International Standard on Distance-Speed Diagrams and Speed Curves, Proposed and Led by Japan, Now Issued

—International standardization of technologies that support highly punctual railway operation—

The Railway Technical Research Institute (RTRI) established the Railway International Standards Center (RISC) and, together with RISC member organizations, has been promoting activities related to international standards, including the international standardization of railway technologies.

The International Organization for Standardization (ISO) issued ISO 24675 2:2026 "Railway applications—Running time calculation for timetabling—Part 2: Distance-speed diagrams and speed curves," an international standard proposed and led by Japan, on April 15, 2026.

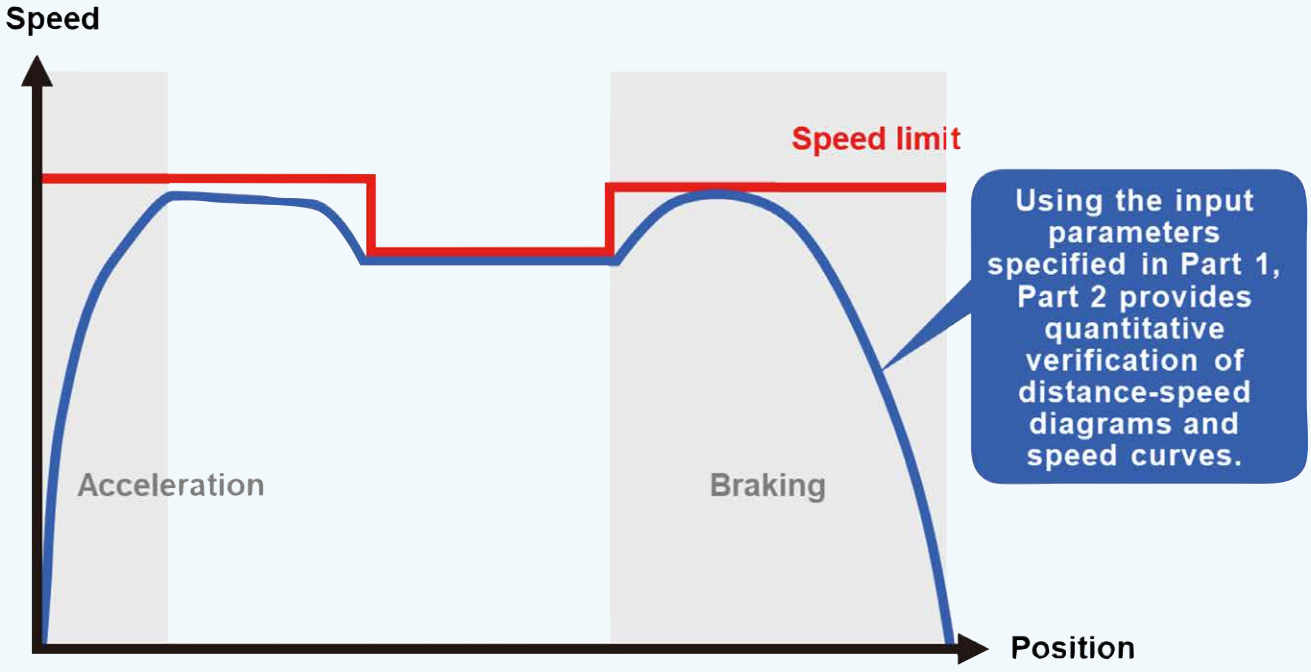


Figure 1 Example of a distance-speed diagram and speed curve representing the train running condition

1. Background to the international standardization of running time calculations

- To operate trains safely and on time, it is essential to calculate the running time between stations accurately and to develop feasible timetables based on such accurate calculations.
- Running time calculation is a sophisticated technique that takes into account many factors, including infrastructure conditions, rolling stock performance, and operational conditions, and Japanese railways possess particularly high technological capabilities in this field.
- To make Japan's strength in running time calculation an international benchmark, Japan proposed and led the development of ISO 24675 1:2022 "Railway applications—Running time calculation for timetabling—Part 1: Requirements."
- Part 1 specifies 12 input parameters required for running time calculations and sets out methods for qualitative verification of the validity of such calculations. Furthermore, Japan proposed Part 2 to achieve more quantitative verification of the validity of running time calculations, specifying a practical method through examination of calculation results as well as distance speed diagrams and speed curves.

2. Outline of international standard ISO 24675 2:2026 "Railway applications—Running time calculation for timetabling—Part 2: Distance-speed diagrams and speed curves"

- ISO 24675 2:2026 specifies a method for quantitatively verifying the validity of both the shape of speed curves, which shows the position and speed of a train (*Figure 1*), and the values obtained from running time calculations. Thus, it defines a method for confirming the validity of running time calculations with higher precision than Part 1.
- As requirements for verification of running time calculations, ISO 24675-2:2026 specifies the use of the 12 input parameters set out in Part 1 and requires that calculations reflect speed limits, infrastructure conditions, rolling stock performance, and operational conditions between stations.
- For verification of the validity of running time calculations, ISO 24675-2:2026 stipulates that calculations performed using the 12 input parameters set out in Part 1 must result in running times that fall within specified ranges, and that, in the resulting distance speed diagrams and speed curves, position, speed, and time must lie within prescribed ranges.

The issuance of this international standard will provide Japan with greater competitiveness in exporting systems for timetable planning and related applications and will enable Japanese railway operators to procure such systems more efficiently under the WTO Agreement on Government Procurement.

3. Progress towards international standardization

(1) June 2022	apan submitted a proposal for international standardization to Subcommittee SC 3 (Operations and services) of ISO/TC269 (Railway applications).
(2) January 2023	The participating countries agreed to proceed with international standardization, and Japan then led the deliberations over a period of approximately three years (*Figure 2*).
(3) February 27, 2026	ISO/TC 269/SC 3 approved international standardization.
(4) April 15, 2026	ISO issued ISO 24675 2:2026 "Railway applications—Running time calculation for timetabling—Part 2: Distance speed diagrams and speed curves."



Figure 2 Deliberations at an international meeting