

## SUMMARIES

## ARTICLES

**Przemysław Brona, Adam Dąbrowski: Modern Demonstrator of Simulator for Rail Vehicles' Operators, which Increases Safety and Efficiency of Their Performance – Part I**

The article presents three tasks already accomplished in 2013–2015 by the Railway Research Institute conducted within the project of simulator demonstrator for rail vehicle operators, which was carried out within the Pilot Undertaking „DEMONSTRATOR+” and supervised by the National Centre for Research and Development (NCBiR). The tasks included the development of formal and functional requirements for the demonstrator, requirements for GIS spatial data import and processing, as well as assumptions for training scenarios, including determining profiles of driving and definitions of parameters characterizing the training scenarios.

**Keywords:** locomotive, simulator, virtual reality

**Stanisław Gago: Wireless Broadband Networks in the States of Emergency in Poland. State of the Issue**

The existing radio networks will migrate to broadband radio networks in a short time. Research work has already been undertaken by the European Commission concerning the possibility of using broadband radio networks in emergency situations connected with the risk of human life and the use of sectoral radio networks which are related to ensuring the availability of electric power, oil and gas, water and basic transport services, with particular emphasis on road and rail transport (ITS).

**Keywords:** critical situations, mission critical, PPDR, broadband radio networks in transport, LTE

**Andrzej Kowalski: Railway Research Institute as a Designated Body to Carry out Technical Tests and Conformity Assessment of Specific Types of Railway Structures, Equipment and Vehicles**

The article presents the bases and significance of acquiring the status of a Designated Body (DeBo) for the Railway Research Institute. Pursuant to Art. 22 item 1 of the Rail Transport Law of 28 March 2003, the Institute is designated to carry out activities defined in the Regulation of the Minister of Infrastructure and Development of 13 May 2014 relating to placing into service of specific kinds of railway structures, equipment and vehicles. Designated Body's pursuit of activities has been outlined, consisting of

performing technical tests and studies necessary to obtain certificates of placing into service of a type, stating conformity with a type, as well as issuing type attestations and certificates of conformity with type for railway structures, equipment and vehicles.

**Keywords:** conformity assessment, certification, designation, conformity assessment body, conformity assessment by a third-party, designated body

**Włodzimierz Kruczek: Means of Protection against Electrical Shock Used in the Railway Areas, Effectiveness Requirements and Tests**

The article features an overview of means of additional protection against electrical shock for low voltage and above 1 kV devices applied in the railway areas and in the pantograph-overhead contact line direct area. The scope of the tests and standards requirements resulting from the protection against electrical shock are described. Research, tests and technical capabilities of Electric Power Department at the Railway Research Institute are presented in terms of verifying effective operation of the applied protection against electrical shock.

**Keywords:** protection against electrical shock, pantograph-overhead contact line area

**Jacek Kukulski: Dynamometer Test of Brake Discs for the Desiro Russia Train**

There were described bench tests of selection of disc brake friction pairs for the Desiro Russia vehicle. The tests included standard tribological programs in accordance with UIC leaflet 541-3 and conformity checks with requirements of EN 14535-3 Standard. Both average and current friction coefficients were defined, as well as brake lining wear and friction pair behaviour in extreme operational conditions. There were described parameters of the Railway Research Institute's rail vehicle friction pairs test stand, approved by the UIC.

**Keywords:** railway transport, brake disc, dynamometer

**Janusz Poliński: Tactile Elements on Railway Platform Surfaces – Solutions and Errors**

The availability of transport infrastructure for the blind depends on providing safe conditions of movement to means of transport, which are ensured by tactile elements. The lack of standards in Poland governing their application in transport results in variety of signs and notices warning

against the same kind of danger or threat. The article presents consequences of activities which have not been preceded by the preparation of relevant (tram or railway) standards and a correct approach of the Warsaw Metro. Basing on the carried out trials and analysis of errors, a procedure/course of action has been developed which should be applied in places where systemic solutions relating to tactile elements for the blind are missing.

**Keywords:** railway platform, tram platform, metro platform, danger zone, tactile elements

### **Jan Raczyński, Agata Pomykała: Prospects of Łódź Railway Node Development**

The article features the state of accomplished undertakings connected with the upgrade of the Łódź Railway Node. The process of restructuring is presented through social and economic aspects conditioning the development of Łódź and the region. The currently planned investments have required not only the evaluation of economic integration in that region but links with other regions as well. Moreover, the progress in implementing tasks under Regulation (EU) 1315/2013 regarding trans-European transport network has been shown as the Łódź region is crossed by two main Polish transport corridors and also Łódź was qualified as a TEN-T urban node according to this regulation. Finally, the major directions of investment undertakings into railway network in the Łódź region by 2030 were presented in the paper.

**Keywords:** systems, infrastructure, multimodality, railway node

## RESEARCH INFORMATION

### **Iwona Wróbel: National Plan of TSI INF Implementation**

The main aim of the study commissioned by the Ministry of Infrastructure and Construction was to analyse and verify the current state of the law in Poland relating to the possibility of implementing technical specifications for interoperability relating to energy (ENE TSI) and infrastructure (INF TSI) subsystems to identify legal barriers and show possible conflicts of national law with ENE TSI and TSI INF. The scope of activities was different for each TSI and the schedule of accomplishing the study provided its gradual accomplishment. The article contains the outline of conducted works and analyses and presents conclusions relating to the Infrastructure subsystem.

**Keywords:** technical specifications for interoperability, infrastructure subsystem

## RECENT EVENTS

### **Patrycja Duszyńska-Zawada: 18th EuroLab Trade Fair – Spectrum of Science in the 21<sup>st</sup> Century**

The article presents information on the 18<sup>th</sup> International Trade Fair of Analytical, Measurement and Control Technology. The aim of the Trade Fair and its effects have been characterized. Moreover, the most interesting research methods and techniques have been described. The information also includes an overview of selected speeches made during seminars which are an integral part accompanying the Trade Fair.

**Keywords:** analytics, measurement techniques, measurement and control apparatus, accreditation, criminology, spectrophotometry

### **Marek Sumiła: 9th Polish ITS Congress**

The article features information concerning the 9<sup>th</sup> Intelligent Transport Systems (ITS) held in Warsaw. The speeches made at the railway session by the Railway Research Institute's employees, which related to selected issues concerning the implementation of Information and Communication Technology (ICT) services into the Polish railways, have been presented.

**Keywords:** ITS congress, railway command-control and signalling