

SUMMARIES

ARTICLES

Piotr Gonddek: Problems of Railway Subgrade Operations in the Mining Damage Area

The article describes the basic problems of the railway subgrade operation in the mining damage areas. It depicts the necessity of applying radical solutions in order to provide proper functioning of the rail transport in the areas with mining damage. The article presents the possibilities of solving the problems of railway lines operation in the mining damage areas.

Keywords: railway subgrade, mining damage

Marek Kaniewski, Jan Malicki: Analysis of Existing PPM2 Protocol Data and Information in CAN-BUS Network

In the article there is described the evaluation of PPM2 Protocol used by PKP for supervision of work of power supply objects, especially high-speed circuit breakers. Beyond the use on railway, the protocol is used also on trams and trolleybuses, not only for supervision of high-speed circuit breakers but also for supervision of lighting or heating of crossovers during the winter. There are presented the conclusions of the survey that was sent to current users of PPM2 Protocol, on the basis of which the introduction of new necessary functions of the protocol was suggested.

Keywords: substation, high-speed circuit-breaker, remote control of high-speed circuit-breaker

Andrzej Kowalski: Scope of Accreditation for Railway Institute to Expansion of Activity as Conformity Assessment Body

The President of the Office of Rail Transport has updated the scope of designation of the Railway Research Institute (IK) to carry EC certification processes of interoperability constituents and interoperable railway subsystems in accordance with the Directive No. 2008/57/EC of the European Parliament and the Council. Previously the scope of accreditation of the IK as a body certifying products and management systems. In the article the extended scope of accreditation, designation, and notification of the IK is described. Also the EC conformity assessment and verification procedure modules are characterized.

Keywords: conformity assessment, certification, designation, accreditation, conformity assessment body, third-party conformity assessment activity, notified body

Artur Rojek: Searching for Critical Currents of High-Speed Circuit Breaker DC

The high-speed DC circuit breakers constitute an essential protection in the event of occurrence of short circuit or overload. Before release to service they are subject to tests embracing among others designation of values and time of breaking of critical currents. According to the law provisions

in vigor in Poland, those tests are conducted according to the PN-E-06121 [3] norm. This norm serves different requirements in relation to tests of critical currents than the European norms PN-EN 50123-1 [4] (DC circuit breakers for traction substations) and PN-EN 60077-3 [6] (for on-board high-speed DC circuit breakers). The Polish norm serves the maximum burning time of an arc (500ms), whereas European norms do not determine any time restriction in this field. Other differences between the requirements of Polish norms and European norms regard tension during testing, time constant of a circuit and number of repetitions.

This testing of value and time of switching off critical currents were conducted for several types of high-speed DC circuit breakers. Taking into consideration the fact that the norms do not impose critical currents' values, but only contain requirements related to determining of their value, all the test finished with positive result. The values of tested circuit breakers are included within bracket between 20 A and 300 A. Test results demonstrated that the value of critical currents switched off in time lower than 500 ms is dependent on a construction of a high-speed breaker, as well as on a device that was used to support a transition of electric arc from main contacts to arc chamber and on direction of current flow through non polarized breakers.

Keywords: high-speed circuit breaker DC, critical currents, burning time of an arc, electromagnetic blowout

Krzysztof Tchórzewski: Verification of the GSM-R System Parameters for BSS Part

The Signaling and Telecommunication Laboratory of the Railway Research Institute has technical possibilities and an elaborated methodology of measurements execution of the quality parameters of the radio coverage and of the indicators of service quality. The article contains information regarding the role and tasks of this Laboratory as a notified body in the evaluation of the GSM-R system. The rules governing choice of modules for the evaluation of the railway radio system GSM-R and of the consequences of acceptance by an applier of a chosen module have been described. The article presents the required parameters of the quality of coverage of a railway line as well as the indicators of the quality of services of the GSM-R system subject to testing and EC evaluation of verification. It strongly emphasizes and underlines the meaning of measurements and verification of a system that are aiming to ensure the infallibility and correctness of provision of services required for the railways.

Keywords: certification, GSM-R system, radio signal, quality of service

Iwona Wróbel: Transport Infrastructure Development For Logistics Valley Functional Area

The article describes the transport infrastructure development for the „Logistics Valley” functional area, taking into particular consideration the key investments. Basing on the

National Spatial Development Concept a definition of functional areas and their typology were cited. A socio-economic potential of the „Logistics Valley“ was presented together with transport problems hampering development processes. A prospective vision of the „Logistics Valley“ functional area was transmitted, as well as its strategic goals, priorities and actions within transport development an also an impact of the key investments on generated potentials.

Keywords: transport infrastructure, functional area, development of the strategy

RESEARCH INFORMATION

Jacek Kukulski: Dynamometr Tests of WMD Brake Disc

In the article there are described tests of WMD brake discs manufactured by Kovis Slovenia to be used in regional Scottish railways. There are also presented tests possibilities and technical parameters of the Railway Research Institute stand for examinations of friction pairs in brakes.

Keywords: railway transport, brake disc, disc brake pads, brake stand

Wiesław Majewski: Railway 3 KV DC Composite Insulator Tests

The information concerns the new type of 3 kV DC composite insulator tests entered into operation. In these insulators there were used composites instead of electrotechnical porcelain. The change of the insulating material caused the change of methodology of laboratory tests. The new insulators show positive characteristics and are qualified to operation in catenary system.

Keywords: Composite insulator, catenary railway insulators 3 kV DC

Zdzisław Wiśniewski: Carrying Out and Supervision of Tests for Evaluation of Buffer Power Supply Type ZB24DC300-I

In the study a description of full testing conducted (of a type) of a buffer power supply ZB24DC300-I and testing results were presented. A fulfillment of all technical normative requirements in vigor was stated, which fact qualifies a buffer power supply to be used on rail vehicles.

Keywords: equipment for rail vehicles, charging of batteries

EXTERNAL PUBLICATIONS

Jarosław Moczarski: Basics of Exploitation of Railway Signaling Systems

The exploitation of railway signaling systems constitutes an action that enables a safe and efficient functioning of the railway transport system as well as realization of transport tasks. In the new, 4th edition of the book, the basis of the exploitation theory were presented. A model of the signal-

ing systems exploitation process model was shown. The issues related to infallibility and durability of technical objects and the systems' safety were reviewed. The processes of aging and wear and tear of elements of devices were described. The rules of realization of exploitation and diagnostic tests were presented together with the rules of management of an exploitation process. The book is intended for students of technical fields of study, in particular for signaling specializations, as well as for practitioners dealing with exploitation of signaling devices and systems, decision makers dealing with railway infrastructure, designers and producers.

Keywords: exploitation of signaling systems, maintenance process organization

Janusz Poliński: Role of Railways in Intermodal Transport

The intermodal transport is a cargo transport technology which because of its pro-ecological character will be systematically developed in future. The freight units (containers, swap bodies, semi trailers) used for transport render a transshipment more efficient while protecting at the same time transported goods from damage. In six chapters of the book there were described issues related to a nodal infrastructure (terminals) and linear infrastructure (railway lines), freight rolling stock, codification of freight units as well as of machines and devices used in transshipment technologies. The book is intended for engineers and technicians, as well as for practitioners dealing with the intermodal transport, students, local government administration employees and to people interested in this problematic.

Keywords: intermodal transport, subsystems, terminals, railway wagons

Janusz Poliński: Impact of Road Trains for Rail Transport in Europe

A cargo transport by road vehicles with increased maximum mass and length involve numerous limitations deriving from the Directive 96/53/EC. A slow process of increasing the essential parameters of road vehicles has many supporters. They see advantages deriving from their exploitation. Both a reduced fuel consumption and a lower emission of toxic substances to the atmosphere are being highlighted. Moreover lower costs of transport are being pointed out. The critics of road vehicles take notice of decreased safety of road transport or of a probability of outflow of a part of cargo from the railway transport. In some countries if the European Union, as well as in Australia and the United States of America, road trains have been operated for many years. However, there are countries where their circulation is forbidden. For several years road operators have endeavored to obtain a possibility of unrestricted circulation of road vehicles on the territory of Europe. In many countries tests and research are executed as well as public consultations, which altogether aim to support decision making process. The questions raised in the article bring closer the problematic of road trains to people dealing with the overland transport.

Keywords: cargo transport, road trains