
Cestna transportna in prometna telematika - Sistemi za odkrivanje ukradenih vozil - 3. del: Vmesnik in zahteve za sistem za komunikacijo kratkega dosega

Road transport and traffic telematics - After-theft systems for the recovery of stolen vehicles - Part 3: Interface and system requirements for short range communication

Straßentransport - und Verkehrstelematik - Systeme zum Wiederfinden gestohlener Fahrzeuge - Teil 3: Schnittstelle und Systemanforderungen für die Kommunikation über kurze Entfernungen

Télématique des transports - Systemes intervenant apres un vol pour la récupération des véhicules volés - Partie 3 : Exigences d'interface et de système pour les communications a courte portée

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| 35.200 | Vmesniška in povezovalna oprema | Interface and interconnection equipment |
| 43.040.15 | Avtomobilska informatika. Vgrajeni računalniški sistemi | Car informatics. On board computer systems |

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**Road transport and traffic telematics - After-theft systems for the
recovery of stolen vehicles - Part 3: Interface and system
requirements for short range communication**

Télématique des transports - Systèmes intervenant après
un vol pour la récupération des véhicules volés - Partie 3 :
Exigences d'interface et de système pour les
communications à courte portée

This Technical Specification (CEN/TS) was approved by CEN on 5 September 2006 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document (CEN/TS 15213-3:2006) has been prepared by Technical Committee CEN/TC 278 “Road Transport and Traffic Telematics”, the secretariat of which is held by NEN.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

This Technical Specification was developed by CEN/TC 278 "Road transport and traffic telematics" Working Group 14 (WG 14) on the subject of After Theft Systems for Vehicle Recovery (ATSVR).

WG 14 is comprised of representatives and experts from police, insurance associations (CEA), car manufacturers, transport associations, vehicle rental associations and ATSVR system and product providers working in cooperation with Europol and the European Police Cooperation Working Group (EPCWG).

This Technical Specification was developed to define an architecture within the CEN/TC 278 guidelines through which a level of interoperability can be achieved between Systems Operating Centres (SOC) and Law Enforcement Agencies (LEA), both nationally and internationally.

This Technical Specification will provide minimum standards of information and assurance to users regarding the functionality of systems, so as to enable the recovery of vehicles, detect offenders and reduce crime.

This Technical Specification should be read in conjunction with CEN/TS 15213-1, *Road transport and traffic telematics – After-theft systems for the recovery of stolen vehicles - Reference architecture and terminology* which provides the preliminary framework for ATSVR concepts.

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1 Scope

This Technical Specification focuses on Short Range (SR) Interface/Systems Requirements. SR systems use an interface that allows Detection Equipment to operate some ATSVR functions in the direct line of sight of vehicles.

SR systems enable LEAs in a particular country, to permit LEA personnel to perform actions on vehicles that are within their immediate vicinity. Such actions can include identification of vehicle data or influencing the vehicle from a remote site.

Standards for Automatic Vehicle Identification (AVI) and Automatic Equipment Identification (AEI) are being developed by CEN/TC 278 WG12 in parallel with ISO/TC 204 WG 4. This ATSVR specification does not prejudice those standards and does not seek to establish parameters for future AVI/AEI standards. DSRC and AVI Standards are seen as basic technology blocks for types of short range ATSVR.

This part of CEN/TS 15213 describes the structure, bit arrangements, number representation and coding of message elements that are typically transmitted as data. There is no requirement to make the messages as short or as effective as possible. Emphasis is placed on making them as clear and unambiguous as possible.

For Short Range Communications, where there is very little time available for the transfer of data between passing vehicles and detection equipment, only a subset of the message elements described in this document can be transmitted. Therefore, in these cases, the data lengths are reduced to an absolute minimum.

Data elements such as times, dates, or geographical coordinates need not be transmitted because the ATSVR consists of various equipment elements that communicate and interact through various interfaces in accordance with standard procedures and protocols facilitating the recovery of stolen vehicles. These processes may involve a human operator.

ATSVR elements include the OBE installed in the vehicles, a range of Detecting Equipment and one or more System Operating Centres. One or more supporting Infrastructure Networks provides communications to support the ATSVR. The ATSVR location function may also include one or more supporting Position Reference Sources.

Some Short Range devices may be triggered by or may use long range communications and vice versa.

Some Interfaces are not within the scope of this Technical Specification. These comprise interfaces to or from sensors, actuators and human operators; from position reference sources e.g. GPS, LEAs internal interfaces etc.

Detection Equipment "knows" the time, in case of stationary equipment it "knows" its coordinates etc. The Detection Equipment may concatenate these data elements to the data coming from the vehicle, when sending a complete data set to ATSVR System Operating Centres or to LEA as described in other parts of this Technical Specification.

Wherever possible the same specifications, data structures, contents, and definitions have been used throughout this Technical Specification. This Technical Specification does not seek to define the requirements or actions of the various human elements of the ATSVR, but it does aim to identify the interactions and interfaces that exist amongst the equipment and human elements operating within the system.

CEN/TS 15213-3:2006 (E)

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 12253, *Road transport and traffic telematics - Dedicated Short-Range Communication - Physical layer using microwave at 5,8 GHz*

EN 12795, *Road transport and traffic telematics - Dedicated Short-Range Communication (DSRC) - DSRC Data link layer: Medium access and logical link control*

EN 12834, *Road transport and traffic telematics - Dedicated Short Range Communication (DSRC) - DSRC application layer*

EN 13372, *Road Transport and Traffic Telematics (RTTT) - Dedicated short-range communication - Profiles for RTTT applications*

EN ISO 14906, *Road transport and traffic telematics - Electronic fee collection - Application interface definition for dedicated short-range communication (ISO 14906:2004)*

EN ISO 14814, *Road transport and traffic telematics - Automatic vehicle and equipment identification - Reference architecture and terminology (ISO 14814:2006)*

CEN/TS 15213-1:2005, *Road transport and traffic telematics - After-theft systems for the recovery of stolen vehicles - Part 1: Reference architecture and terminology*

CEN/TS 15213-2:2006, *Road transport and traffic telematics – After-theft systems for the recovery of stolen vehicles – Part 2: Common status message elements*

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3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in CEN/TS 15213-1:2005 and the following apply.

3.1

AEI

automatic equipment identification; process of identifying equipment or entities that use surface transportation infrastructures by means of OBE's combined with the unambiguous data structure defined in these standards

3.2

AIS

automatic identification system; system for achieving accurate and unambiguous identification of a data bearing OBE, tag, transponder or a natural/prescribed feature, the data or feature being interrogated by means of a system appropriate source

3.3

carrier signal

electromagnetic signal that can be modulated to carry lower frequency encoded information across an air interface

3.4

constructed identifier

identification which requires a construct of more than one primitive identifier, as defined in ASN.1

3.5**data element structure**

framework comprising a number of data elements in a prescribed form

3.6**identification function**

unequivocal identification of vehicles, including those that are not stolen, permitted by the vehicle's country of origin or registration

3.7**OBE status**

status of on board equipment (1 byte)

3.8**operator**

commercial operator of an AVI/AEI/RTTT system that uses OBEs for the purposes defined in EN ISO 14814

3.9**primitive identifier**

identification as a stand alone identity that does not require any qualifiers such as an expiration date etc. All construct identifiers shall be built from more than one primitive identifier

3.10**remote activation**

electronic communication to the vehicle that is stolen, setting certain bits of information in the vehicle

3.11**remote degradation**

potential to degrade from a remote site, the vehicle's engine performance so as to significantly reduce the speed or cause the thief to park or abandon the vehicle

3.12**session time**

4 bytes; coding defined in ISO 14906

3.13**Short Range After Theft System for Vehicle Recovery (ATSVR SR)**

system, within the line of sight or similar short range, that communicates and interacts in accordance with standard procedures and transmission protocols to facilitate the recovery of a Registered Stolen Vehicle

3.14**SR Detection by Consulting**

when Detection Equipment electronically "consults" passing vehicles for an identity and compares them against a database of stolen vehicles.

3.15**SR Detection by Signalling**

when the stolen vehicle, after a wireless activation process, "signals" to Detection Equipment that it is stolen

3.16**Telegram**

short message data

3.17**Vehicle service table (VST)**

information block from the OBE to the RSE during initialization

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CEN/TS 15213-3:2006 (E)**4 Symbols and abbreviations****4.1****A1**

EU project

4.2**ASN.1**

Abstract Syntax Notation one

4.3**ATSVR**

After Theft System for Vehicle Recovery

4.4**AttrID**

attribute identifier

4.5**Auth**

authenticator

4.6**AVI / AEI**

Automatic Vehicle Identification/Automatic Equipment Identification

4.7**CBC**

Cipher Block Chaining

4.8**[CEN_AI]**

EN ISO 14906: EFC application interface

4.9**[CEN_L1]**

EN 12253 DSRC layer1 Physical layer using 5,8 GHz

4.10**[CEN_L2]**

EN 12795 DSRC layer2 Data link layer

4.11**[CEN_L7]**

EN 12834 DSRC layer7 Application layer

4.12**[CEN_Pr]**

EN 13372 DSRC Profiles

4.13**DE**

Detection Equipment

4.14**DES**

Data Encryption Standard (see also TDES)

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4.15**DSRC**

Dedicated Short Range Communication

4.16**EDI**

Electronic Data Interchange

NOTE Within this context, an EDI message is normally compatible with the form specified in ISO 9897 (CEDEX)

4.17**EDT**

Electronic Data Transfer

4.18**EFC**

Electronic Fee Collection

4.19**EID**

Element ID

4.20**GSS**

Global specifications for short range communication

4.21**LEA**

Law Enforcement Agency (see CEN/TS 15213-1)

4.22**LR**

Long Range

4.23**MAC**

Message Authentication Code

4.24**OBE**

On Board Equipment

4.25**RndOBE**

Random number from OBE to RSE

4.26**RndRSE**

Random number from RSE to OBE

4.27**RSE**

Road Side Equipment

4.28**RTTT**

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CEN/TS 15213-3:2006 (E)**4.29****SOC**

System Operating Centre

4.30**TDES**

Triple DES

4.31**VST**

Vehicle Service Table

5 Requirements for Short Range Operations**5.1 Detailed Architecture Diagrams and Sequence Diagrams****5.1.1 Detection by CONSULTING Architecture Diagram**

This diagram depicts *one* subset of the general ATSVR Architectural Diagram. It shows the Operating Centres, Communication Network including the DE, and the vehicle with its OBE together with data streams and interfaces.

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