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BSI Standards Publication

Intelligent transport systems – Urban ITS – Air quality management in urban areas

National foreword

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Intelligente Verkehrssysteme - Urbane IVS - Luftqualitätsmanagement in urbanen Gebieten

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European foreword

This document (CEN/TS 17378:2019) 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

Work on Urban ITS (U-ITS) is founded in the deliverable of PT1701 published as TR 17143 [1] and on the European Commission Decision of 12.6.2016 [2] in support of Directive 2010/40/EU [9].

As cities and urban complexes expand, and there is a significant trend from rural areas to cities around the world, pollution in these urban areas becomes an ever more significant problem. Traffic - vehicle movements within the urban complex - is not the only polluter, but is considered to be a major source of pollution. Other causes are air conditioning/central heating systems, coal and wood burning heating, factories, etc.

"Air pollution has a major impact on human health. It is associated with a range of deadly diseases including cancer, heart disease, strokes and asthma, and is the number one environmental cause of death in the EU, responsible for more than 430,000 early deaths in 2012 alone." [11]

"More than one fifth of the EU urban population are exposed to air pollution which exceeds EU limit values. As of 2013, exceedances of the PM10 daily limit value were registered in 22 EU Member States, while 19 remained in breach of limits for NO2. In theory, citizens in all those countries could go to court to demand that action is taken. In reality, national rules and procedures often make it very difficult for them to do so." EU law provides citizens with some possible solutions to these difficulties, by guaranteeing them rights to certain procedures. Domestic courts are obliged to give effect to EU law, even if this involves setting aside incompatible national laws. Domestic courts must give effect to EU law rights by providing effective remedies." [12]

This document provides guidance and identifies requirements and options on how to set up a policy and how to deploy reliable and scalable technologies to monitor air quality on continuous or regular basis and to react with adequate measures. This provides a means to measure the air quality required by relevant EU directives.

The most recent directive relating to ambient (outdoor) air quality is the DIRECTIVE 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe (the "Directive"), which was adopted in 2008 [13], and requires member states to:

— **Monitor and assess** air quality to ensure that it meets these objectives;

— **Report** to the Commission and the public on the results of this monitoring and assessment;

— **Prepare and implement** air quality plans containing measures to achieve the objectives.

This specification provides a means for urban administrations to demonstrate their progress to, and achievement of, EC required air quality.

1 Scope

This document provides information, guidance and specifications of requirements and options on how to set up an air quality (emissions) management policy, and how to deploy reliable and scalable technologies to monitor air quality on a continuous or regular basis, and to react with adequate measures.

This document defines technological concepts that provide reliable and open data, and defines the functional requirements on measurement devices that produce such data. This provides a means to measure the air quality required by relevant EU directives.

This document provides information and specifications enabling to specify air quality levels for triggering a scenario.

Specifically, this specification provides a toolkit of parameters and data definitions that a regulator can use to e.g.

— define proper air quality measures, suitable for a street, zone or the whole city

— inform a driver in advance of entry to a Controlled zone about air quality level and related policy measures expected to be in operation at a given time, e.g. higher parking price per location due to the adverse air quality; and of the time windows of the measure operation of the controlled zone

— inform the relevant city departments on the introduced measure, air quality levels and number of vehicles entered.

In order to maximize European harmonization, it is recommended that this specification is used in combination with a module of standardized data concepts, i.e. an “air quality management data dictionary” (AQMDD), however, this version of this document, which is focussed on policies and procedures, does not provide these data concept specifications.

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.

CEN/TS 17380:2019[1], *Intelligent transport systems - Urban-ITS - 'Controlled Zone' management using C-ITS*

EN 12341, *Ambient air - Standard gravimetric measurement method for the determination of the PM10 or PM2,5 mass concentration of suspended particulate matter*

EN 14211, *Ambient air - Standard method for the measurement of the concentration of nitrogen dioxide and nitrogen monoxide by chemiluminescence*

EN 14662-3, *Ambient air - Standard method for the measurement of benzene concentrations - Part 3: Automated pumped sampling with in situ gas chromatography*

EN 12414, *Vehicle parking control equipment - Pay and display ticket machine - Technical and functional requirements*

[1] Under preparation. Stage at the time of publication: FprCEN/TS 17380