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BSI Standards Publication

Intelligent transport systems (ITS) — Network based precise positioning infrastructure for land transportation

Part 1: General information and use case definitions

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National foreword

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Foreword

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 22086 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document provides the framework guidelines to identify lane-level positioning technologies with the land transportation service requirements and related standards required to deploy, manage, and operate network-based precise positioning infrastructure for land transportation. The purpose of the system is to generate and transmit the GNSS correction and integrity information to land transportation users including drivers, pedestrians, riders, etc. in order to enable them to perform lane-level positioning with low-cost GNSS receivers on nomadic devices at a high confidence level. The system design following the requirements of ITS and automotive services that are closely related to traffic safety and traffic efficiency is defined.

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TECHNICAL REPORT **ISO/TR 22086-1:2019**

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1 Scope

This document provides the framework guidelines on technologies related to the network-based precise positioning infrastructure for land transportation (NETPPI-LT) that allows land transportation users or objects carrying nomadic devices, equipped with low-cost global navigation satellite systems (GNSS) receivers and wireless communication transceivers, to perform lane-level positioning and integrity monitoring. These technologies will unlock enhanced intelligent transport systems (ITS) services and applications and will increase traffic operation/management efficiencies and traffic safety by reducing economic and social costs from traffic jams, traffic accidents, and environmental pollution.

The framework described in this document includes:

— reference architecture for the NETPPI-LT enabling lane-level positioning and integrity monitoring on personal ITS devices;

— guidelines for providing a real-time lane-level positioning service based on GNSS with the aid of the NETPPI-LT;

— guidelines to facilitate the practical implementation of the NETPPI-LT for engineers including related use cases.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 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:

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

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

3.1.1
reference station
implementation of a NETPPI-LT subsystem which captures signals/data from visible GNSS satellites and monitoring information (pressure, temperature, humidity, image, etc.) at a known position with clear sky view and no radio interferences, and includes wired or wireless links to send the collected data to the control station