NSAI Standards

Standard Recommendation
S.R. CEN/TS 28701:2010

Road transport and traffic telematics - Public transport - Identification of fixed objects in public transport

S.R. CEN/TS 28701:2010

Incorporating amendments/corrigenda issued since publication:

This document replaces:	*This document is based on:* CEN/TS 28701:2010	*Published:* 20 January, 2010

This document was published under the authority of the NSAI and comes into effect on:
12 February, 2010

ICS number:
35.240.60

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

S.R. CEN/TS 28701:2010

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 28701

January 2010

ICS 35.240.60

English Version

Road transport and traffic telematics - Public transport - Identification of fixed objects in public transport

Télématique des transports routiers et de la circulation - Transports publics - Identification des objets fixes dans les transports publics

Öffentlicher Verkehr - Identifizierung fester Objekte im Öffentlichen Verkehr (IFOPT)

This Technical Specification (CEN/TS) was approved by CEN on 21 July 2008 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.

CEN members are the national standards bodies of 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. CEN/TS 28701:2010: E

Contents

Page

Foreword

This document (CEN/TS 28701:2010) has been prepared by Technical Committee CEN/TC 278 “Road transport and traffic telematics”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Information systems for Public Transport (PT) need information related to objects or events of the real world, such as bus stops, beacons, points of interest, access points to train stations, vehicles, traffic lights, accidents, works, etc.

It is possible to classify these data into three families:

— Fixed objects: bus stops, beacons, points of interest, roads, etc.;

— Mobile objects: vehicles, on board validators, etc.;

— Events: accidents, works, and situations affecting parts of the network, etc.

Subsets of these objects are of particular importance for certain functional domains of Public Transport. For instance, Automatic Vehicle Monitoring systems are concerned with the mobile objects (vehicles) and their positions relative to the infrastructure.

Passenger Information systems are concerned with:

— Information provision and exchange about the network services (timetables, etc.);

— Optimization of passenger trips (trip proposals made according to specific criteria,etc.);

— Management of Public Transport resources (sales points, validators, passenger information devices, etc.).

These systems need all types of data, but information related to the fixed objects is crucial, in particular about the Public Transport stops, their unambiguous identification, their accurate description, and their location in space.

Several particular problems apply to such data. One of them is the fact that the same fixed objects (stops, interchanges) are often used by several operators or several modes and appear with different descriptions and identifiers, so that complex correspondence tables have to be set up and maintained to ensure inter-modal trip planning, for instance, where it is important to uniquely identify the stops.

Another problem appears when apparently the same fixed objects (e.g. a train station, a bus stop) are considered as simple (points) or complex (clusters of points or areas) depending on the viewpoint of a subsystem (for instance, precision of the map). This aspect is often solved by the identification of several objects as one single object (a type of projection), but engenders at the same time the problem of the location referencing of the complex object that has been considered as simple, without a precise method for locating it in space.

Another aspect of the problem of referencing fixed objects for Public Transport is that they are often related to urban infrastructure. The latter is often relevant and used for the description of these objects. Topographical descriptors are introduced to characterise objects that are specific to Public Transport and, furthermore, knowledge of the access points to buildings and other infrastructure objects may be relevant for journey planning. In this case, if any change of the urban infrastructure occurs, Public Transport specific data should be updated and, in a multi-operator context, a certain incoherence of information is likely to appear.

All these reasons have led to several national programs to provide solutions to address at least parts of the problem particularly relevant for Passenger Information. The UK-NaPTAN system focuses on Public Transport stops, their unambiguous identification, their location in space and their description, choosing a certain level of detail. In Germany DELFI and VDV-Datenmodel deal with similar issues. The Swedish "Samtrafikens transportformat" provides topographical identification including addresses, Public Transport stops with localization and path links for passengers.

Other European standards that exchange PT data, such as TPEG or TRIDENT, ALERT C, ILOC, EU-Spirit, Transmodel or SIRI, aim at the description of location referencing of stops, but do not provide a comprehensive solution for all the problems.

Another important recent study has been the French CERTU's "Étude des systèmes de localisation pour les transports – Clarification des concepts liés aux ârrets de transports en commun" which makes a systematic study of stop location concepts and furthermore relates them to the existing concepts of the Transmodel standard. This "Identification of Fixed Objects" document draws heavily on the CERTU study, which was carried out by the leading French Transmodel experts.

The identification of fixed objects needs to be managed at a national level and the standard should take into account the respective national organisational models for administering data. Because of the large number of stops and their geographical dispersal, this will typically involve a distributed process with a number of parties needing to be coordinated.

1 Scope

1.1 General

This Technical Specification defines a model and identification principles for the main fixed objects related to public access to Public Transport (e.g. stop points, stop areas, stations, connection links, entrances, etc.), in particular:

— To identify the relevant functions which need a unique identification of fixed objects especially for the Passenger Information domain in a multi-modal, multi-operator context;

— To identify the main fixed objects related to the Public Transport system, choosing a certain viewpoint, i.e. considering a certain level of detail ("granularity") of the given description taking into account the needs of the identified functions;

— To give a typology of these objects together with definitions;

— To present relationships between the identified Public Transport objects;

— To unambiguously describe these objects through their main properties (attributes);

— To describe how to locate these objects in space through coordinates and through the link to topographic objects with a clear separation between the "Public Transport layer" and the "topographic layer" described in its turn by geographic objects;

— To enable the assignment of data administration (responsibility for data maintenance) of each fixed object.

Geospatial location referencing techniques of PT objects (e.g. use of satellites, roadside equipment for positioning) or representation techniques on maps (projections) are outside the scope of this standard.

1.2 Explicit Exclusions from Scope

In order to limit the scope for this version of the Fixed Object Standard, certain types of potential Fixed Object have been excluded for the time being, but will be proposed for inclusion in a second or subsequent part of the standard. These include:

— Roadside Equipment such as Traffic Signals and Traffic Lights and approach information for Urban Traffic Management and Control Systems;

— Road crossings and interchange data (though Access links may project onto tracks in other models that consider these, such as the EuroRoads project);

— Parking: A Car Park Model defines the availability and nature of car, bicycle and other parking. IFOPT includes only a rudimentary Parking model to indicate the relationship of the car parks to the rest of the Stop Place model;

— Relationships with the location referencing requirements of DATEX2 and TPEG.

Fixed Objects are concerned primarily with physical infrastructure and equipment as referenced by information services. Concepts that relate to fixed points that belong to other information layers, such as the structure of Tariff Zones or Fare stages (which belong to the fares layer of Transmodel) are not covered.