

# Osong Comprehensive Railroad Test Track Operating Department

- Tasks related to the safety management of the comprehensive railroad test track.
- Tasks related to the train operation control on the comprehensive railroad test track.
- Tasks related to the maintenance and repair of the comprehensive railroad test track facility.
- Tasks related to the pilot operation of the comprehensive railroad test track and conducting pertinent research.
- Tasks related to advancement and increased utilization of the Osong Railroad Test Track
- Tasks related to the construction and operation of the testing equipment concerning a comprehensive railroad test track and the conduction of pertinent research(Testing on comprehensive railroad test track).

## 2023 Key Achievements

- KTCS-3 Infrastructure Construction and Field Test (Private/Namboosolution)
- GTX-A Preliminary Running Test (Private/Hyundai Rotem)
- Development of an ultrafine dust collection system and On-Vehicle Test (National R&D/KRRI)
- Hydrogen Powered Train Test (National R&D/KRRI)
- Busan Metro Line 1 Preliminary Running and Type Test (Private/Woojin Industrial Systems)

## 2024 Key Achievements

- Byeollae Line Preliminary Running and Type Test (Private/Woojin Industrial Systems)
- KTCS-3 On-board Test (Private/Namboosolution)
- AREX 54-car Type Test (Private/Hyundai Rotem)
- Singapore third-rail vehicle Test (Private/Hyundai Rotem)

## Comprehensive railroad test track expenses

- **Basic Usage Fee:** 2.95 million KRW for 8 hours per day (excluding VAT)
- **Fee Categories**
  - Track Occupancy Test: 100% of the basic usage fee
  - Non-Track Occupancy Test: 50% of the basic usage fee
  - Measurement Test: 20% of the basic usage fee

Division	Aug. 2019	Oct. 2020	Jan. 2021
Usage Fee (KRW 10,000/day)	1,427	921 (KRW 5.06 million▼)	295 (KRW 11.32 million▼)

※ The operating fee for securing test track safety is scheduled to be progressively increased to reflect actual costs in 2026.

## Advanced development of the test track

Division	Status	Remarks
Third Rail	Construction Complete	4.1 km newly installed
DC Section Expansion	Construction Complete	4.8 km added
Maintenance Depot & Siding	Confirmed for Implementation	2 line
Circular Line	Preliminary Feasibility Study Complete	Small loop
KTCS-2, KTCS-M	Under Review	-
Sidings	Under Review	-

- **New Third-Rail Installation**
  - New Section: km 8km900 to 12km990
  - Power Supply System: DC 750V bottom contact type
  - Other Facilities: Installation of a vehicle maintenance facility (stinger) and safety equipment (BLS)
- **DC Section Expansion**
  - Extended Section : 0km000 ~ 4km800
  - Power Supply System: DC 1,500V
  - \* DC power can be supplied to the entire test track.
  - Specifications
    - Standard efficiency molded transformers
    - Minimum Catenary Voltage: 1,372V, RMS :783A
    - Rectifier Capacity: 2 hours



# Korea Railroad Research Institute, Railroad Test, Inspection & Certification Division

We secure the safety and reliability of the railway industry by conducting accredited testing, inspection and certification, as well as type approval and modification approval inspection for railway vehicles and products, based on international standards. We also strengthen the industrial base through R&D and standard system management for railway vehicle and product technical standards, and support sustainable development in the rail sector by planning conformity assessment policies and fostering domestic and international cooperation. Specifically, by operating the Osong Railroad Comprehensive Test Track, we manage and support on-site testing, maintain facilities, and lead the practical application and advancement of railway technology.

In the future, we will establish a global conformity assessment system for innovative technologies in future rail transportation, expand on-site testing, inspection, and certification to facilitate the commercialization of K-Rail technology, and pursue the development of a testing infrastructure utilizing AX-DX based digital innovation and the digitalization of the Osong Test Track. Through these efforts, we will leap forward to become an international conformity assessment specialized organization.

## Vision & Goal

A global conformity assessment specialist leading the way in railway safety and reliability.

### • Strategic Objectives



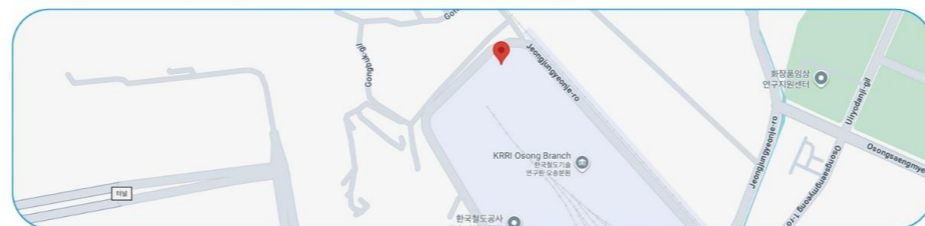
## Locations

### Headquarters



Address [16105] 176 Railway Museum-ro, Uiwang-si, Gyeonggi-do T +82-31-460-5000 F +82-31-460-5159

### Osong Branch (Comprehensive Railroad Test Track)



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**Contact Us**

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 Osong Comprehensive Railroad Test Track Operating Department T +82-43-249-8234 | E cys@krri.re.kr

※ Railroad Test, Inspection & Certification Division: <https://www.krri.re.kr/web/contents/krri010201.do>

# Railroad Test, Inspection & Certification Division



## Future Vision

- Establishing a global leadership position in railroad technology by establishing an AX-DX-based railroad test track operation platform.
- Strengthening the competitiveness of the railway industry through an international standard based railroad test environments and advanced test track facilities.
- Establishing a sustainable railroad test track operation system by improving operational efficiency and developing revenue models.



# ### Railroad Accredited Test & Certification Department

- Operation and related tasks of accredited testing laboratory/certification body
- Accredited/general testing and certification
- Education and training in the testing/certification field
- Collecting customer feedback and improving satisfaction in the testing/certification field
- Equipment management and maintenance, including support for the introduction, registration, operation, utilization, and retirement of research and testing equipment
- Policy planning and support related to conformity assessment
- Domestic and international cooperation related to conformity assessment

## KOLAS Accredited Testing Laboratory

- Accredited by the Korea Laboratory Accreditation Scheme (KOLAS) for testing according to KS Q ISO/IEC 17025



### Accredited Testing Areas and Key Testing Standards

Category	Subcategory	Key Testing Standards	Total
01. Mechanics	01.020 Rolling Stock and related products	EN 13129, EN 14750, EN 14813, KRCS B006, KRCS B332, KRS BR 0025, etc.	16
03. Electricity	03.011 EMC	EN 50121, KS C IEC 6223, etc.	11
	03.012 Software	KRS SG 0070 – 22 KTCS	1
04. Heat and Temperature	04.002 Fire	ISO 5660-1, ISO 9705-1, ISO 4589-2	3

### Accredited Testing Facilities



## KOLAS Accredited Product Certification

- Accredited by the Korea Laboratory Accreditation Scheme (KOLAS) for product certification according to KS Q ISO/IEC 17065



### Certification Areas and Key Certification Standards

Certification Products	Certification Standards	Total
Railway Facilities and Rolling Stock under the Railway Construction Act	RAMS Standards for Rolling Stock and Facilities IEC 62278, IEC 62279, IEC 62280, IEC 62425	4
	LTE-R-based Railway Communication System standards TTA.KO-06.0457, 0438, 0437	3
Railway Security Screening Equipment	Regulations on Performance Certification, Performance Inspection, and Performance Testing of Railway Security Screening Equipment (MoLIT Notice No. 2020-349, April 23, 2020)	1

### Future Vision

- Improve testing and certification efficiency and the reliability of evaluation results through digital transformation of testing and certification procedures.
- Strengthen global mutual recognition and industry support by expanding testing infrastructure that meets international standards.
- Enhance the railway sector's ability to respond to digital transformation by expanding certification in new technologies such as railway cybersecurity.

# H Railroad Accredited Inspection Department

- Operating an accredited inspection agency and conducting pertinent research.
- Tasks related to inspection of type approval, manufacturer approval, and routine test for rolling stocks.
- Tasks related to inspection of type approval and manufacturer approval for railroad components.
- Tasks related to inspection of remodeling approval for rolling stocks.
- Tasks related to education and training on inspection area.
- Tasks related to collecting customer's feedback and improving satisfaction on inspection area.

## Inspection for type approval • remodeling approval

### Type approval of railroad rolling stock • component

To verify the conformity of railroad rolling stock and/or component to its technical standard published by the government (Minister of Land, Infrastructure and Transport) via the inspection of design conformity, accordance for manufacturing, and type test.

### Manufacturer approval of railroad rolling stock • component

To verify the conformity of the manufacturer's capability to its technical standard published by the government (Minister of Land, Infrastructure and Transport) via the inspection of quality management system & production for manufacturing rolling stock and/or component.

### Routine test of rolling stock

To verify the conformity of whether the rolling stock produced in accordance with the type approval and technical standard published by the government (Minister of Land, Infrastructure and Transport) via the inspection of finished rolling stock and running test.

### Remodeling approval of rolling stock

To verify the conformity of whether the rolling stock improved or modified (remodeled) from original structure, parts, devices, performance, etc. to its technical standard published by the government (Minister of Land, Infrastructure and Transport) via the inspection of remodeling design conformity, accordance for remodeling and remodeling type test.

※ For inquiries regarding type approval applications, please contact: chbae@krii.re.kr  
**Railway Type Approval Website:** <https://www.krii.re.kr/krts>

## KOLAS accredited inspection agency

To operate the inspection agency accredited by Korea Laboratory Accreditation Scheme (KOLAS) in accordance with KS Q ISO/IEC 17020

**Inspection item** Railroad vehicle/component and facility systems

**Inspection method** KRIS-VE, KRIS-CO, IEC 62279, 62280, 62425, KRS SG 0070-22 KTCS

### Future Vision

- Ensuring quality through type approval and modification approval inspections for railway vehicles and railway products.
- Fair and transparent type approval and modification approval inspections.
- Providing reliable type approval and modification approval inspection results.



### Type Approval Procedure

Pre-technical reviewmeeting

Design conformity inspection

Conformance inspection

Parts, components, and complete vehicle type testing

Preliminary driving test

main line run test

type approval certificate

### Modification Approval Procedure

Pre-technical reviewmeeting

modification compliance technical document inspection

modification conformance inspection

parts, components, and complete vehicle modification type testing

main line run test

type approval certificate

# H Technical Regulations & Standard Research Department

- R&D for Establishment • Revision of Technical Regulation for Rolling Stock and Supplies
- Entrusted Management on Technical Regulation for Rolling Stock and Supplies
- R&D on Standardization in the Railway Sector
- Entrusted Management on Korea Railway Standards (KRS)
- Support for Legislation and Amendment Related to Inspection Agencies under the Railway Safety Act
- Entrusted Management of the Railway Sector within the Korean Industrial Standards (KS) Framework
- COSD for the Railway Sector

## Development and Management of Technical Standards for Rolling Stock and Supplies

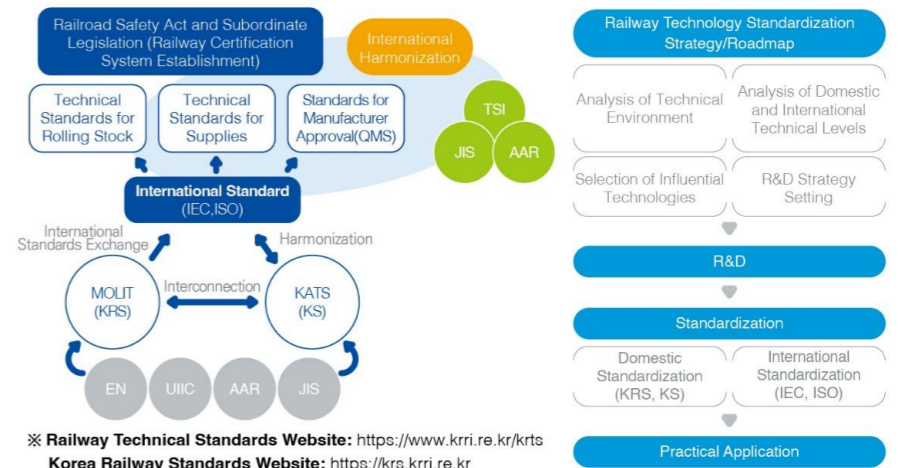
- Conducting R&D for the establishment and amendment of technical standards for rolling stock and supplies
- Management of technical standards for rolling stock (15 types) and railroad supplies (16 types)
- Management of manufacturer approval standards (for rolling stock and supplies) and safety item inspection standards (for rolling stock)

## Advancement and Management of Korean Railway Standards

- Partial entrusted management of duties related to the establishment and amendment of KRS for rolling stock and supplies since 2006
- Management of the establishment, amendment, and abolition of KRS in the fields of railway supplies(Track and Civil Engineering: 13 types, Signaling and Communication: 90 types, Electric Power: 73 types) and rolling stock (80 types)

## Management of Korean Industrial Standards in the Railway Sector and International Standardization Activities

- Designated as a COSD in the railway sector since 2018
- Management of the establishment, amendment, and abolition of KS in the following areas: IEC/TC9 (Electrical Equipment and Systems for Railways, 80 types), ISO/TC269 (Railway Applications, 67 types), and ISO/TC17/SC15 (Railway Rails and Railway Fasteners, 10 types)
- Performing roles for international standards response, including international standardization activities in the railway sector



※ **Railway Technical Standards Website:** <https://www.krii.re.kr/krts>  
**Korea Railway Standards Website:** <https://krs.krii.re.kr>

### Future Vision

- Enhancement of standard development efficiency and verification reliability through the establishment of a DX-based technical regulation and standards development system
- Securing global acceptability by expanding harmonization of KS with international standards in the railway sector and strengthening the mutual recognition system
- Preemptive development of standards and regulations responding to emerging technologies (e.g., hydrogen railways, cybersecurity), supporting railway industry innovation

