Evaluating track geometrical quality through different methodologies

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Abstrak

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The implementation of High Speed Railway (HSR) networks involves a large amount of financial support imposing, not only at the conception and design level, but also during the line
operation, a demanding, a complete, and a rigorous estimation of the total cost involved in the life cycle of the system. By using appropriate
tools for estimating HSR life cycle costs (LCC), it
is possible to minimize the final cost and, at the same time, to identify the most important aspects and parameters influencing the cost evaluation. Research, therefore,
is not only required on the LCC modeling, but also on the estimation of major degradation factors and in the assessment of its impact on the maintenance needs. This paper deals with this former aspect. The various methodologies for evaluating the geometrical track quality are presented and
compared to each other, namely the J Synthetic Coefficient, the Indian TGI and also the approach presented in the European Standard
EN 13848-5. In order to compare these three
methodologies, they are applied to a railway stretch of the Port
uguese Northern Railway Line. By doing so, the prediction of track degradation rate within the period of research can be
determined, which possibly is used in the future for defining cost-effective maintenance strategies.