

Abstract

The dissertation describes in detail the method of evaluation and selection of the variable message sign message on rail-road crossings. This method allows for the selection of an appropriate variable message sign, increasing the safety level of wheeled vehicle drivers by verifying the decision-making process of the wheeled vehicle driver in the immediate vicinity of rail-road crossings.

For the purposes of the dissertation, field testing grounds were created that reflect real conditions, and drivers of various age groups and sexes were used. Thanks to the use of various types of measurement techniques, data was collected that allowed for an unambiguous assessment of the behavior and reaction times of the driver of a wheeled vehicle to the message of the variable message sign (VMS) in the foreground of the rail-road crossing (PKD).

The first chapter of the dissertation discusses the genesis of the dissertation, as well as its purpose, scope and thesis. The second chapter is a literature review showing the methods and processes of obtaining the necessary data to illustrate the driver's decision-making process. The third chapter presents the scope and plan of the research. The fourth chapter describes in detail the developed method and model for evaluating the message of the variable message sign and defines the basic concepts adopted for the purpose of the research. The fifth chapter presents empirical research divided into 6 stages. The fifth chapter presents the method of measuring various eye characteristics and motor reactions of drivers of wheeled vehicles to external stimuli caused by messages displayed on the VMS sign in the foreground of the rail-road crossing, the behavior of pedestrians and the surroundings of the road. The analysis of the data collected on the testing grounds precisely formulates the subsequent components of the reaction time and the manner of reaction of the tested drivers, setting the direction for drawing conclusions from this dissertation. The last stage of the research is described in the sixth chapter, which presents the procedure and results of validation of the method and model for selecting the VMS sign, performed in situ on a real road-rail crossing of the D category. Chapter seven presents the final conclusions and indicates the directions for further research.