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ESTIMATION OF TRACK CONDITIONS ON MISALIGNMENT OF RAIL LINES USING DATA OF DYNAMIC PERFORMANCE TESTS OF FREIGHT CARS

method of qualitative assessment of the distorted rail lines of the railway track portions is proposed using the results of dynamic running tests of freight cars. In the research methods of mathematical modeling and mathematical statistics, in particular a spectral analysis were used.

Qualitative assessments of distortions of rail lines are proposed to compare variances and spectral densities of irregularities of the track calculated using experimental records of vertical accelerations of the bogie side frames over axle boxes and the tract transfer function of the side bogie frame and track with the basic variances and spectral densities of irregular portions of the track of known intensities. Examples of practical applications of this method of assessments are presented. The proposed method for processing the results of dynamic running tests will exclude those areas where intensities of irregularities are beyond the measured limit, and thus increase the accuracy of the experimental evaluation of the dynamic response of the vehicle.

Keywords: distortions of rail lines, freight cars, dynamic running tests, spectral density, dispersion, intensity of track.

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