

BUILDING A POLYHARMONIC MODEL OF HORIZONTAL COMPONENTS OF INPUT DISTURBANCES FOR STUDYING DYNAMICS OF FREIGHT CARS

The work goal is to build a model of the components of the input disturbances acting on the railway vehicle from the track that is satisfactory for calculations when predicting the dynamic qualities of the freight cars in a horizontal plane. In the study the methods of mathematical modeling have been used.

An amplitude and frequency analysis of horizontal irregularities of the railway track has been conducted processing the records of the track-testing car. The model of the components of the predicted input disturbance in the form of the sum of harmonics has been formed using the results of this analysis. It is found that in the predicted calculations the model built enables the estimation of the standard indices of the dynamic qualities of a gondola car in a horizontal plane that is close to the corresponding experimental data.

Keywords: *irregularities of railway track, spectral analysis, indices of dynamic qualities.*

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