



BSI Standards Publication

**Intelligent transport systems — Urban-ITS —
'Controlled Zone' management for UVARs using C-ITS**

National foreword

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English Version

**Intelligent transport systems - Urban-ITS - 'Controlled
Zone' management for UVARs using C-ITS**

Systèmes de transport intelligents - ITS urbains -
Gestion des zones contrôlées à l'aide du système C-ITS

Intelligente Verkehrssysteme - Urbane ITS - Urbane
ITS - Steuerung in einer "kontrollierten Zone" unter
Verwendung von C-ITS

This Technical Specification (CEN/TS) was approved by CEN on 26 August 2019 for provisional application.

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European foreword

This document (CEN/TS 17380:2019) 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

This document is part of a set of standards related to Urban ITS (U-ITS). An overview on U-ITS requirements is provided in CEN/TR 17143 [3], which was developed under the European Commission's mandate M/456 [1]. Technologies already developed for Cooperative ITS (C-ITS) under the European Commission's mandate M/453 [2] are applicable for U-ITS.

Management of traffic in a “Controlled Zone” (CZ) is relevant for at least the following reasons:

- Movement of vehicles in cities producing traffic congestion and overcrowding on public transport at peak periods are issues that a jurisdiction may wish to control in order to allow cities to better manage the flow of traffic.
- As cities and urban complexes expand, and there is a significant trend from rural areas to cities around the world, pollution and congestion in these urban areas becomes an ever more significant problem. Traffic, i.e. vehicle movements within the urban complex, is not the only polluter but is considered to be a source of pollution; other causes are e.g. air conditioning, central heating systems, coal and wood burning heating, factories.

A CZ, also referred to as an “Urban Vehicle Access Restriction” (UVAR) zone, is the enactment of a traffic restriction to adhere to a permanent or temporary regulation applicable in a defined area.

It is recognized that different jurisdictions will design and introduce their own CZ paradigms of different method and construct. However, independent of the goal to be achieved or the political objective, the basic technical requirements to manage road traffic in a CZ is similar, and the basic methodologies are the same.

The methodology specified in this document is referred to as geofencing, i.e. the creation of a virtual geographic boundary, which, in a strict sense, is part of “Access Control and Enforcement Systems” (ACES).

1 Scope

This document provides information and specifications enabling management of road traffic in controlled zones applying geofencing. Specifically, this document provides

- a “Controlled Zone Data Dictionary” (CZDD) for management of controlled zones providing an extendible toolkit that regulators can use e.g. to inform potential CZ users, e.g. vehicles, about
 - the CZ area, i.e. the geographical boundaries of the CZ;
 - CZ access conditions including exemptions;
 - time windows indicating when these CZ access conditions are applicable, allowing the potential CZ users to select an appropriate routing, either by pre-trip planning or ad hoc re-routing,
 - and illustrations and guidelines on how to use this toolkit.

The toolkit is designed in compliance with the general ITS station and communications architecture specified in ISO 21217, and optionally applicable C-ITS protocols and procedures, e.g. ISO 22418:2018 ^[8] on “Service Announcement”, EN ISO 18750 on the “Local Dynamic Map”, and EN ISO 17419 ^[5] on globally unique identifiers.

Enforcement is out of scope of this document.

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 ISO 18750:2018, Intelligent transport systems — Co-operative ITS — Local dynamic map

ISO 21217:2014, Intelligent transport systems — Communications access for land mobiles (CALM) — Architecture

CEN ISO/TS 21177¹, Intelligent transport systems — ITS station security services for secure session establishment and authentication between trusted devices

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

controlled zone

area for which access conditions are applicable

¹ Under preparation. Stage at the time of publication: FprCEN ISO/TS 21177