SLOVENSKI STANDARD
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Inteligentni transportni sistemi - e-Varnost - e-Klic OAD za več izbirnih dodatnih podatkovnih nizov

Intelligent transport systems - ESafety - eCall OAD for multiple Optional Additional Datasets

Intelligente Transportsysteme - eSicherheit - eCall OAD für mehrere optionale zusätzliche Datasets

Systèmes de transport intelligents - eSafety - OAD d'eCall pour ensembles de données supplémentaires facultatives multiples

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Intelligent transport systems - ESafety - eCall OAD for multiple Optional Additional Datasets

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European foreword

This document (prEN 17358:2019) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

1 Scope

This document defines an additional data concept that may be transferred as an 'optional additional data concept' as defined in EN 15722 eCall MSD, that may be transferred from a vehicle to a PSAP in the event of a crash or emergency via an eCall communication session.

The purpose of this document is simply to enable the existing MSD to house multiple OADs. This is achieved by providing a short optional additional data concept, which facilitates the inclusion of multiple additional datasets within the currently defined MSD of 140 bytes (Every OAD still requires its own specification).

This document can be seen as an addendum to EN 15722; it contains as little redundancy as possible.

NOTE 1 The communications media protocols and methods for the transmission of the eCall message are not specified in this document.

NOTE 2 Additional data concepts can also be transferred, and it is advised to register any such data concepts using a data registry as defined in EN ISO 24978. See www.esafetydata.com for an example.

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 15722:2015, *Intelligent transport systems — ESafety — ECall minimum set of data*

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

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

CEN/TS 17184, *Intelligent transport systems — eSafety — eCall High level application Protocols (HLAP) using IMS packet switched networks*

CEN/TS 17240, *Intelligent transport systems — ESafety — ECall end to end conformance testing for IMS packet switched based systems*

ISO/IEC 8825-2, *Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)*

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 http://www.iso.org/obp

3.1
ASN.1
abstract syntax notation one as specified in the various parts of ITU Recs 8824 and 8825 (ISO/IEC 8824 and ISO/IEC 8825 various parts)

3.2
contained OAD
optional additional dataset that is contained within the Multi-OAD dataset

3.3
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'

3.4
MSD
minimum set of data
direct, timely data content of an eCall message to the PSAP operator receiving the emergency call containing information about the location of the incident, providing detail characterising the vehicle, and potentially sometimes also providing additional data that is deemed relevant, as defined in EN 15722

3.5
multi-OAD
combination of two or more optional additional datasets

3.6
OAD
optional additional data
data:

— for which the MSD message has a provision,

— which do not include any data concerning or identifying a person (personal data) unless the transfer of such data has been explicitly and expressly prior instructed and authorized by the person who is identified by the data, and

— which will in any event be provided only in accordance with European Union and National privacy regulations pertaining at the time of the transfer of any such personal data and in accordance with the provisions of EU 2016/679 'General Data Protection Requirements'

EXAMPLES Additional data may contain a reference to an external source of relevant information (such as a phone number, a website URL, etc.) where further information may be found, or additional data specific to the vehicle or incident (e.g. battery temperature in the case of an electric or hybrid vehicle; number of rollovers; URL to the technical specifications to a particular vehicle model; etc.)

4 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

M	mandatory
MSD	minimum set of data
O	optional
OAD	optional additional dataset or -concept

PSAP public safety answering point

UPER unaligned packed encoding rules (ASN.1)

5 Conformance

The conformance requirements for this standard are simply that the OAD conforms to EN 16072 and either the provisions of EN 16062 in respect of eCall using 2G/3G, or CEN/TS 17184/CEN/TS 17240 in the case of packet switched networks using IMS, and that the total length of the MSD, including this OAD, if used, remains 140 bytes.

6 Requirements

6.1 General

This document describes an addition to the standard EN 15722 for the coding of the MSD message. All requirements from EN 15722 shall be met in respect of this additional OAD.

6.2 Concepts and formats

6.2.1 MSD data concepts

The MSD as defined in EN 15722 is a direct, timely message to the PSAP operator receiving the emergency call.

The MSD has an optional additional data (OAD) block that may be used to add information elements containing information about the vehicle involved.

The information elements in the additional data block of the MSD will have been selected on the basis of their relevance in an emergency rescue situation and shall in any event only be provided in accordance with European Union and National privacy regulations pertaining at the time of the transfer of any such personal data and in accordance with the provisions of EU 2016/679 'General Data Protection Requirements'.

6.2.2 Representation of MSD data concepts

The MSD is represented in 'Abstract Syntax Notation' (ASN.1) using the 'Unaligned Packed Encoding Rules' (UPER) as defined in ISO/IEC 8825-2 using the ASN1 definitions defined in Annex A of EN 15722:2015. The message shall be sent in the sequence defined in that same annex.

This additional OAD shall also be defined following the provision made in above named annex.

6.2.3 Distribution of MSD data

The MSD shall be transmitted and formed as described in EN 15722, which also means that the maximum length of the overall MSD shall not exceed 140 bytes.

6.2.4 Multi-OAD optional additional data concept 'Object Identifier'

The object identifier uniquely identifies the format and meaning of the data which follows in the optional additional data concept.

Both the syntax of the data structure and the semantic meaning of the content is referenced via this identifier so that it can be usefully applied.

The uniqueness of each specific relative identifier is ensured by a specific international standardisation body, and maintained in a data registry operated in accordance with EN ISO 24978. These identifiers are all relative to a specific root. And the root of all *eCall* relative OID's shall be the same.

eCall has been allocated the OID 1.0.14817.106.2.1. Within this, arc '.2' has been defined to contain 'Optional Additional Data concepts'. The OID for this deliverable shall be 1.0.14817.106.2.1.2.3. **1**.

The OID for 'Optional Additional Data concepts' (`1.0.14817.106.2.1.2`) is fixed and shall not be transmitted over the air as part of the optional additional data. The MSD data element 'oid' is defined as RELATIVE-OID and shall contain 3.1.

For further detail regarding the use of OIDs in eCall, see EN 15722.

6.2.5 Multi-OAD optional additional data concept 'data'

The objective of this Multi-OAD data concept is to make it possible for an MSD to contain more than one optional additional dataset. The combination of these contained OADs serves to provide the PSAP with more relevant data concerning the vehicle transmitting the MSD.

The data concept defined herein will, as such, not itself contain any relevant data, its sole objective is to enable multiple OADs to be concatenated within the MSD, and its overhead is kept as limited as possible.

Combining OADs using the Multi-OAD concept involves additional checking to avoid the complete MSD exceeding the maximum allowed number of bytes (140), as specified in EN 15722.

6.3 Contents of the 'Minimum Set of Data' (MSD)

6.3.1 Context

The following sub-clauses provide the definition of the minimum set of data that shall be sent from the vehicle in case of an emergency call.

6.3.2 Basic contents of MSD

Table 1 provides a summary of the semantic contents of the MSD, for a full description please refer to EN 15722.

Table 1 — Contents/format of the MSD data concept

M – Mandatory data field

O – Optional data field

MSD				
msdVersion	INTEGER (1..255)	-	M	
Msd				
msdStructure				
optionalAdditionalData			O	
Oid	RELATIVE-OID			
Data	OCTET STRING			

This document describes the contents of the `optionalAdditionalData` block.

6.3.3 Contents of the `optionalAdditionalData`

Table 2 provides a summary of the semantic contents of the `optionalAdditionalData` part of the MSD.

The sequence of data presentation shall be as specified in Table 2, represented as described in 6.2.2 and distributed as described in 6.2.3.

For clarity the 'type' used in Table 2 is a semantic representation of the type used in the ASN.1 definition. The exact representation is found in Annex A.

The real position of the element in the data-stream is defined by the ASN.1 'unaligned packet encoding rules' (uPER), following the definition in Annex A. Elements therefore do not necessarily start or end on a byte boundary.

This optional dataset shall not be used if only one contained OAD needs to be transferred. The number of contained OADs is technically limited to 7, the maximum number of available bytes for the additional data in an MSD in combination with the types of contained OAD used will impose the real limit.

The Multi-OAD concept re-uses an ASN.1 complex type that is part of the EN 15722 MSD specification to be as adherent to EN 15722 as possible.

Table 2 — Contents/format of Multi-OAD additional data

M – Mandatory data field
O – Optional data field

optionalAdditionalData				
oid	RELATIVE OID		M	Fixed value: 3.1
data				*encoded as OCTET STRING*
multiOAD			M	*Up to 7 optional datasets*
AdditionalData[1]			M	*Each dataset has its own container with:*
oid	RELATIVE OID		M	object identifier of this data concept
data	OCTET STRING		M	the data itself
AdditionalData [2]			O	
oid data	See above			
AdditionalData [3] … AdditionalData [15]			O	

6.4 Mode of operation

As soon as a PSAP receives an MSD the software inside shall extract the data elements defined in EN 15722. This means that at that moment the `oid` and `data` elements of the `optionalAdditionalData` container are available. The software shall then check the `oid` against an internal registry to determine if the data concept is supported. If this yields true, the `data` element is decoded using the ASN.1 definition for that concept, resulting in the concept's data elements to become available.

If the `oid` refers to the Multi-OAD concept as described in this document, then another round of decoding shall be applied: for each `AdditionalData` entry the `oid` is again checked against the registry and if so the data is decoded, making the data elements available for further processing.