

# Case Study

## Detection of Wheel Tread Damages in Railway Applications

## Reducing Maintenance Time For Mechanics & Electronics on Railroad Vehicles Through Predictive Maintenance

### REQUIREMENT

- **Improve train availability and reliability while reducing transport times** by **avoiding train disruptions** with inputs from Department for Transport (DfT)
- System must include ability to add or remove train-cars based on traffic, passengers and crowding on stations
- The infrastructural investment in new technology must result in a significant operational cost reduction

### ADVANTAGES

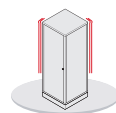
- **Improved Availability** | Fewer and shorter maintenance intervals
- **Reduction of Costs & Manpower** | Previously identifying maintenance needs were reactive through manual audits resulting in higher costs due to unplanned down time, more man power, spare part inventory costs, etc
- **Efficient Monitoring** | Future state must be proactive and include electronic sensors that are either located on-board or trackside in an outdoor enclosure that monitors the mechanical and electronic functionality of the train and detect critical situations before failures occur
- **Certified & Durable** | The cabinets had to be railway certified for outdoor use and ensure reliable operation in extreme environmental conditions

### SOLUTION

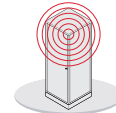
By replacing costly and time consuming manual audits with an automated Out-of-Round (OOR) process, **maintenance intervals and duration have been shortened.**

The inspection takes place **during operation** of the rolling stock through electronic sensors, which either are located directly on-board of the train or trackside in an outdoor cabinet.

The acoustic sensor, which is located directly on the rail, transmits measurement data either via radio or via optical fiber **directly to the operator** of the train.



Shock & Vibration



EMC Protection



Ingress Protection



RoHS Compliance

