

## Japan-Led International Standards for Driving Simulator Issued by ISO

Since the Railway International Standards Center (RISC) was launched, RTRI has been promoting development of international standards for railway technologies, together with member organizations of RISC. In August of this year, the International Organization for Standardization (ISO) set out international standards on driving simulators for driver training. These standards are mainly being developed in Japan. RTRI will continue to address international standardization in the technical fields where Japan has a competitive advantage.

### 1. Purpose of international standardization

Driving simulators (Fig. 1) are commonly used for drivers training by railway operators at home and abroad.

However, since international standards for driving simulators have not been established so far, different ordering companies have required largely different specifications and suppliers have had difficulties in meeting these requirements. Meanwhile, the Agreement on Government Procurement of WTO recommends ordering parties to quote international standards in the order specifications, because this agreement set the rule of fair and transparent procurement.

Under these circumstances, setting international standards for driving simulators has become necessary in order to enhance competitiveness of Japanese products and enable Japanese railway operators to promote government procurement business efficiently.



Fig. 1 Driving simulator completely reproducing an actual cab

### 2. History

(1) In 2012, a technical committee on railway applications TC 269 was set up in ISO, and in 2014, SC3, a subcommittee of TC 269 focusing on operations and services was decided to launch. Following these events, the Japanese mirror committee of ISO/TC 269 decided to start development of international standards for driving simulators as one of their work items.

- (2) In 2015, RISC organized the Planning Committee for Driving Simulator Standards Development and started to develop the draft standards together with railway operators, manufacturers, and research organizations, and in October of that year, proposed development of the standards to the technical committee.
- (3) Since other member countries agreed on starting the standardization for driving simulators in 2018, the subcommittee continued review on this topic (Fig. 2) for 4 years under the leadership of Japan. Based on the review, the international standardization was approved on July 12 and on August 14, 2022, ISO 23019 “Railway applications - Driving simulator for drivers' training” was issued.



Fig. 2 Discussion at the subcommittee meeting

### 3. Outline of ISO 23019 “Railway applications - Driving simulator for drivers' training”

- Defining common terminologies:  
Thirty technical terms including “training mode” were defined.
- Requirements for driving cab and control devices were determined:  
Categorized driving simulators into 4 types, “cab completely reproducing an actual car” (Fig.1), “cab reproducing part of actual car”, “cab reproducing a simplified car” and “PC-based cab” and determined controlling devices such as brake required for each type of simulator. With these categorized standards, appropriate specifications can be determined depending on training purposes.
- Defined what is necessary for the performance of the driving simulators depending on the training purposes and methods to monitor and evaluate training:  
This standard set requirements for events to be included in training and their frequency such as vehicle troubles and level crossing accidents and for methods to monitor and evaluate training. These requirements will make it possible to provide practical and effective training.