

Influence of Strong Cross Winds on High Speed Trains



Client Deutsche Bahn (German Railways)

Background and results Several lightweight vehicles have been taken into operation by German Rail for high speed traffic. At high speed – typically above 200 km/hr – strong cross winds are a relevant hazard and could be a cause for a derailment. To guarantee sufficient stability towards cross winds, a risk based safety assessment was developed. It takes the characteristics of the vehicles, its speed, the line parameters (such as curve radii, banking and quality of track geometry), and the local distribution of strong winds into account. All relevant factors are combined within a risk model. The resulting risk values are computed to defined safety criteria. If the risks are not acceptable, additional safety measures like speed reduction, wind fences or wind warning systems are necessary.

Value of services US\$ 650'000

Period 1997 - 2005

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