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STN	**Inteligentné dopravné systémy Elektronická bezpečnosť Aplikačné protokoly vysokej úrovne (HLAP) eCall používajúce multimediálny podsystém IP (IMS) cez siete s prepínaním paketov**	**STN EN 17184 01 8615**

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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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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.

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

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European foreword

This document (EN 17184:2024) 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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/TS 17184:2022.

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 organisations 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*

EN 16072:2022, *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*

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 16 or later]

ETSI TS 122 011, *Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Service accessibility (3GPP TS 22.011)* [Release 16 or later]

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 16 or later]

ETSI TS 122 101, *Universal Mobile Telecommunications System (UMTS); LTE; Service aspects; Service principles (3GPP TS 22.101)* [Release 16 or later]

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 16 or later]

ETSI TS 123 167, *Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) emergency sessions (3GPP TS 23.167)* [Release 16 or later]

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 16 or later]

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 16 or later]

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

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 16 or later]

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 16 or later]

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

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

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 16 or later]

ETSI TS 136 331, *LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (3GPP TS 36.331)* [Release 16 or later]

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*