## 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