concepts

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

#### 7.1.2 Format definition of MSD data concepts

The definitions shown in this Technical Report are defined in EN 15722. Data presentation is to be as determined in 6.1.4 of EN 15722:2011.

The real position of the element in the data-stream is defined by the ASN1 definition in Annex A of EN 15722:2011, and enhanced in Annex A of this Technical Report to include the optional HGV/GV data concept. The representations in this Technical Report are displayed to provide semantic meaning. However, as data is transferred using ASN.1 'Packed Encoding Rules', elements do not necessarily start or end on a byte boundary.

The following clauses define the position and definition of the HGV optional additional data concept.

#### 7.1.3 HGV/GV optional additional data concept 'Object Identifier'

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

The uniqueness of each specific relative identifier needs to be ensured by a specific international standardisations body, and maintained in a data registry operated in accordance with EN ISO 24978.

These identifiers are all relative to a specific root that should be agreed in advance. In addition, the root of all *eCall* relative OID's must be the same.

Not only the syntax of the data structure should be referenced via this identifier but also the semantic meaning of the content so that it can be usefully applied.

The user must ensure that the size of this element is restricted to ensure that the total ECallMessage is small enough for the relevant transmission medium.

Until such a registry is maintained, the OID for the HGV/GV data concept is to be one byte, and assumes that the OID for main MSD is binary value 00000001, 0000010 for Schema A and binary value 0000011 for Schema B.

#### 7.1.4 Sequence of MSD data concepts

The sequence of data presentation is to be as specified in 6.2 of EN 15722:2011.

#### 7.1.5 Data presentation of MSD

As specified in EN 15722, the MSD is transmitted using one or more wireless communications media as defined in EN 16072 which defines one or more ETSI air interface Standards suitable for the transmission of *eCall* and EN 16062 (*eCall* high level application protocols), and is to be presented in Abstract Syntax

Notation, ASN.1 'Packed Encoding Rules' (PER unaligned) as defined in ISO/IEC 8825-2 using the ASN.1 definitions defined in Annex A.

The MSD may also be transferred to the PSAP as defined in EN 16102.

NOTE It is assumed that the integrity of the transmitted data is assured by the underlying communication interface standard used.

## 7.2 Minimum set of data (MSD)

### 7.2.1 General

The following sub-clauses provide the definition of an additional *eCall* HGV/GV data concept that may be sent as optional additional data within the MSD message from an HGV vehicle in case of an emergency call.

### 7.2.2 Order of bits and bytes

The message is to be sent in the sequence defined within the ASN.1 definition determined in EN 15722.

### 7.2.3 Contents of MSD

EN 15722 defines the elements (referred to as 'Blocks' in EN 15722) of the MSD data concept.

NOTE The real position and type of the elements in the data stream is defined by the formal ASN1 definition in Annex A of EN 15722:2011.

The elements of the MSD data concept specified in EN 15722 are:

- a) ID (MSD format version);
- b) Message identifier, <https://standards.iteh.ai/catalog/standards/sist/6a0afe06-2c14-4d3c-b009-2cb3228193e6/sist-tp-cen-tr-16405-2013>
- c) Control;
- d) Vehicle identification (WMI/VDS/VIS);
- e) Vehicle propulsion storage type;
- f) Time stamp;
- g) Vehicle location;
- h) Vehicle direction;
- i) Recent Vehicle Location n-1;
- j) Recent Vehicle Location n-2;
- k) N° of passengers;
- l) Optional additional data.

Further detail of data elements 1 – 11 can be found in EN 15722, including definition of which elements are mandatory, and which are optional.

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## 7.2.4 MSD 'Optional additional data'

Table 1 of EN 15722:2011 defines 'optional additional data' as:

**Table 1 — 'Optional additional data' as defined in Table 1 of EN 15722:2011**

Block N°	Name	Type	Unit		Description
12	Optional additional data	String	As specified	O	<p>Further 103 bytes of data encoded as in ASN.1 definition.</p> <p>NOTE 1 ASN1 provides already the indication of whether optional data is included by simply identifying the optional additional data field as OPTIONAL</p> <p>NOTE 2 Additional data field may include an address where other relevant related data or functions are available.</p> <p>NOTE 3 The framework format of this field is defined in the ASN1 definition later in this document, which includes a method to uniquely identify the exact format of the data and may also be found in a data registry that is compliant to EN ISO 24978.</p>

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NOTE Except where explicitly specified or determined in a reference standard, negative values are not allowed.

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### 7.3 HGV/GV data concept — General

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Bearing in mind that there may also be a requirement for a UN-ECE data concept for HGV/GV data, and it is uncertain at this stage whether that will be an additional or alternative data concept, the HGV/GV data concept defined herein is defined to occupy less than 50 bytes of data when transmitted in ASN.1 PER.

The objective of the HGV/GV 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 dangerous goods (ADR classified); the second variant (schema B) is for use where no ADR classified load is known.

Paramount priority is given to the transmission of data relating to dangerous/dangerous goods (in most cases electronically providing a link to the full set of data of the load), although providing the possibility to identify the goods and a contact telephone number where this is not possible. This data concept is defined as 'eCall HGV Schema A'.

Provision is also made in 'eCall HGV Schema B' 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.