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ANALYSIS OF CALCULATED DISTURBANCES FOR STUDYING HORIZONTAL DYNAMICS OF FREIGHT CARS

The study purpose is to choose the components of the calculated disturbances for predicting the dynamic qualities of the freight cars in a horizontal plane. The studies are carried out using mathematical modeling the car dynamics with provision for irregularities of the rail track illustrated by the example of empty and loaded open wagons.

The two groups of the calculated disturbances are examined. The first group includes irregularities of real sections of the railway track measured by processing the records of the track-testing car. The second group includes the models of the disturbances components: the polyharmonic model with the parameters based on the analysis of irregularities on sections of the main road of the Pridneprovsk Railway, and the model based on the formula and tables presented in the Guideline Document PD 32.68-96. Levels of components of the disturbances presented are analyzed, and the normalized factors of the horizontal dynamics of the open wagons in a wide range of the running speeds are determined using computations. From the results of a comparison of the estimations obtained with the corresponding experimental data, we can make the inference that disturbances under consideration are acceptable for the predicted computations.

Keywords: *freight cars, calculated disturbances, indices of dynamic qualities.*

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