

Roller-rig Test of Instrumented Wheelset Utilizing Shear Strains on Wheel Web

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Instrumented wheelsets are widely utilized in railway industries for the purpose of the measurement of wheel-rail interaction forces. In the conventional instrumented wheelset, the measurement accuracy of lateral forces is reduced due to the bending moment induced by wheel loads. The authors have proposed a new configuration of the instrumented wheelset to reduce the influence of the wheel load on the measurement of the lateral force. This proposed configuration utilizes the shear strains of wheel webs as a measure of lateral forces. This paper describes the accuracy verification of the proposed configuration under wheel rotating conditions. Single-wheelset roller-rig tests are carried out and the test results show that the proposed method can reduce the influence of wheel loads even under rotating conditions.