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Scenarios and requirements for the operation of longer freight trains in Europe

Increasing the length of freight trains in operation across EU corridors is a key objective to achieve an increase in capacity and strengthen the competitiveness of rail freight transport by decreasing the cost of rail haulage without affecting safety standards.

Research projects such as MARATHON-FP7 are aimed at developing technical solutions for the regular operation of 1,500 m trains. The definition of technical and homologation requirements, together with safety standards and protocols for radio-remote controlling is of paramount importance to ensure that longer freight trains are put in operation.

The Shift2Rail project Innovative technical solutions for improved train DYNAmics and operation of longer FREIGHt Trains (DYNAFREIGHT, EC grant No. 730811, in cooperation with the Shift2Rail project FF4LE) is an ongoing project. Functional and technical requirements of longer trains, including the radio controlled traction and braking, are going to be defined with the aim to develop a radio system for long train operation ready for certification. This research reports the results of the safety analysis performed with full-scale tests and first indications for functional requirements.

The results of pneumatics and multibody dynamics simulations performed to provide guidelines on reducing the risk of derailment of long freight trains.

The analyses will deal with different train configurations (vehicles and payloads), initial speed and brake applications, as well as different track layouts.

An analysis of infrastructure requirements has to be developed to derive common technical specification and quality requirements for rail infrastructure to accommodate long freight train operations. The research includes analysis made on the Spanish rail network•