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BSI Standards Publication

# Space — Use of GNSS-based positioning for road Intelligent Transport System (ITS) — Mathematical PVT error model

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# National foreword

This Published Document is the UK implementation of CEN/TR 17447:2020.

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TECHNICAL REPORT

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English version

# Space - Use of GNSS-based positioning for road Intelligent Transport System (ITS) - Mathematical PVT error model

Espace - Utilisation du positionnement GNSS pour les systèmes de transport routier intelligents (ITS) - Modèle d'erreur mathématique PVT

Mathematisches PVT-Fehlermodell

This Technical Report was approved by CEN on 8 December 2019. It has been drawn up by the Technical Committee CEN/CLC/JTC 5.

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## European foreword

This document (CEN/TR 17447:2020) has been prepared by Technical Committee CEN-CENELEC/TC 5 “Space”, the secretariat of which is held by DIN.

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.

# 1 Scope

This document is written in the frame of WP1.3 of GP-START project. It discusses several models to provide synthetic data for PVT tracks and the ways to analyse and compare the tracks to ensure these are similar to the reality.

# 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 16803-1:2016, *Space — Use of GNSS-based positioning for road Intelligent Transport Systems (ITS) — Part 1: Definitions and system engineering procedures for the establishment and assessment of performances*

# 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16803-1:2016 apply.

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

- ISO Online browsing platform: available at http://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

# 4 List of acronyms

| | |
|---|---|
| ANOVA | Analysis of variance |
| AR | Autoregressive |
| ARMA | Autoregressive moving average |
| CDF | Cumulated distribution function |
| CET | Central european time |
| DFT | Direct Fourier transform |
| DOP | Dilution of precision |
| FFT | Fast Fourier transform |
| GNSS | Global navigation satellite system |
| GPS | Global positioning system |
| HDOP | Horizontal dilution of precision |
| HPE | Horizontal position error |
| IGS | International GNSS service |
| ITS | Intelligent transport systems |
| KS | Kolmogorov–Smirnov |
| MFNN | Multilayer feedforward neural networks |
| NED | Northeast down |
| NN | Neural network |