

English Version

Public transport - Road vehicle scheduling and control systems - Part 9: Time service

Transport public - Systèmes de planification et de contrôle des véhicules routiers - Partie 9 : Service horaires

Öffentlicher Verkehr - Planungs- und Steuerungssysteme für Straßenfahrzeuge - Teil 9: Zeitdienst

This Technical Specification (CEN/TS) was approved by CEN on 8 December 2019 for provisional application.

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European foreword

This document (CEN/TS 13149-9:2020) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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This document is Part 9 of a series of European Standards and Technical Specifications that includes:

- CEN/TS 13149-7, *Public transport – Road vehicle scheduling and control systems – Part 7: System and network architecture*;
- CEN/TS 13149-8, *Public transport – Road vehicle scheduling and control systems – Part 8: Physical layer for IP communication*;
- CEN/TS 13149-9, *Public transport – Road vehicle scheduling and control systems – Part 9: Time service* [this document];
- CEN/TS 13149-10, *Public transport – Road vehicle scheduling and control systems – Part 10: Location service* [currently at voting stage];
- CEN/TS 13149-11, *Public transport – Road vehicle scheduling and control systems – Part 11: Vehicle platform interface service* [currently at voting stage].

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Introduction

This Technical Specification is Part 9 of a series of European Standards and Technical Specifications. The scope of this series is on-board data communication systems on public transport vehicles.

Public Transport (PT) vehicles have an increasing array of information and communications systems, including ticket machines, Automated Vehicle Location (AVL) systems, destination displays, passenger announcement systems, vehicle monitoring systems, etc. Other systems are beginning to be included such as advertising screens, tourist guides, WiFi “hotspots” and infotainment.

In addition, equipped PT vehicle will usually have a communications facility to enable voice and data to be exchanged with the control centre, other PT vehicles, PT infrastructure and roadside devices for instance in requesting priority at traffic signals. Many types of communication channel are used including public and private wireless communication networks.

These systems may be provided by a number of different suppliers and may need to be integrated. For instance:

- a ticket machine may need location information to update fare stages;
- next-stop and destination information may be drawn from schedule information held in the ticket machine;
- vehicle location systems may be used to drive signal priority requests.

As data exchange between functional units becomes more widespread, a networked approach begins to become efficient. With standardized underlying technology, the PT vehicle begins to look like a local area network: making use of IEEE 802 communications and the Internet Protocol (IP) suite.

Without a clear technology framework, integrating these systems would require complex technical discussions every time a device is procured. The existing EN 13149 standards recognized this long ago in respect of the core vehicle systems, but these have not been adapted to IP networking.

Six historical parts of EN 13149, namely Parts 1 to 6, have now been withdrawn in favour of the new IP-based approach. The core of this new approach was specified in two Technical Specifications (TS):

- CEN/TS 13149-7 specifies the Network and System Architecture for on board equipment. It describes basic principles of communications including a general description of the network topology, addresses schematics, basic network services, a system overview and basic module architecture.
- CEN/TS 13149-8 specifies the Physical Layer for IP-communication networks on board PT vehicles. This part specifies the cables, connectors and other equipment including pin assignment and environmental requirements.

Building on this, a series of specific services are being specified:

- CEN/TS 13149-9, specifying the structure to be used by a service providing time data to the on-bus network;
- CEN/TS 13149-10, specifying the structure to be used by a service providing location data to the on-bus network, specifically relating to Global Navigational Satellite Systems (GNSS);
- CEN/TS 13149-11, specifying the structure to be used by a service providing data from the vehicle platform to the on-bus network, using the Fleet Management System (FMS) for source data.