

PASSENGER VEHICLE DERAILMENT TEST AT DOVER

This report considers the criteria for overturning derailments and describes the experimental derailment of a British Rail Mk1 BSK passenger vehicle on a curved track test site near Dover. The derailment, which was produced by the vehicle's high speed in the curve, was carried out as an ad-hoc experiment to confirm the margin of safety available above the Advanced Passenger Train's planned operating cant deficiency of 9° . The vehicle, which had a similar centre of mass height to the APT, was tested and derailed on a 90m curve laid with 178mm of negative cant. It derailed at a cant deficiency of 24.3° , against a prediction of 25.6° . The report includes a discussion of the theoretical aspects of flange climbing, which is considered to be possible only in the presence of extraneous dynamic effects produced by track irregularities.