SLOVENSKI STANDARD
SIST EN 17184:2025+A1:2026

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Inteligentni transportni sistemi - e-Varnost - Visokonivojski aplikacijski protokoli za e-Klic (HLAP) z uporabo IP multimedijskega podsistema (IMS) v paketno preklopnih omrežjih

Intelligent transport systems - eSafety - eCall High level application protocols (HLAP) using IP Multimedia Subsystem (IMS) over packet switched networks

Intelligente Verkehrssysteme - eSicherheit - Übergeordnete Anwendungsprotokolle (HLAP) für eCall unter Verwendung von IPbasierten Multimedia-Subsystemen (IMS) über paketvermittelte Netzwerke

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English Version

Intelligent transport systems - eSafety - eCall High level application protocols (HLAP) using IP Multimedia Subsystem (IMS) over packet switched networks

Systèmes de transport intelligents - eSafety - eCall Protocoles d'application de haut niveau (HLAP) utilisant les réseaux à commutation de paquets IMS (Internet système multimédia)

Intelligente Verkehrssysteme - eSicherheit - Übergeordnete Anwendungsprotokolle (HLAP) für eCall unter Verwendung von IPbasierten Multimedia-Subsystemen (IMS) über paketvermittelte Netzwerke

This European Standard was approved by CEN on 6 October 2024 and includes Amendment 1 approved by CEN on 29 January 2026.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 17184:2024+A1:2026) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, 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of an identical text or by endorsement, at the latest by August 2026, and conflicting national standards shall be withdrawn at the latest by August 2026.

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 includes Amendment 1 approved by CEN on 29 January 2026.

This document supersedes [A1] EN 17184:2024 [A1].

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] [A1].

The following changes have been introduced in this revision:

— updated parts of 1, 2, 4, 5, 6.3, 6.4, 7.4.3.2, 7.4.5, 7.4.9, 7.6.2, 7.6.3, 7.7.2, 7.8, 7.10, 7.11, 7.13.1.2, 7.13.2.1, 713.4.2 and 11;

— moved parts of 7.4.5 and 7.13.3.3 into the new clause 7.4.8;

— moved parts of 7.13.1.2 into the new clause 7.1.5;

— voided Annex B.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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 Point (PSAP), by means of mobile wireless communication networks and 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 PSAP.

EN 15722 specifies a standardized MSD for *eCall*, and EN 16072 specifies pan-European *eCall* operating requirements (for third party systems, EN 16102 specifies third party services supporting *eCall* operating requirements; see EC Communication on *eCall* Implementation 2009 [COM(2009) 434 final] and Official Journal *eCall* Recommendation C(2011) 6269 final, for more information) and EN 16062 specifies High Level Application Protocols for eCall using circuit switched (CS) networks (like GSM/UMTS).

The operating requirements for pan-European *eCall* are made using Public Land Mobile Networks (PLMN) (such as GSM and UMTS, and latterly LTE, NR and their successors), as specified in a number of ETSI standards and technical specifications.

In order to provide the *eCall* service across a wireless network, high level application protocols are required as an important essential element to affect this service provision.

NOTE The term PSAP, which is most widely used in the *eCall* documentation, European Commission documents, etc., is used throughout this document and equates to the term emergency call response centre used in the ITS Implementation Directive.

Subsequent to the publication of the suite of eCall standards (EN 16072, EN 16062 and EN 16454) which support the eCall Regulations, new communications technologies have become available. Over the course of time, these networks (such as LTE, NR and their successors) are expected to complement and eventually replace the circuit switched GSM/UMTS networks. These technologies use so called 'packet switched' technologies using Internet protocols (IP). Particularly, 3GPP have evolved a communication management system called IMS (IP Multimedia Subsystem) which is suitable to operate over a number of bearer technologies, including LTE, NR and their successors.

In circuit switched networks the eCall is identified as an emergency call and specifically an eCall in the telecircuit switching (TS) process. No number is dialled as the TS identifiers inform the MNO that the call is an emergency call/eCall and the MNO has procedures to direct these calls to "the most appropriate" PSAP. Having established a voice channel, the microphones and speakers are muted and a modem is used to transfer the Minimum Set of Data (MSD) to the PSAP before opening up the line to enable conversation between the PSAP operator and the occupants of the vehicle.

In a 'packet switched' network, packets of data (including voice) are sent using an internet protocol (IP) communication system. 3GPP have created the IP Multimedia Subsystem (IMS) which makes use of SIP (Session Initiation Protocol) for its call management.

This document provides High Level Application Protocols (HLAP) for eCall using IMS. It therefore provides the IMS packet switched equivalent of EN 16062 for circuit switched networks and should be suitable for all/any packet switched networks that support IMS and wireless access such as LTE, NR and their successors.

This document specifies the protocols to put into effect the pan-European *eCall* operating requirements, over packet switched networks networks (such as LTE, NR and their successors).

The European Committee for Standardization (CEN) draws attention to the fact that, while no direct patents are known in express regard to the content of these specifications, the underlying ETSI communications Standards may involve patents and the reader is directed to the referenced ETSI standards in these respects.

1 Scope

In respect of pan European eCall (operating requirements defined in EN 16072), this document defines the high level application protocols, procedures and processes required to provide the *eCall service* via a packet switched wireless communications network using IMS (IP Multimedia Subsystem) and wireless access (such as LTE, NR and their successors).

This document assumes support of eCall using IMS over packet switched networks by an IVS and a PSAP and further assumes that all PLMNs available to an IVS at the time an eCall or test eCall is initiated are packet switched networks. Support of eCall where eCall using IMS over packet switched networks is not supported by an IVS or PSAP or PLMN is out of scope of this document.

At some moment in time packet switched networks will be the only Public Land Mobile Networks (PLMN) available. However as long as GSM/UMTS PLMNs are available (Teleservice 12/TS12) ETSI TS 122 003 will remain operational. Both the use of such PLMNs and the logic behind choosing the appropriate network in a hybrid situation (where both packet-switched and circuit-switched networks are available) are out of scope of this document.

NOTE 1 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 PLMN (such as ETSI prime medium) which supports the European harmonized 112/E112 emergency number (TS12 according to ETSI TS 122 003 or IMS equivalent in packet switched networks) and to provide a means of manually triggering the notification of an emergency incident.

NOTE 2 HLAP requirements for third party services supporting eCall can be found in EN 16102. This document makes reference to those provisions but does not duplicate them.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 15722:2020, *Intelligent transport systems - ESafety - ECall minimum set of data*

〚A1〛 EN 16062*, Intelligent transport systems - ESafety - eCall high level application requirements (HLAP) using GSM/UMTS circuit switched networks* 〚A1〛

〚A1〛 EN 16072:2025 〚A1〛, *Intelligent transport systems - ESafety - Pan-European eCall operating requirements*

EN 17905, *Intelligent transport systems - eSafety - eCall HLAP in hybrid circuit switched/packet switched network environments*

〚A1〛 ETSI TS 122 003, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] 〚A1〛

〚A1〛 ETSI TS 122 011, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Service accessibility (3GPP TS 22.011)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] 〚A1〛

〚A1〛 ETSI TS 122 071, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Location Services (LCS); Service description; Stage 1 (3GPP TS 22.071)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] 〚A1〛

A1 ETSI TS 122 101, *Universal Mobile Telecommunications System (UMTS); LTE; Service aspects; Service principles (3GPP TS 22.101)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 123 122, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode (3GPP TS 23.122)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 123 167, *Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) emergency sessions (3GPP TS 23.167)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 123 216, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Single Radio Voice Call Continuity (SRVCC); Stage 2 (3GPP TS 23.216)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 123 401, *LTE; General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access (3GPP TS 23.401)* [Release 14 or later] A1

ETSI TS 123 501, *5G; System architecture for the 5G System (5GS) (3GPP TS 23.501)* [Release 16 or later]

A1 ETSI TS 124 229, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 124 301, *Universal Mobile Telecommunications System (UMTS); LTE; Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3 (3GPP TS 24.301)* [Release 14 or later] A1

ETSI TS 124 501, *5G; Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3 (3GPP TS 24.501)* [Release 16 or later]

A1 ETSI TS 131 102, *Universal Mobile Telecommunications System (UMTS); LTE; Characteristics of the Universal Subscriber Identity Module (USIM) application (3GPP TS 31.102)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 133 203, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Access security for IP-based services (3GPP TS 33.203)* [Release 14 or later for eCall over 4G; Release 16 or later for eCall over 5G] A1

A1 ETSI TS 136 331, *LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (3GPP TS 36.331)* [Release 14 or later] A1

ETSI TS 138 331, *5G; NR; Radio Resource Control (RRC); Protocol specification (3GPP TS 38.331)* [Release 16 or later]

IETF RFC 8147, *Next-Generation Pan-European eCall*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/

3.1
112
single European emergency call number supporting Teleservice 12

Note 1 to entry: See ETSI TS 122 003.

3.2
call clear-down
termination of call and freeing up of line (usually achieved by hanging up the receiver or pressing 'end call' or similar on screen)

3.3
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

3.4
data
representations of static or dynamic objects in a formalized manner suitable for communication, interpretation, or processing by humans or by machines

Note 1 to entry: In packet switched networks, voice is carried in packets of data.

3.5
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

3.6
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, state, event) considered to be indivisible in a particular context

3.7
eCall
emergency call generated either automatically via activation of in-vehicle sensors or manually by the *vehicle occupants*

Note 1 to entry: 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* (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 *Public Safety Answering Point*.

3.8
eCall generator
occupant of a vehicle or equipment within a vehicle that has cause to trigger an *eCall session* by automatic or manual means

3.9
eCall service
end-to-end emergency service to connect occupants of an affected vehicle to the most appropriate PSAP via an audio link across a PLMN together with the transfer of a minimum set of data to the PSAP

3.10
eCall session
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 an audio channel between the vehicle and the PSAP

3.11
Emergency Call Server
ECS
functional entity that consists of a Location Retrieval Function (LRF) and either a routing proxy or a redirect server

Note 1 to entry: For example an ECS contains a VPC and a Routing Proxy or Redirect Server in NENA I2 architecture.

3.12
emergency control centre
unit which deals with emergency calls and which has the capacity to consider professionally the need for response, and which has the provision to mobilise the needed resources to deal with the emergency in question

3.13
emergency call response centre
term used in ITS Implementation Directive to mean Public Safety Answering Point (PSAP)

3.14
identifier
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

3.15
IMS emergency call
IMS based emergency call in packet switched networks, which is the IMS equivalent to Teleservice 12 according to ETSI TS 122 003 in circuit switched networks

3.16
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 session* 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

3.17
in-vehicle equipment provider
provider of *eCall* in-vehicle equipment

Note 1 to entry: The in-vehicle equipment provider can be the vehicle manufacturer or the provider of aftermarket equipment.

3.18
in-vehicle system
IVS
in-vehicle equipment together with the means to trigger, manage and effect the *eCall session*

3.19
minimum set of data
MSD
standardised data concept comprising data elements of relevant vehicle generated data essential for the performance of the *eCall* service

Note 1 to entry: See EN 15722.

3.20
mobile wireless communications network
wireless communications network with homogeneous handover between *network access points*

3.21
most appropriate PSAP
destination for eCall defined beforehand by responsible authorities to cover emergency calls from a certain area or for emergency calls of a certain type

Note 1 to entry: See also PSAP.

Note 2 to entry: A number of different instantiations of PSAP service are supported within this document. A PSAP can be a Public Authority or a private *service provider* operating on behalf of the responsible authorities.

3.22
network access device
NAD
device providing communications to a *mobile wireless communications network* with homogeneous handover between *network access points*, also known as mobile wireless communications network device