JR EAST News Release

October 26, 2022
East Japan Railway Company

Worldwide Industry Standard Reflecting Japan's Shinkansen Technology Wins UIC Publication Award!

World's first publication of a global standard specialized in electric power installations for High-Speed Railway

○East Japan Railway Company (JR East) has been actively promoting standardization activities to expand business sales channels in the overseas railway business. These active approaches include incorporating Japanese technology into international and industry standards for the railway sector and conforming certain Japanese technologies to these standards. We have been working on such activities since 2018 to reflect the technical specifications of Japan's high-speed railway, known as the Shinkansen bullet train, in the railway standards called IRS[1], published by the International Union of Railways (UIC[2]).

○As one of these approaches, a working group in UIC with representatives from eight countries, including Japan, started in June 2020 to discuss technical specifications for the design of electric power installations for high-speed railways. We have contributed with dedication to the series of lively discussions, which led to the publication of IRS 60682 in June 2022. This standard is the world's first global standard specialized in electric power installations for high-speed railways to reflect the Japanese technology of the Shinkansen.

○IRS 60682 won an Excellence in Railway Publications Award from UIC for outstanding publications, which was bestowed at an awards ceremony held on October 25, 2022. We will continue to advance our international standardization approach to spread Japan's railway technology across the world.

1. IRS 60682

IRS 60682 is a standard that defines technical specifications for the design of electric power installations for high-speed railways. In June 2020, a working group for IRS 60682 started their study and discussion under the Intercity and High Speed

Committee of the Passenger Bureau in UIC. The standard was finally published in June 2022. The unique aspect of this standard is that it is the first global standard publication specialized in electric power installations for high-speed railways and reflects the technologies of Japan's Shinkansen.

- Participating Countries of the Working Group

  Eight Countries: Japan, China (Chair), France, Germany, Spain, Sweden, Poland, India

※Japanese participants are all from JR East

Photo: Discussion at the Working Group

- Major technologies of the Japanese Shinkansen that JR East has played a central role in introducing into the standard

  i. Changeover Section

  An electrical system of an overhead contact line system designed to shorten a non-powered period at a neutral section, that is, an electrical interface boundary to insulate neighboring sections, each having different phase sources. Outside Japan, coasting operations without powering are common when a train passes through the neutral section. The changeover section, on the other hand, allows constant powering when a train passes through the neutral section while maintaining traction power at all times.

  ii. Compound Suspension

  This is an overhead catenary system suitable for a high-speed operation section. Compared to common overhead catenary systems, such as simple catenary, the compound suspension has distinctive features: i.e. little contact loss between pantographs and the contact wire of the overhead catenary system, and a large current capacity.

2. Excellence in Railway Publications Awards

Excellence in Railway Publications Awards is a commendation for outstanding publications published by UIC. The awards aim to support efficient railway operations and facilitate user-friendly, business-sensitive publications. The honorable Awards of the year are for UIC's publications—technical specifications, guidelines, IRSs and others—published between February 2021 and June 2022. The main commendation criteria include publication quality, such as clear text structure and consistency of terminology, experts' contribution in the working group, innovation of the covered topic and significance for railway operation. UIC applies these criteria to choose award winners.

Photo: Excellence in Railway Publications Awards Ceremony

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[1] IRS is an industry standard for the railway sector developed and published by UIC. A revision project has been launched since 2013 on IRS Leaflets, the predecessor of the IRS. UIC has already published 109 IRSs as of October 2022.

[2] Founded in 1922, UIC is an international organization of railway operators from all over the world, based in Paris, France, with more than 200 railway-related organizations from 95 countries around the world. UIC develops and publishes industry standards for the railway sector to facilitate smooth and efficient international railway operations.