Activities of RISC Related to International Standards in the Railway Field

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Introduction

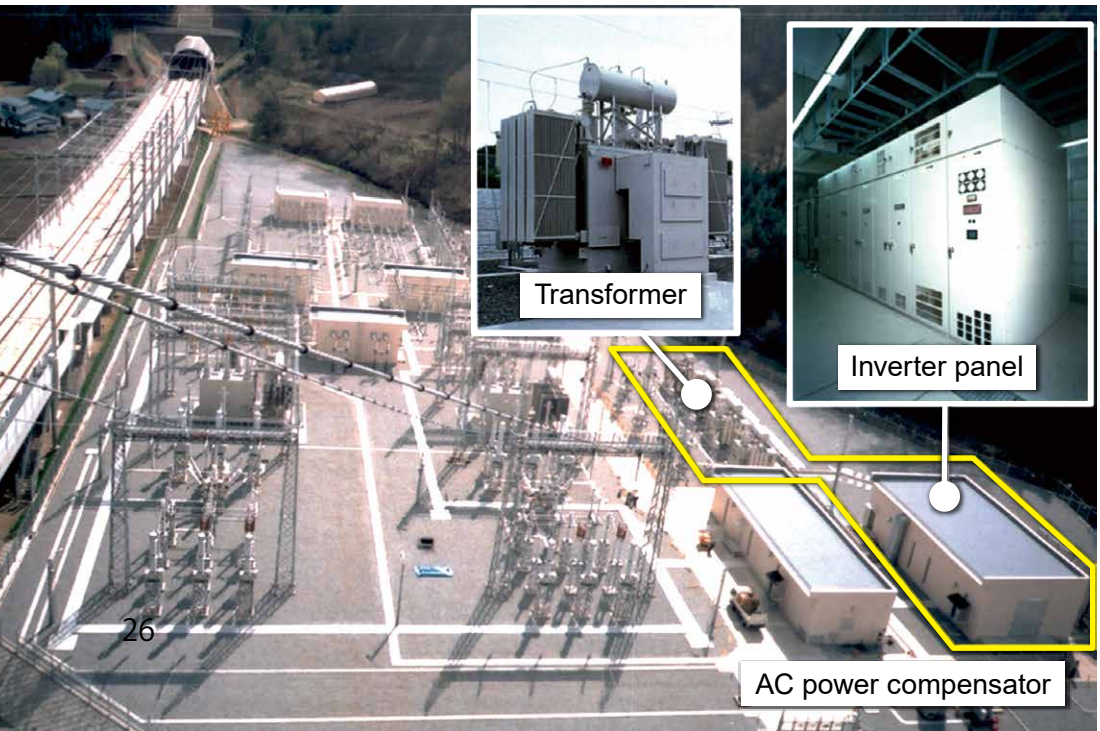
Due to the rapid globalization of information and markets in the railway field and the implementation of standardization in Europe triggered by the European Union's integration, activities closely related to international standardization have been widely carried out by both the railway operators and the railway-related industries. Under these circumstances, in April 2010, the Railway International Standards Center, RISC, was established and commenced activities in the Railway Technical Research Institute. Since then, RISC has contributed to the development of international standards for railway technologies, together with the member organizations of RISC. In RISC, the experts have carefully examined the details of the proposed standards so that they can be applied effectively in many countries including Japan. They are also involved in the deliberations of the standards with foreign experts. Through its activities related to the standardization, RISC has encouraged global use of the railway technologies developed in Japan. This paper briefly shows the activities of RISC related to international standardization in the railway field.

Activities related to international standards

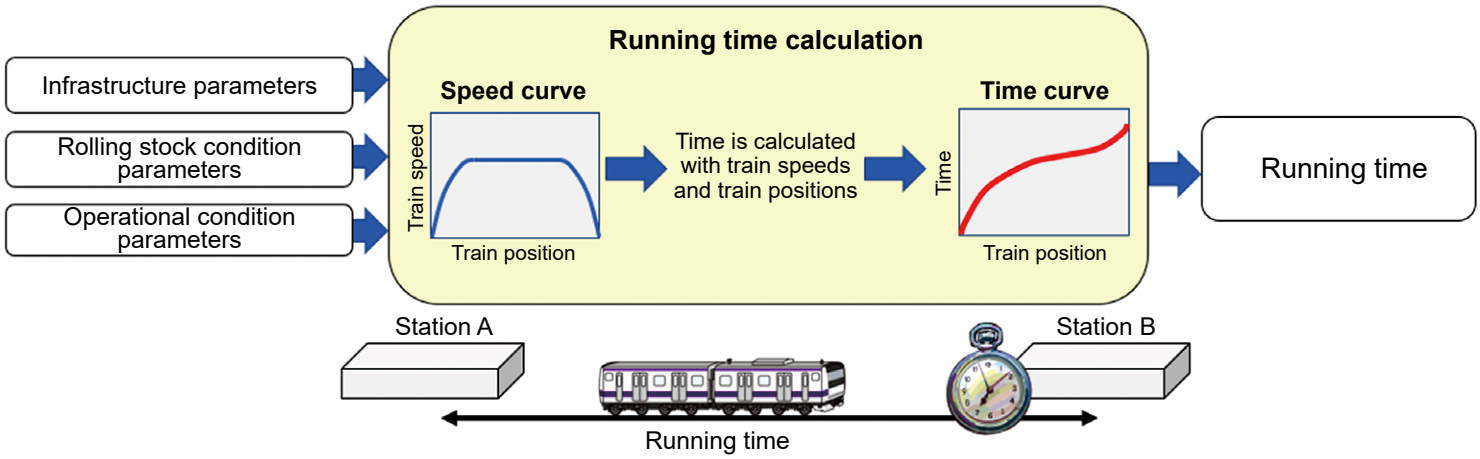
For international standards in the railway field, the deliberations are performed mainly within two organizations, i.e. IEC/TC 9 and ISO/TC 269.

Activities in IEC/TC 9

The International Electrotechnical Commission, IEC, which was established in 1906, is an international standardization organization in the electrotechnical field. IEC/TC 9, established in 1924, is a technical committee, TC, which corresponds to the railway field including rolling stock, fixed installations, and signal systems for railway operation. For IEC/TC 9, the chair country is Italy, and the secretariat country is France. In Japan, although the Institute of Electrical Engineers of Japan was in charge of the national secretariat of IEC/TC 9, RTRI took on the role of the secretariat in 2004, and since 2010, RISC has been in charge of the secretariat. RISC has contributed to the deliberation progress on the standards mainly proposed



Railway substation (Provided by the Japan Railway Construction, Transport and Technology Agency)



Running time calculation

by European countries and has also made proposals for railway technology standards developed in Japan. As a recent topic of IEC/TC 9 related to Japan, the international standard for AC power compensators (IEC 62590-3-1), was issued in August 2022[1]. AC power compensators are devices which are capable of reducing imbalance at the interface to the three-phase AC power supply network[2] (*Railway substation*). The manufacturers and railway operators in Japan have been developing the AC power compensators and currently foreign manufacturers are also developing similar devices. However, international standards for the compensators were not yet to be developed. Therefore, in order to promote Japanese technologies to the world, development of standards for the compensators was proposed by Japan in 2017. In the standard, basic requirements for railway system compensators, assessment methods to introduce the compensators and testing methods are shown.

Activities in ISO/TC 269

The International Organization for Standardization, ISO, which was established in 1947, is an international standardization organization, and mainly covers the technical fields with the exception of the electrotechnical field. In 2011, Germany and France made a new proposal about the establish of a TC which mainly covers the railway field. In April 2012, this proposal was approved by ISO, and a new technical committee, ISO/TC 269, was established. By showing that Japan would actively contribute to this TC, the countries concerned agreed that the chair country would be Japan. RISC has taken on the role of the national secretariat of this TC in Japan. In 2016, three sub-committees, SCs, were established under ISO/TC 269, i.e., SC 1 (infra-structure), SC 2 (rolling stock) and SC 3 (operation and service). For ISO/TC 269/SC 3, Japan is the secretariat country, and plays a significant role on the management of the SC with Italy, which is the chair country. In ISO/TC 269 and its SCs, new proposals for international standards tend to be increasing significantly. Although most of the proposals are made by European countries and China, Japan also has taken an active role in developing several proposals. In 2022, four international standards proposed by Japan were issued, i.e. Polymeric composite sleepers (ISO 12856-3), Heating, ventilation and air conditioning systems for rolling stock (ISO 19659-3), Driving simulator for driver's training (ISO 23019)[3] and Running time calculation for timetabling (ISO 24675-1)[4]. For the running time calculation, in order to achieve punctual train operation, it is necessary to prepare an appropriate timetable that specifies a departure time and an arrival time of each train at each station according to each route and type of train (*Running time calculation*). The fundamental technology required to design the timetable suitably is the running time calculation. This means that it would be better that international standards for the running time calculation be established in order to enhance the quality of railway transport services with punctual train operation. Therefore, development of the standard of the calculation was proposed to ISO/TC 269/SC 3 by Japan in 2018. In the standard, input parameters and verification process required for the calculation are shown. At present, deliberation is in progress to develop the second part of the standard.

Conclusion

The development of international standards for railway business has become increasingly important. RISC will continue to contribute to the sustainable future development of the railway worldwide.

References

1) https://www.rtri.or.jp/eng/press/nr20221130.html
2) Uzuka, T., "Balancing the substations; Implementation of voltage fluctuation compensator for Shinkansen," RRR, Vol. 63, No. 6, pp. 22-25 (in Japanese).
3) https://www.rtri.or.jp/eng/press/nr20220916.html
4) https://www.rtri.or.jp/eng/press/nr20221222.html