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Railway Applications — Running time calculation for timetabling —

Part 1: Requirements

Applications ferroviaires — Calcul des temps de parcours pour la construction des horaires —

Partie 1: Exigences

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 269, *Railway applications*, Subcommittee SC 3, *Operations & Services*.

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.

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Introduction

The purpose of this document is to help many railway-related organizations around the world, regardless of their experience, to calculate accurate train running time between stations for all types of trains, helping to improve the punctuality of railways around the world.

Improving railway punctuality can increase the competitiveness of railway transportation against other modes of transportation such as planes, buses and cars. More customers using railway means more income for railway infrastructure managers, railway operators and related organizations. It also means promotion of national economic growth, increased social efficiency, and use of environmentally friendly energy leading to increased global sustainability. Overall, increased use of railway leads to an improvement of "Quality of Life (QoL)" for customers.

This document describes the requirements necessary to accurately calculate shortest running time when setting up the daily and yearly timetables by clarifying the parameters to be considered.

In addition, this document shows the appropriateness of calculation by verifying the response observed on the calculated shortest running time when the parameter values are changed.

The verification will make it possible to easily confirm that shortest running time is reasonably calculated using the parameters specified in this document.

By calculating shortest running time based on this document, railway-related organizations around the world can promote punctuality and increase network capacity for train operations.

In addition to this document, further documents will complete the standard series of railway timetabling. All parts together form a specific and comprehensive guideline for railway timetabling. Figure 1 shows a map of the target of our working group. It involves important elements of railway timetabling to be standardized in the future.

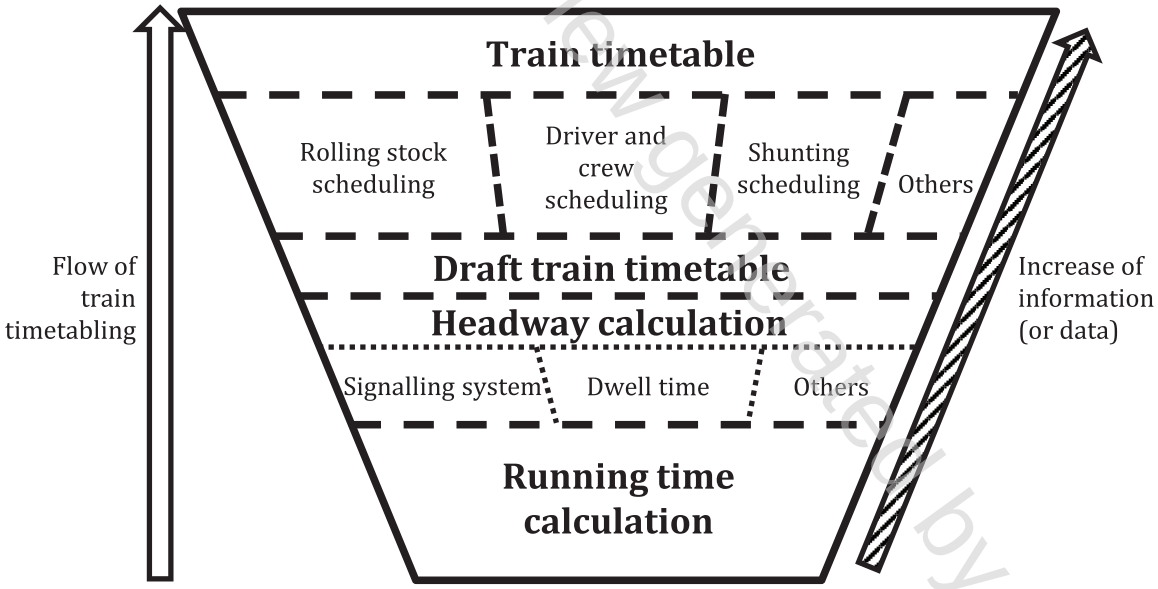

Figure 1 — Roadmap of our working group

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Railway Applications — Running time calculation for timetabling —

Part 1: Requirements

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1 Scope

In order to create punctual timetables, it is necessary to accurately calculate and plan out many values, such as running time between stations, headway between trains, train scheduling, rolling stock scheduling, driver and crew scheduling, operation scheduling in stations and depots and capacity of the line/infrastructure.

Among these values, shortest running time between stations must be calculated first, as this is the basis of timetabling.

This document describes parameters as the requirements for shortest running time calculation that enable railway infrastructure managers, railway operators and related organizations to calculate accurate running time at the stage of setting up a feasible and punctual daily and annual timetable.

In addition, this document shows the appropriateness of calculation by verifying the response observed on the calculated shortest running time when the parameter values are changed.

This document excludes running time calculation used for purposes other than timetabling.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1 General

3.1.1
running time
amount of time, on a defined path on the infrastructure, for the head of a train to pass from one stopping point or passing point to another without making any stops in between

3.1.2
shortest running time
running time (3.1.1) when a train is driven in the quickest way while complying with predetermined operating restrictions

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