

SUMMARIES

ARTICLES

Andrzej Aniszewicz: A Portable Measuring Arm for Performing Accurate Measurements of the Geometric Dimensions of Construction Elements

A modern portable measuring arm for performing accurate measurements of geometric dimensions of railway construction objects and elements with a complex spatial structure, used in the Metrology Laboratory of the Railway Research Institute, is described in the article. The Institute's external and internal customers could be the recipients of the measurements. The measuring arm is particularly useful for measuring damaged, deformed elements, e.g. due to accidents. Measurement of such elements with specialized railway devices or commonly used instruments would be impossible to perform with the required measurement uncertainty. The article presents examples of the use of a portable coordinate, six-axis measuring arm and the results of geometrical dimensions measurements made by the Metrology Laboratory of the Railway Research Institute. Examples of types of objects are shown, for which the coordinate measuring arm has been used so far.

Keywords: measuring arm, measurements, wheelset, bogie, wheel, running gear, wear of wheelsets

Magdalena Garlikowska, Piotr Gondek: Methods and Techniques of Valuation and Risk Assessment in Railway Transport with Particular Emphasis on the FMEA Method

Methods and techniques applied in risk valuation and assessment in railway transport are discussed in the article. Factors influencing the choice of a given method are indicated. The most often used FMEA method is presented – its essence, stages and cause-effect relationships that should be identified before performing an analysis in accordance with this method's adopted formula.

Keywords: risk assessment, railway transport, FMEA

Barbara Kabacińska, Krzysztof Olszewski: Certification and Testing of Railway Light Signals

Signal parameters, characteristics of signal light circuits used on the PKP PLK S.A. network and requirements for these circuits are described in the article. The scope and methodology of the tests as well as the criteria for assessing

the results are provided. The research procedure PB-LA-27 of Automation and Telecommunications Laboratory at the Railway Research Institute as well as the way of signaling certification have been described.

Keywords: the light signal, railway traffic control devices, evaluation relay closes, signal light circuit

Marek Kaniewski, Paulina Bielska: Contact Wire Lateral Deviation of Overhead Contact Line System under the Influence of the Wind

In November 2014, the European Commission adopted Regulation no. 1301/2014 (EU) regarding the technical specifications for the interoperability of the Energy subsystem. In the European Union, this regulation entered into force on 1 January 2015. Since 1 January 2016, newly manufactured OCL sections should be covered by the EU declaration of compliance with the requirements or of suitability for use. Basically, the new document concerns the overhead contact line, but there are references to Regulation No 1302/2014 (EU) on the technical specification for interoperability relating to the Rolling Stock subsystem – "Locomotives and passenger rolling stock". The article features the authors' experience in assessing the contact wire lateral deviation of the overhead contact line under the influence of wind.

Keywords: overhead contact line, Technical Specification for Interoperability relating to "Energy", lateral deviation of the contact wire

Marceli Lalik: Specifying the "Type" of a Railway Vehicle as Part of the EC Verification of the Rolling Stock Subsystem

The main subject of the article is the analysis of Directive 2008/57/EC and related normative documents concerning the way of specifying the "type" of railway vehicle in the framework of EC verification of the "Rolling Stock" subsystem carried out by Notified Bodies. It also describes the European Vehicle Type Register ERATV, which is associated with the "type" of vehicle, and the possibility of making modifications to an approved "type" of vehicle. The author assumed that there should be a list of technical parameters of the vehicle on the basis of which compliance with the type of vehicle with the changed equipment should be checked and confirmed.

Keywords: rail transport, TSI, vehicle type, EC verification

Janusz Poliński, Krzysztof Ochociński: Passenger Service in Innovative Train Stations

Innovative System Railway Stations on Polish railways are a new product that takes into account the needs of passengers and is fully accessible to the disabled and persons with reduced mobility. In this respect, Polish railways belong to the European vanguard. The article also covers similar solutions, developed on French, German and English railways. Existing projects evolve in the direction of adopting the most modern ecological, technical, technological and material solutions. New materials used for the construction of the railway station at the international airport in Minsk are also described.

Keywords: rail transport, passenger station, system railway station

RESEARCH INFORMATION

Jolanta Radziszewska-Wolińska: Assessment of the Impact of the Paint System Composition on Its Fire and Performance Properties

The article presents the scope and results of tests on the fire properties of the paint coating system carried out as part of the internal project at the Materials and Structure Laboratory of the Railway Research Institute. These studies were part of a joint venture conducted in accordance with the agreement of 23.12.2016 on cooperation of the Laboratory of Materials and Structure Research at the Railway Research Institute and the Centre of Laser Technology of Metals at the Kielce University of Technology.

The aim of the undertaken topic was to develop a paint coating system with anti-graffiti coating that would meet the new European requirements relating to fire safety of rolling stock. The tests carried out so far of different painting systems from several manufacturers have shown that these requirements pose a big challenge for producers. The most difficult to fulfill is to reconcile the required flame propagation properties with the expected performance parameters, such as protective and decorative properties (especially the flexibility of the coating). The IK Laboratory carried out many specialized tests of fire properties for successively modified experimental coatings, developed by the paint manufacturer Barwa sp.z o.o., in cooperation with the Kielce University of Technology, taking into account the conclusions of the IK Laboratory, formulated on the basis of analysis of laboratory test results. Positive results were obtained for the modification consisting in introducing intumescent paint into the paint coating system.

Keywords: PN-EN 45545-2, fire safety of rolling stock, paint coatings

Iwona Wróbel: Standards and Quality of Transport Services in Public Transport

The article describes a project carried out at the Railway Track and Operation Department of the Railway Research Institute, regarding the performance indicators of rail transport services in public transport. The draft includes provisions of EU and Polish legal acts regulating the ensuring of a defined level of requirements and standards of rail transport services as well as provisions included in public service contracts (Polish and European examples), in terms of requirements and parameters (measures) of passenger transport qualitative implementation. The result of the work and analyses carried out in the project was a proposal to monitor the quality of services, taking into consideration a set of indicators in the following areas: accessibility to transport services for people with disabilities, rolling stock, implementation of the transport process, service standard and quality of passenger service.

Keywords: quality of transport services, railway passenger transport, public transport

Iwona Wróbel: Verification and Update of the Transport Plan

The project conducted at the Railway Track and Operation Department of the Railway Research Institute concerning the verification and updating of Annexes 1 and 2 to the Transport Plan is described. Premises justifying the amendment of the regulation are presented and the detailed scope of tasks carried out in the project is listed, including parameters regarding: the volume and financing of transport services, shaping the offer, as well as service standards and the way the information system is organized, as specified in Chapter 7 of the Plan.

Keywords: transport plan, public transport, inter-voivodeship transport services, international transport

RECENT EVENTS

Agata Pomykała: Conference “The Role of Railways in Improving the Transport Accessibility of Regions”

The article contains an overview of the topics presented at the conference “The role of railways in improving the transport accessibility of regions”. The conference was organized at the Railway Research Institute by the Institute of Geography and Spatial Organization PAS, the ProKolej Foundation and the Railway Research Institute on 18 January, 2019. The

speeches mainly related to the development of rail infrastructure in Poland, research into the transport accessibility of regions, the possibilities of rail transport development in the context of demographic, economic, social and ecological changes as well as the concept of the Polish rail network in the perspective of 2040. Attention was also paid to the correlation between the country's spatial development plans and plans of railway development.

Keywords: transport, railways, economic development, transport accessibility, region

Michał Rudowski: 4th Scientific and Technical Conference "IT in Railway Transport"

The article presents the scope and course of the 4th "IT in Rail Transport" conference organized by the National Board of the Association of Transport Engineers and Technicians of the Republic of Poland and the PKP Informatyka company, held on 18 September, 2019 at the PKP S.A. headquarters in Warsaw. The theme of the conference was "New IT policy application in practice in the PKP Group". The main objectives of the conference were: diagnosis of problems related to railway digitization, indication of directions of IT activities in the PKP Group and PKP PLK, indication of the correlation between the development of the IT area and the process of modernizing rail transport in Poland, and determining the conditions for ensuring cybersecurity in the railway sector. Other goals, as in previous editions of the conference, concerned the exchange of experience, ob-

taining information on innovative ICT solutions in transport and building relationships aimed at better understanding of the needs of railway companies in the field of efficient, optimal and effective supply of IT solutions for railways. The leading topics of the conference were: current IT policy elaborated in the PKP Group and PKP PLK company, standardization and centralization of IT systems for passenger transport as well as conditions for ensuring cybersecurity in the railway sector.

Keywords: IT policy, railway transport, new technologies, cyber security, 4th Railway Package

INFORMATION ON PUBLICATIONS

Agata Pomykała: Monograph "High-Speed Rail in Poland. Advances and Perspectives"

The monograph published in English concerns high-speed rail and conditions related to the implementation of the high-speed rail construction programme and its operation in Poland. It is the result of many years of work on this issue and presents technical, organizational, social and economic aspects. It also shows the current state of studies concerning the implementation of the government programme on the preparation and launch of high-speed rail transport in Poland.

Keywords: transport, economic development, high speed railways