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

Intelligent transport systems - ESafety - Pan European eCall-Operating requirements

Intelligenter Transport - eSafety - Pan-European eCall Betriebsanforderungen

Systèmes intelligents de transport - ESafety - eCall paneuropéen - Exigences de fonctionnement

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Systèmes intelligents de transport - ESafety - eCall
paneuropéen - Exigences de fonctionnement

Intelligenter Transport - eSafety - Pan-European eCall
Betriebsanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 278.

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Foreword

This document (prEN 16072:2010) has been prepared by Technical Committee CEN/TC 278 "Road transport and traffic telematics", the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

prEN 16072:2010 (E)

Introduction

The scale of death and injury on roads in Europe needs to be fully comprehended to understand the need for "Emergency Call" (eCall). There were around 41 600 deaths and more than 1,7 million injured in 2007. 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 terms of healthcare and other costs 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 prohibit proper communication.

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 a "user instigated or automatic system to provide notification to 'Public Safety Answering Point's (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 defined in this European Standard.

This European Standard defines the generic operational requirements for the provision of an 'eCall' service.

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

1 Scope

1.1 General

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 a mobile telecommunication network (e.g. GSM) which supports the European pre-assigned emergency destination address (TS12 [Ref.11])(See [Ref.5, Ref.6, Ref.7, Ref.8, Ref.9]), and to provide a means of manually triggering the notification of an incident.

This European Standard defines 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 a separate EN deliverable, and are outside the scope of this deliverable.

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

NOTE 3   This European Standard determines 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.

1.2   Conformance

Test requirements and conformance requirements are described in Clause 12. Conformance procedures will be specified in a separate deliverable and are outside of the scope of this European Standard.

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[1], *Road transport and traffic telematics, eSafety, 'eCall' minimum set of data*

EN ISO 24978, *Intelligent transport systems-ITS safety and emergency messages — Data registry procedures*

prEN 278243[1], *Intelligent transport systems, eSafety, eCall high level application protocols*

ETSI TS 122 003, *Digital cellular communications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Circuit Teleservices supported by a Public Land Mobile Network (PLMN). (Teleservice 12/TC12) /E12) [Release 8]*

ETSI TS 122 101, *TSG Services and system aspects: service aspects; service principles* (release 8)

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[1]   Under development.

ETSI TS 124 008, *TSG core network and terminals: mobile radio interface layer 3 specification; core network protocols; stage 3* (release 8)

ETSI TS 126 267, *TSG services and system aspects; eCall data transfer — in-band modem solution; general description* (release 8)

ETSI TS 126 268, *eCall data transfer — in-band modem solution; ANSI-C reference code* (release 8)

ETSI TS 126 269, *eCall data transfer — in-band modem solution; conformance testing* (release 8)

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

3.3
association
data concept; structural relationship

3.4
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

3.5
data
representations of static or dynamic objects in a formalized manner suitable for communication, interpretation, or processing by humans or by machines

3.6
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

3.7
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.

3.8
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'*

3.9
eCall generator
occupant of a vehicle or equipment within a vehicle that has cause to trigger an 'eCall' transaction by automatic or manual means

3.10
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

3.11
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

3.12
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*

3.13
ignition-on
first action taken by a driver to make the car operate

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

3.14
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*

3.15
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 may be the vehicle manufacturer or the provider of aftermarket equipment.

3.16
in-vehicle system
in-vehicle equipment together with the means to trigger, manage and effect the eCall transaction

3.17
minimum set of data
standardised *data concept* comprising *data elements* of relevant vehicle generated data essential for the performance of the 'eCall' *service*

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3.18
mobile telecommunication network operator
MNO
provider of a mobile wireless communications network that supports TS12 (ETSI TS 122 003) emergency services

3.19
mobile wireless communications network
wireless communications network with homogeneous handover between network access points

3.20
most appropriate PSAP
PSAP defined beforehand by national 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 may be a Public Authority or a private service provider operating under the control of a Public Authority.

3.21
network access device
device providing communications to a *mobile wireless communications network* with homogeneous handover between *network access points*

3.22
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.

3.23
Pan European eCall
eCall sent directly using ETSI defined 'Teleservice 12' over mobile telephone networks

3.24
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).

3.25
public mobile wireless communications network
mobile wireless communications network with access to a public telecommunications network

3.26
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 government

NOTE 1   See also 'most appropriate' PSAP.

NOTE 2   A number of different instantiations of PSAP service are supported within this European Standard.

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