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Noise reduction of freight wagons achieved by LL-blocks
implementation : last investigations and results from IPG and
NICOBB projects

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The high noise emission levels of freight wagons during rolling are mainly due to uneven wheel treads produced during the braking sequences when the vehicle is equipped with cast iron blocks. This has led to the development of two types of composite brake shoes (K- and LL-blocks), which are far less aggressive to the wheel. It has been demonstrated that K-blocks achieve a noise reduction of about 10 dB but they are mainly dedicated, at term, to the new vehicles as their friction coefficient is very different to the cast iron one. LL-blocks are on the contrary especially designed for retrofit vehicles and do not require major modifications of the braking equipment. But as they were only very recently made available by the manufacturers due to difficulties in their development, noise efficiency of LL-blocks products is not well-established. This paper focuses on the noise reduction and noise emission values of freight vehicles equipped with LL-blocks. It aims at presenting on-going studies on this topic and at providing reliable and accurate results from different measurement campaigns carried out on a TSI reference track. This work is the result of a collaboration between the UIC project NICOBB and the Dutch Noise Innovation Programme.