SLOVENSKI STANDARD
SIST EN 16072:2011

01-november-2011

Inteligentni transportni sistemi - e-Varnost - Zahteve za delovanje vseevropskega elektronskega klica v sili

Intelligent transport systems - eSafety - Pan-European eCall operating requirements

Intelligente Transportsysteme - ESicherheit - Paneuropäische Notruf-Betriebsanforderungen

Systèmes intelligents de transport - ESafety - Exigences HLAP pour l'eCall

Ta slovenski standard je istoveten z: **EN 16072:2011**

ICS:

13.200	Preprečevanje nesreč in katastrof	Accident and disaster control
35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade
43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

SIST EN 16072:2011 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16072

September 2011

ICS 03.220.20; 13.200; 35.240.60; 43.040.15

English Version

Intelligent transport systems - eSafety - Pan-European eCall operating requirements

Systèmes intelligents de transport - ESafety - Exigences HLAP pour l'eCall

Intelligente Transportsysteme - ESicherheit - Paneuropäische Notruf-Betriebsanforderungen

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Ref. No. EN 16072:2011: E

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Foreword

This document (EN 16072:2011) has been prepared by Technical Committee CEN/TC 278 “Road transport and traffic telematics”, the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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

Introduction

The scale of death and injury on roads in Europe needs to be fully comprehended to understand the need for 'Emergency Call' (*eCall*). In 2008 there were 38 900 fatalities in EU-27. The figure for 2009 is around 34 500 fatalities. The trend 2001 to 2008 is around 5 % reduction annually. Road accident injuries are in the region of 1,7 million (2008). Roads remain unsafe and further efforts are needed. The pan-European in-vehicle emergency call, *eCall*, is estimated to have the potential to save up to 2 500 fatalities annually in EU-27 when fully deployed and furthermore to reduce the severity of injuries, to bring significant savings to the society in and to reduce human suffering.

Emergency calls made from vehicles or mobile telephones using wireless technologies can assist with the objectives of significantly reducing road deaths and injuries, but drivers often have poor (imprecise) location-awareness, especially on interurban roads or abroad. Additionally, in many situations, the car occupants may not be in a position to call using a normal mobile phone.

The situation is worse for those travelling abroad: A high (and increasing) number of vehicles travelling outside their home country is thus also contributing to the need for automated emergency call system in vehicles. In EU there are over 100 million trips to another EU country per year (EU-15). 65 % people feel less protected while abroad and most do not know which number to call in an emergency (in some countries over 60 %). Language problems are pertinent and may render proper communication difficult. Yet, in the most crucial cases, the victim(s) may not be able to call because they have been injured/trapped, do not know the local number to call and in many cases, particularly in rural situations and late at night, there may be no witnesses, who happen to have a mobile phone and a sense of community.

eCall, in the context of 'Road Traffic and Transport Telematics' (otherwise known as 'Intelligent Transport Systems' or 'ITS'), can be described as an 'automatic or user instigated system to provide notification to *Public Safety Answering Points* (PSAP), by means of wireless communications, that a vehicle has crashed, and to provide coordinates, a defined *Minimum Set of Data*, and where possible a voice link to the PSAP'.

The objective of implementing the pan-European in-vehicle emergency call system (*eCall*) is to automate the notification of a traffic accident, wherever in the European Union and associated countries, with the same technical standards and the same quality of services objectives of other emergency (TS12) services.

Definition of the *Minimum Set of Data*, the communications media and means of transferring the *data* are not specified in this European Standard.

This European Standard specifies the generic operational requirements for the provision of an *eCall service*.

The practical provision and operation of *eCall service* and equipment is dependent on the communications medium being available throughout the lifetime of equipment installed in vehicles.

NOTE The term PSAP, which is most widely used in the *eCall* documentation, European Commission documents etc., equates to the term *emergency call response centre*.

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this European Standard may involve the use of patents concerning eCall given in this European Standard.

CEN takes no position concerning the evidence, validity and scope of these patent rights.

The holder of these patent rights has assured to CEN that he/she is willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holders of these patent rights are registered with CEN. Information may be obtained from:

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

1 Scope

The objective of implementing the pan-European in-vehicle emergency call system (*eCall*) is to automate the notification of a traffic accident, wherever in Europe, with the same technical standards and the same quality of services objectives by using 'Public Land Mobile Networks'(PLMN) (such as GSM and 3G), which supports the European pre-assigned emergency destination address (see normative references) and to provide a means of manually triggering the notification of an incident.

This European Standard specifies the general operating requirements and intrinsic procedures for in-vehicle emergency call (*eCall*) services in order to transfer an emergency message from a vehicle to a *Public Safety Answering Point* (PSAP) in the event of a crash or emergency, via an *eCall* communication session and to establish a voice channel between the *in-vehicle equipment* and the PSAP.

NOTE 1 Private third party in-vehicle emergency supporting services may also provide a similar *eCall* function by other means. The provision of such services are being defined in EN 16102, and are outside the scope of this European Standard.

NOTE 2 The communications protocols and methods for the transmission of the *eCall* message are not specified in this European Standard.

NOTE 3 This European Standard specifies the operating requirements for an *eCall service*. An important part of the *eCall service* is a *Minimum Set of Data* (MSD). The operating requirements for the MSD are determined in this European Standard, but the form and *data content* of the MSD is not defined herein. A common European MSD is determined in EN 15722.

2 Conformance

Test requirements and conformance requirements are described in Clause 11. Conformance procedures will be specified in a separate deliverable and are outside of the scope of this European Standard.

3 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 15722:2011, *Intelligent transport systems — eSafety — eCall minimum set of data (MSD)*

EN 16062:2011, *Intelligent transport systems — eSafety — eCall high level application requirements (HLAP)*

EN ISO 24978, *Intelligent transport systems — ITS safety and emergency messages using any available wireless media — Data registry procedures (ISO 24978:2009)*

ETSI TS 122 101, *Universal Mobile Telecommunications System (UMTS); LTE; Service aspects; Service principles* (Release 8)

ETSI TS 124 008, *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE;Mobile radio interface Layer 3 specification; Core network protocols; Stage 3* (Release 8)

ETSI TS 126 267, *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); eCall data transfer; In-band modem solution; General description* (Release 8)

ETSI TS 126 268, *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); eCall data transfer; In-band modem solution; ANSI-C reference code* (Release 8)

ETSI TS 126 269, *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); eCall data transfer; In-band modem solution; Conformance testing* (Release 8)

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*

[ETSI TS 122 003]

4.2
E112
emergency communications service using the single European emergency call number, 112, which is enhanced with location information of the calling user

4.3
association
data concept; structural relationship

4.4
cellular network
wireless communications network consisting of multiple adjacent access points (cells) with the capability of homogeneous transfer of a communications session instance to an adjacent cell without significant interruption to the session

4.5
data
representations of static or dynamic objects in a formalized manner suitable for communication, interpretation, or processing by humans or by machines

4.6
data concept
any of a group of *data* structures (i.e., object class, property, value domain, *data elements,* message, interface dialogue, *association*) referring to abstractions or things in the natural world that can be identified with explicit boundaries and meaning and whose properties and behaviour all follow the same rules

4.7
data element
single unit of information of interest (such as a fact, proposition, observation, etc.) about some (entity) class of interest (e.g. a person, place, process, property, concept, *association*, state, event) considered to be indivisible in a particular context

4.8
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 standardised *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*

4.9
eCall generator
occupant of a vehicle or equipment within a vehicle that has cause to trigger an *eCall transaction* by automatic or manual means

4.10
eCall identifier
one of two information element bits (flags) included in the emergency call set-up message that may be used by the mobile network to filter and route automatically and manually initiated *eCalls* to a designated PSAP

4.11
eCall service
capability of *in-vehicle equipment* to be an *eCall generator*, triggering of an *eCall transaction*, intent of a PSAP to be an *eCall* responder and provision of that response

4.12
eCall transaction
establishment of a *mobile wireless communications session* across a *public wireless communications network* and the transmission of a *Minimum Set of Data* from a vehicle to a *Public Safety Answering Point* and the establishment of a voice channel between the vehicle and the PSAP

4.13
eCall trigger
signal emanating from within the vehicle to the *eCall in-vehicle equipment* which requests to start an *eCall transaction*

4.14
emergency call response centre
Term used in ITS Implementation Directive to mean 'Public Safety Answering Point' (PSAP)

4.15
identifier
any label, symbol or token that names or identifies an entity or a collection of *data* or the means of designating or referring to a specific instance of a *data concept*

4.16
ignition-on
first action taken by a driver to make the car operate

NOTE This is typically the turning of a key in an ignition sequence or other methods of vehicle operation as specified by *vehicle manufacturer*.

4.17
in-vehicle equipment
equipment within the vehicle that provides or has access to in-vehicle *data* required for the *Minimum Set of Data* and any other *data* that is to be sent as part of or complementary to the *Minimum Set of Data* to effect the *eCall transaction* via a *public mobile wireless communications network* providing a link between the vehicle and a means of enacting the *eCall service* via a *public mobile wireless communications network*

4.18
in-vehicle equipment provider
provider of *eCall in-vehicle equipment* which is given access to the relevant *Minimum Set of Data* by the *vehicle manufacturer*, or which is providing the relevant *Minimum Set of Data* in order to effect the *eCall service*

NOTE The *in-vehicle equipment provider* can be the *vehicle manufacturer* or the provider of aftermarket equipment.

4.19
In-Vehicle System
in-vehicle equipment together with the means to trigger, manage and effect the *eCall transaction*

4.20
Minimum Set of Data
standardised *data concept* comprising *data elements* of relevant vehicle generated *data* essential for the performance of the *eCall service*

4.21
mobile telecommunication network operator (MNO)
provider of a mobile *wireless communications network* that supports TS12 emergency services

[ETSI TS 122 003]

4.22
mobile wireless communications network
wireless communications network with homogeneous handover between *network access points*

4.23
most appropriate PSAP
PSAP defined beforehand by the responsible authorities to cover emergency calls from a certain area or for emergency calls of a certain type

NOTE 1 See also PSAP.

NOTE 2 A number of different instantiations of PSAP service are supported within this European Standard. A PSAP can be a Public Authority or a private *service provider* operating under the control of a Public Authority.

4.24
Network Access Device

device providing communications to a *mobile wireless communications network* with homogeneous handover between *network access points*

4.25
network access points
beacon, antenna or similar source of signal propagation and receipt together with equipment to manage communication sessions with users operating within the operating reach of the *network access point* and provide connectivity for the users within the operating reach of the single *access point* to a wider communications network

NOTE A network access point may or may not provide homogeneous or heterogeneous handover to another network access point.

4.26
pan-European eCall
eCall sent directly using ETSI defined *Teleservice 12* over mobile telephone networks designed to work throughout European Union Member States

4.27
prime medium
wireless medium defined in an ETSI standard to be suitable for transmission of an *eCall transaction* (ETSI TS 122 101, ETSI TS 124 008, ETSI TS 126 267, ETSI TS 126 268, ETSI TS 126 269 [Release 8 or later])

4.28
public mobile wireless communications network
mobile wireless communications network with access to a public telecommunications network

4.29
Public Safety Answering Point (PSAP)
physical location where emergency calls are first received under the responsibility of a public authority or a private organisation recognised by the national government, working on behalf of the responsible authorities