Intelligent transport systems — eSafety — eCall for automated and autonomous vehicles

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National foreword

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Intelligente Transportsysteme - eSafety - eCall für automatisierte und autonome Fahrzeuge

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European foreword

This document (CEN/TS 17395:2019) has been prepared by Technical Committee CEN/TC 278 "Intelligent transport systems", the secretariat of which is held by NEN.

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Introduction

eCall (an emergency call generated either automatically via activation of in-vehicle sensors or manually by the *vehicle occupants*; which, when activated provides notification and relevant location information to the most appropriate *Public Safety Answering Point*, by means of *mobile wireless communications networks*, and carrying a defined standardized *minimum set of data* (MSD) notifying that there has been an incident), as defined in EN 16072, EN 16062, EN 15722, and EN 16454, became a regulated requirement (for new model vehicles of Category M1 and N1 [cars and light vans]) under EN regulation as from April 2018.

CEN/TS 17184 further enables eCall using IMS packet switched networks, and CEN/TS 17182 enables eCall using an ITS-station in a C-ITS equipped vehicle. CEN/TS 17249 parts 2 – 6 extend eCall support to all other categories of vehicle. CEN/TS 17132 enables eCall using satellite. eCall support is now therefore possible for all categories of vehicle and via a wide range of communication media.

However, the advent of automated and autonomous vehicles presents a new challenge to the 'Public Service Answering Point' (PSAP). Traditional eCall is predicated on the paradigm of a dialogue involving the driver of the vehicle / vehicle occupants and a PSAP. In the case of an automated or autonomous vehicle there may be, at the time of the crash, no person on board the vehicle (as it moves between picking up clients in a CCAM paradigm), or there may be persons on board but the vehicle is not under their control, but may be controlled by a centralized system.

When a PSAP receives an eCall from a vehicle, the PSAP attempts to talk to the occupants of the vehicle. At the moment, if it is an automated or autonomous vehicle that is empty as it moves between picking up clients, this will result in a so-called 'silent' call, where the PSAP does not know if the occupants are unconscious, dead, or have left the vehicle, or in this case, that no-one was in the vehicle at the time of the incident. This makes it very difficult for the PSAP to determine what resources to send to the incident. Clearly, a PSAP will want to be able accord a different priority to an empty vehicle than to one carrying people.

Additionally, a PSAP, in dialogue with the driver of an affected vehicle, will often ask the driver (who is the controller of the vehicle) for information about the status of the vehicle, or instruct the driver to switch the car power off, or switch hazard lights on, etc. But if a CCAM vehicle is under the control of a central operator, and not the occupants of the vehicle, the PSAP cannot expect the occupants of the vehicle to have the knowledge or control to be able to respond appropriately.

Therefore, in the case of an automated or autonomous vehicle, the MSD needs to provide additional data to identify that it is an automated/autonomous vehicle, and whether or not it is under the control of an on-board driver or a CCAM operation centre (and if the latter how to contact the operator), the number of persons on board at the time of the incident, and whether or not the vehicle has rolled over.

This document defines an 'Optional Additional Data' (OAD) concept to be sent in the event that an eCall is triggered, as part of the MSD, in the case where the vehicle is an automated vehicle or an autonomous vehicle,

1 Scope

This document defines additional data to be sent in the event that an eCall is triggered, as part of the MSD, in the case where the vehicle is an automated vehicle or an autonomous vehicle, to identify:

1) The vehicle is an automated/autonomous vehicle

2) The number of persons on board at the time of the incident

3) Whether or not the vehicle has rolled over

4) Whether the pedestrian airbag has been deployed

5) Whether it is (a) driver initiated automation or (b) centrally controlled automation

6) And if (b) telephone number or internet contact coordinates to contact the vehicle controller.

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, *Intelligent transport systems - ESafety - ECall minimum set of data*

EN 16072:2015, *Intelligent transport systems - ESafety - Pan-European eCall operating requirements*

EN 16454, *Intelligent transport systems - ESafety - ECall end to end conformance testing*

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

3 Terms and definitions

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

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

- IEC Electropedia: available at http://www.electropedia.org/

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

3.1
112-eCall
circuit switched eCall using the single European emergency call number supporting Teleservice 12

3.2
automated vehicle
vehicle that is 'connected' by wireless communications to other vehicles and the infrastructure combined with sensing its environment and navigating without human input

3.3
autonomous vehicle
vehicle that is sensing its environment and navigating without human input, but may not have wireless connectivity to other vehicles and the infrastructure