
Klaudia Bednaruk: Accreditation of Calibration Procedures for Specialised Measuring Instruments Utilized in Railway Transport; Selected Issues

The paper presents issues associated with the calibration and supervision of railway specific measuring instruments. It starts with considerations regarding the benefits associated with the measuring instruments calibration, especially regarding calibration performed by accredited laboratories. Attention is paid to the importance of maintaining traceability and keeping knowledge about measuring instruments' errors in the context of railway transport safety. It analyses why the number of metrological laboratories offering accredited calibration of railway specific instruments in Poland is insufficient. The paper makes use of the experience of the Railway Institute Metrological Laboratory. In particular, it uses experience gained in 2017 during the accreditation of AC resistance measurements, which are utilized for accredited measurements of the resistance of slippers with fastening systems, wheel wear profile measurements with analogue callipers, buffer centre line height over rails running surface measurements and wheel tread diameter measurements based on two contact-points.

Keywords: calibration, accreditation, measuring instruments

Stanisław Gago: ICT in the Polish Railway Industry

The article intends to discuss the impact of the development of IT and logistics systems on the development of ICT networks in the context of practical application in the area of transport, especially in the area of railway transport in Poland. At present, PKP PLK is involved in the construction of a teletransmission network, to be used mainly with ERTMS. According to the author, development of the network should be planned in such a way that this network is able to satisfy the current and future needs of all railway companies in the area of data transmission, making it possible for such railway companies to extend their range of ICT services to include other forms of transport. Systems of railway traffic control should be established within a physically isolated fibre-optic network (isolated fibres in fibre-optic cables).

Keywords: Broadband ICT networks, 5G technologies, ICT in the railway industry, Internet of Things (IoT), Physical Internet (PI)

Magdalena Kycko, Wiesław Zabłocki: The Analysis of Selected Issues of Signalling System Selection for a Railway Line with Set Railway Service and Traffic Parameter

One of the essential elements of the railway transport modernization in Poland is the implementation of modern systems of interoperable ERTMS / ETCS (European Rail Traffic Management System / European Train Control System) fulfilling the tasks and functions of CCS (control-command and signalling) systems. The investment process including the implementation of ERTMS / ETCS requires prior development of a number of documents, which include feasibility study, terms of reference, a description of the contract and many others. The initiation of the investment process is preceded by a series of activities including the evaluation and selection of the right target railway traffic control system for the selected railway line. Due to the interoperability requirements, it becomes necessary to develop methods for assessment of the possible ERTMS / ETCS configurations and later selection of a configuration for a railway line with predefined service and traffic parameters. The aim of the publication is to present a concept that can be considered as the basis for methods of analysis and rail control traffic system selection. The sample line, which was selected to carry out research and

analysis, is a section of the selected railway line section of the railway line No. 7 due to its strategic location and traffic load.

Keywords: system, rail traffic control, ERTMS/ETC

Agata Pomykała: The Central Polish Airport in the Rail Transport System

The implementation of a multi-faceted undertaking related to the preparation, construction and commissioning of the Central Polish Airport (CPK) requires efficient transport. The selected location – 30 km from Warsaw, near Grodzisk Mazowiecki, where there already is a large concentration of transport routes and high speed railway lines are planned for construction – will facilitate the completion of this project. The article presents the transport environment of the CPK, the significant conditions and the capabilities in terms of transporting passengers to and from the airport by rail, including the division into metropolitan area and regional traffic and considering long-distance traffic, as well. One of the key requirements for the success of the project will be integrating the airport with the regional, national and international railway networks.

Keywords: railway transport, airport, transport system, integration

Zdzisław Wojdygowski: The Accessibility of Transport as an Economic Category

This article attempts to organize concepts, classifications and methods of measurement, as well as to identify the factors affecting the accessibility of transport. The available reference literature does not offer a uniform, clear and unambiguous definition of transport accessibility. Due to the necessity for a change in the direction of transport policy in relation to the development of transport, the need for a more precise interpretation of transport accessibility, essential to research or practice, has been emphasized herein. The accessibility of transport as an economic category is placed in the areas of both the supply of services and transportation needs. The importance of the issue of transport accessibility stems from the role played by transport – an area of crucial importance in ensuring economic growth of the country. The passenger transport market in Poland is an example of the significance of the linear and nodal transport infrastructure as a factor determining the quality of transport accessibility. There is also emphasis on the necessity for a gradual modernization of the transport infrastructure with the aim of improving the level of services to guarantee that the quality-related needs of today's customers are met.

Keywords: transport accessibility, transport infrastructure, railway infrastructure

Andrzej Zbieć: Tests of Running Safety Under Large Compressive Longitudinal Forces

The article presents the cause of derailment of empty two-axle wagons placed in long freight train-sets together with bogie wagons, as well as research conducted to prevent this phenomenon, which was concluded by introducing appropriate statements in the UIC leaflet 530-2, and then in the European Standard EN 15839. It also presents activities undertaken during the preparation and performance of the tests, requirements for the test track and for the wagons' composition in the train-set, conditions during the tests, values being measured and respective evaluation criteria, principles applicable to the result analysis, as well as a sample chart for a single ride and regressions for various criterions. Examples of wagons which were tested in this way are also given.

Keywords: running safety; reverse shunting test; longitudinal forces