
Marek Graff: Prospects for Implementing of the 25 kV 50 Hz Voltage System in Poland

In this article, the possibility of introducing a 25 kV 50 Hz voltage system into PLK's network is discussed. It compares two voltage types – 3 kV DC and 25 kV 50 Hz – by describing on the experiences of neighboring countries like the Czech Republic, Slovakia, and Ukraine, which use AC and DC in their railway networks. In Poland, potential implementation the 25 kV 50 Hz system includes the CMK, LHS, and the planned Y line. Both the Czech Republic and Slovakia had plans for the gradual reelectrification of selected lines, transitioning from 3 kV DC into 25 kV 50 Hz. However, due to the significant costs involved, this process was staggered. The advantages of the 25 kV 50 Hz system over the 3 kV DC system, such as lower construction and operating costs for the line, have prompted considerations for its implementation, particularly on heavily trafficked lines.

Keywords: supply voltage, 3 kV DC, 25 kV 50 Hz, Poland, PKP

Valeriy Kuznetsov, Artur Rojek, Waldemar Szulc: Opracowanie algorytmu systemu antykradzieżowego sieci jezdnej w transporcie szynowym

The given article presents the results of the development of algorithms for the operation of elements of the anti-theft system of the contact line dedicated to limit the cases of theft of contact and catenary wires and elements of tensioning devices. The implementation of the system not only reduces the financial losses caused by devastation and theft of infrastructure, but also significantly improves the safety of employees, passengers and bystanders. Constant monitoring of the parameters of the overhead contact line and the transmission of alarm signals in real time to the relevant services (SOK and Police) ensures high efficiency of the system. In addition, the creation of a power supply system for devices mounted on (or near) the contact line, which does not have a galvanic connection to the overhead line, will increase the reliability and availability of traction power supply systems.

Keywords: contact line, theft , security, monitoring

Małgorzata Ostromecka: Ionising Radiation in Non-Destructive Testing. Part 2 – Selected Issues Related to the Implementation of Radiographic Testing for the Diagnosis of Rail Joints on PKP PLK S.A. Infrastructure

The article presents the main issues and challenges associated with the implementation of radiographic testing for the diagnosis of rail joints conducted in field conditions on the infrastructure of PKP PLK. It outlines the range of guidelines that need to be created or modified in relation to the necessity of using ionising radiation, and identifies possible areas for reducing the time taken to perform the tests.

Keywords: non-destructive testing, industrial radiography, welded joint, rail joints

Iwona Wróbel: Transport Solutions and Indicators in Smart Cities. Part 2

The subject of the article is the analysis of solutions and applications of modern information and communication technologies (ICT) in urban centers and the measurement of transport quality indicators, taking into account the requirements of the ISO 37120 standard: Sustainable social development – indicators of urban services and quality of life. The article consists of two parts. In part two, the transport indicators are described in detail along with the measurement methodology used, including the selection of source data necessary for the calculation of the indicators. For selected seven capitals of Polish provinces (Kraków, Poznań Szczecin, Białystok, Rzeszów, Olsztyn, Opole) existing smart mobility solutions were presented. The main subject of this part of the article is to present the results based on the ISO 37120 standards in the field of transport, together with a discussion and list of results. At the end, the main conclusions from the reviewed analyses and studies are presented.

Keywords: smart cities, quality of urban services, ISO 37120 standard, urban transport, quality indicators in transport

Andrzej Zbieć: Aerodynamic Phenomena Caused by the Passage of a Train. Part 5 – Slipstream Influence on People

In the series of articles describing the aerodynamic phenomena caused by the passage of a train, the effects of a train running at high speed on itself, on other trains, on objects on the track and on people are characterized. This impact can be of two types – generated pressure and slipstream. Apart from the literature analysis, the author's research is also taken into account. The fifth part of the series describes the impact of the slipstream on people.

Keywords: rolling stock, high speed railways, aerodynamic phenomena