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Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 10: Energy infrastructure publications

Systèmes de transport intelligents - Spécifications DATEX II d'échange de données pour la gestion du trafic et l'information routière - Partie 10: Publication de infrastructure énergétique

Intelligente Verkehrssysteme - DATEX II-Datenaustauschspezifikationen für Verkehrsmanagement und Verkehrsinformationen - Teil 10: Energieinfrastruktur Publikation

This Technical Specification (CEN/TS) was approved by CEN on 10 January 2022 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.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

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European foreword

This document (CEN/TS 16157-10:2022) 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of an identical text or by endorsement, at the latest by September 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

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.

The EN 16157 series consists of several parts under the general title “Intelligent transport systems — DATEX II data exchange specifications for traffic management and information”. Other parts may be developed in the future.

As a user of this document, attention is drawn to the resources of www.datex2.eu. This web site contains related software tools and software resources that aid the implementation of EN 16157 DATEX II.

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, Turkey and the United Kingdom.

Introduction

This document defines a common set of data exchange specifications to support the vision of a seamless interoperable exchange of traffic and travel information across boundaries, including national, urban, interurban, road administrations, infrastructure providers and service providers. Standardization in this context is a vital constituent to ensure interoperability, reduction of risk, reduction of the cost base, promotion of open marketplaces and many social, economic and community benefits to be gained from more informed travellers, network managers and transport operators.

Delivering European Transport Policy in line with the White Paper issued by the European Commission requires co-ordination of traffic management and development of seamless pan European services. With the aim to support sustainable mobility in Europe, the European Commission has been supporting the development of information exchange mainly between the actors of the road traffic management domain for a number of years. In the road sector, DATEX II has been long in fruition, with the European Commission being fundamental to its development through an initial contract and subsequent co-funding through the Euro-Regional projects. With this standardization of DATEX II, there is a real basis for common exchange between the actors of the traffic and travel information sector.

This document includes the framework and context for exchanges, the modelling approach, data content, data structure and relationships.

This document supports a methodology that is extensible.

This part (part 10) of the European Standard deals with the publication of information on charging/refuelling infrastructure for mobility for different kinds of power sources (fuel, gas, electricity). It covers general information on the charging site, the pricing and the status of charging/refuelling itself.

1 Scope

The EN 16157 series specifies and defines component facets supporting the exchange and shared use of data and information in the field of traffic and travel.

The component facets include the framework and context for exchanges, the modelling approach, data content, data structure and relationships.

The EN 16157 series is applicable to:

— traffic and travel information which is of relevance to road networks (non-urban and urban);

— public transport information that is of direct relevance to the use of a road network (e.g. road link via train or ferry service);

— traffic and travel information in the case of Cooperative intelligent transport systems (C-ITS).

This series establishes specifications for data exchange between any two instances of the following actors:

— Traffic Information Centres (TICs);

— Traffic Control Centres (TCCs);

— Service Providers (SPs).

Use of this series can be applicable for use by other actors.

This series covers, at least, the following types of informational content:

— road traffic event information – planned and unplanned occurrences both on the road network and in the surrounding environment;

— operator initiated actions;

— road traffic measurement data, status data, and travel time data;

— travel information relevant to road users, including weather and environmental information;

— road traffic management information and instructions relating to use of the road network.

This part of the CEN/TS 16157 series specifies details of infrastructure for vehicle energy supply. The provided data model is separated into two publications for static and dynamic information. The static information regarding the infrastructure is not subject to frequent changes, whereas the dynamic part offers the ability to provide highly up-to-date information. The static part covers all relevant information on vehicle energy infrastructure, e.g. sites, stations and refill points for electric vehicles as well as petrol, gasoline or gas-based refuelling for vehicles. In terms of dynamic information, the availability of the infrastructure, possible faults and a price indication are covered.

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 16157-1, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 1: Context and framework*

EN 16157-2, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 2: Location referencing*

EN 16157-7, *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 7: Common data elements*

CEN/TS 16157-12,[1] *Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 12: Facility related publications*

ISO/IEC 19505-1, *Information technology - Object Management Group Unified Modeling Language (OMG UML) - Part 1: Infrastructure*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16157-1, EN 16157-2 and EN 16157-7 and the following apply.

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

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

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

3.1
connector
type and form of the piece that is used to connect a charging point to a vehicle or vice versa

Note 1 to entry: It requires a matching socket.

3.2
electric charging point
technical infrastructure at a specific location that facilitates electric charging of one vehicle at a time

3.3
energy infrastructure site
location and corresponding constructions where vehicles can be refilled and other services (parking, shopping, etc.) may be offered

3.4
energy infrastructure station
part of an energy infrastructure site that offers at least one refilling option (e.g. fuel, gas, electricity, ...)

[1] Under preparation. Stage at the time of publication: FprCEN/TS 16157-12.

3.5
fault
information about a malfunction relating to a specific piece of equipment or process

3.6
refilling
process of transferring energy from a refill point to a vehicle, regardless of the type of energy; replaces the terms "fuelling" and "charging"

3.7
refill point
technical infrastructure at a specific location that facilitates an energy refilling process being connected to max. one vehicle at a time

4 Symbols and abbreviations

AC	Alternating Current
DC	Direct Current
CCS	Combined Charging Solution
CNG	Compressed Natural Gas
EV	Electric Vehicle
GUID	Globally Unique identifier
IEC	International Electrotechnical Commission
LPG	Liquefied Petroleum Gas
NFC	Near Field Communication
PLC	Powerline Communication
RFID	Radio-Frequency Identification
SAE	Society of Automotive Engineers
UML	Unified Modeling Language
URL	Uniform Resource Locator
XMI	XML Metadata Interchange
XML	eXtensible Markup Language
XSD	XML Schema Definition

5 Conformance

The DATEX II platform independent data model, of which the Energy Infrastructure Publication sub-model is a part, corresponds to the Level A model as defined in EN 16157-1.

Conformance with this Part shall require platform independent models from which platform specific models are generated to comply with the UML modelling rules defined in EN 16157-1 and with the following requirements of this sub-model which are expressed in this part.