

POSITION PAPER

Policy Principles for Rail Freight Noise Mitigation

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EXECUTIVE SUMMARY

The rail sector has a long history of noise mitigation and is committed to continue making progress based on cost-effective noise mitigation solutions.

While different mitigation possibilities are available, one major cost-effective measure is to equip freight wagons with low-noise brake blocks. However this measure leads to additional costs compared to the status quo which should be covered from public sources: as long as noise is not subject to the polluter-pays principle across both road and rail in a balanced and effective manner, any measures to reduce railway noise emissions should be accompanied by financial support measures that cover the full cost of the measures imposed.

On the other hand, measures such as unilateral vehicle bans would go against the principle of Free Movement of Goods. EU policy-makers should ensure that such measures shall not be permitted under EU law. The Single Market is the most important achievement of the European Union. CER, as the leading representative organisation of railway companies in Europe, considers that EU policy-makers have a duty to uphold it and protect it as concerns the railways by opposing measures that would distort competition within the sector and/or harm interoperability within the Union.

1. INTRODUCTION: THE RAILWAYS AND NOISE

Noise mitigation is an important environmental priority for the railway sector

Noise is a side effect of all major modes of transport. Exposure to road traffic noise is far greater than exposure to rail noise, and for equal noise exposure the level of annoyance is much higher for road and aircraft noise than for rail noise ⁽¹⁾. Nevertheless, noise mitigation is an important environmental priority for the railway sector, which, one should recall, has an otherwise very positive performance in terms of low local air pollution, low greenhouse gas emissions, high energy efficiency, low oil dependence, and a strong safety record.

The rail sector has a long history of noise mitigation measures

Railway noise measures can be divided into two main categories, namely rolling stock-related measures such as modified brakes (e.g. composite brake blocks), modified or damped wheels, and infrastructure-related measures such as rail dampers and noise barriers.

The rail sector has a long history of noise mitigation and has put much effort into understanding noise creation and propagation and into finding different mitigation possibilities. This has led to a package of solutions, such as the use of disc-braked passenger vehicles, to new freight wagons being fitted with composite brake blocks, and to the construction of noise barriers along major lines and noise absorbers on slab tracks, among other measures ⁽²⁾. The measures most often implemented to-date are noise barriers and/or insulated windows. The largest potential, however, lies in treating the noise problem at source. It is well-established that fitting or retrofitting of wagons with composite brake blocks is a cost-effective way to do this. A recent and important development in this regard is the EUR 15 million EuropeTrain project for the testing and homologation of a new and more cost-effective composite brake block, the LL-block. The EuropeTrain project was successfully concluded in 2013.

Finally, in specific cases, special solutions such as track and wheel absorbers or rail grinding are possible and have been used in several cases.

¹ See e.g. EEA (2010), “Good practice guide on noise exposure and potential health effects”, EEA Technical Report, No 11/2010, European Environment Agency. Available at:

<http://www.eea.europa.eu/publications/good-practice-guide-on-noise>

² For a recent survey of existing measures see e.g. UIC (2013), “Railway Noise Technical Measures Catalogue”, International Union of Railways. Available at:

http://www.uic.org/IMG/pdf/noise_technical_measures_catalogue_11_07.pdf

2. THE LEGAL BASIS

Current EU legislation distinguishes between two levels: noise creation (the emission of noise at source), and noise reception (what to do once noise has been emitted). Noise creation measures are best implemented on an EU-wide level (otherwise this would create interoperability and Single Market problems). Noise reception measures, while subject to EU framework legislation, are best implemented at national or regional or local levels in line with the principle of subsidiarity.

Technical Specifications for Interoperability

The current EU requirements to control rail noise at source are set out in:

- Technical Specification for Interoperability for Rolling Stock (“TSI Rolling Stock”, which covers noise in the case of high speed rail), adopted in 2002
- Technical Specification for Interoperability for Noise (“TSI Noise”, which covers noise in the case of conventional rail), adopted in 2005, revised in 2011

These measures impose strict noise limits on new or upgraded rolling stock. This means that, de facto, new and upgraded wagons must be equipped with low-noise brake blocks since 2006. As a result, the natural turnover of the fleet shall ensure that all railway vehicles including wagons shall be equipped with low-noise brake blocks sometime between 2031 and 2041 assuming a lifetime of rolling stock of 25-35 years. Both of these TSIs are under revision by the Commission. The European Railway Agency (ERA) intends to publish a single Noise TSI with revised limits covering all rolling stock in late 2013 or early 2014.

The Environmental Noise Directive (Directive 2002/49/EC)

The Environmental Noise Directive specifies that Member States must calculate noise exposure levels and publish corresponding noise maps (also called ‘strategic noise maps’), ensure that information on noise exposure is publically accessible, and adopt Action Plans to prevent or reduce noise exposure where necessary.

Regarding noise mapping, Annex VI of the Directive requires Member States to report to the Commission the estimated number of people exposed to noise levels above 55 dB for the daily average (“Lden”) and above 50 dB at night (“Lnight”), separately for noise from road, rail and air traffic, and from industrial sources.

Article 8 of Directive 2002/49/EC is open about the means that Member States may choose in order to prevent or reduce noise where necessary as part of their Action Plans. Suggestions are made in Annex V, point 2, of the Directive. Actions ‘may for example include’:

- Traffic planning
- Land-use planning
- Technical measures at noise sources

- Selection of quieter sources
- Reduction of sound transmission
- Regulatory or economic measures or incentives

The wording of the Annex and of other parts of the Directive suggests, but does not explicitly mandate, taking the reduction in the number of people affected as a measure of effectiveness for selected actions. In line with Article 11, the Commission had to submit a report on the implementation of the Directive, which they eventually did in June 2011, see *COM(2011) 321 final*.

The Commission will revise the Environmental Noise Directive. A public consultation was organised in October 2012. However with the end of the Commission term approaching, it was decided to wait for the new Commission before making a proposal. A Commission proposal may thus be adopted as early as 2015, but that will depend on the priorities of the new Commissioners.

The Recast of the First Railway Package (Directive 2012/34/EU)

In the Recast Directive, a pre-existing provision on the possible use of track access charges to account for environmental externalities was enhanced in order to develop an economic incentive to tackle rail freight noise. This type of measure is commonly referred to as Noise-Differentiated Track Access Charges (NDTAC). Article 31, Paragraph 5, states the following:

The infrastructure charges referred to in paragraph 3 may be modified to take account of the cost of environmental effects caused by the operation of the train. Any such modification shall be differentiated according to the magnitude of the effect caused.

Based on the experience gained by infrastructure managers, railway undertakings, regulatory bodies and competent authorities, and recognising existing schemes on noise differentiation, the Commission shall adopt implementing measures setting out the modalities to be followed for the application of the charging for the cost of noise effects including its duration of application and enabling the differentiation of infrastructure charges to take into account, where appropriate, the sensitivity of the area affected, in particular in terms of the size of population affected and the train composition with an impact on the level of noise emissions. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 62(3). They shall not result in the undue distortion of competition between railway undertakings or affect the overall competitiveness of the rail sector.

Any such modification of infrastructure charges to take account of the cost of noise effects shall support the retrofitting of wagons with the most economically viable low-noise braking technology available.

It may be noted that the introduction of Noise-Differentiated Track Access Charges (NDTAC) is voluntary for each Member State, and that the legal basis does not specify any specific start or end date for such measures. As for the implementing measure that the Commission is tasked with developing, it should be noted that it should recognise existing schemes of that nature, but that such measures may not result in the undue distortion of competition between railway undertakings nor may it affect the overall competitiveness of the rail sector.

The 2013 Roadmap on ‘*Effective reduction of noise generated by rail freight wagons in the European Union*’

This is an additional Commission Initiative which lays out a series of policy options for further measures, possibly but not necessarily leading to new legislative proposals. The stated general objective of the Roadmap (see Section B) is to ‘*effectively reduce, by 2020, the level of noise (...) while maintaining the competitiveness of [the] rail sector vis-à-vis other modes*’.

It is important to note that the Roadmap repeats in some form the same principles that are contained in Article 35(1) of Directive 2012/34/EU, based on similar reasoning: as long as noise is not legally speaking an externality, then any measures to reduce it should be such as to:

- **Avoid a loss of competitiveness of the sector with respect to other modes**
- **Avoid distortions to competition within the sector**

In order to achieve this objective, the Commission has defined policy options which will be evaluated. The options, as stated in the stakeholder questionnaire received by CER, are:

1. Status quo (baseline scenario)
2. Increased financial support for retrofitting of existing wagons with low-noise brake blocks ["incentives approach"]
3. Noise-differentiated track access charges ["NDTAC approach"]
4. Mandatory application of TSI-Noise limits to all existing railway wagons ["TSI Noise approach"]
5. Introduction of a noise limit along the TEN-T railway Network ["TEN-T approach"]
6. Introduction of noise limits in relation to density of population ["Density approach"]
7. Introduction of a general maximum transport-related cumulative noise exposure ["environmental health approach"]
8. Shared responsibility of infrastructure managers, railway undertakings and wagon owners for maintaining rails and wagons ["Maintenance management approach"]

3. CER POLICY PRINCIPLES ON RAIL NOISE MITIGATION ⁽³⁾

The rail sector has a long history of noise mitigation and intends to continue making progress based on cost-effective noise mitigation solutions. In particular, the rail sector has made the commitment that, by 2030, noise mitigation measures will be integrated naturally in all relevant processes of the railway, offering sustainable and bearable solutions, implemented using a toolbox of various innovative and homologated techniques.

Noise is a local issue by definition, and there are sensitive areas where the levels of exposure are seen as problematic (“hot-spots”). Conversely there are other areas where there is no reported problem. In most Member States, hot-spots are only localised on limited sections or nodes of the railway network. In a few Member States, due to the topography and the pattern and density of settlements in the vicinity of railway lines, hot-spots are long, substantial parts of the network.

As a result, those countries are more strongly impacted by rail freight noise, and therefore rail freight noise must be addressed in some form over the next few years in those Member States. It is also important to note that traffic in and through these States accounts for a substantial share of the EU’s total rail freight traffic volume. CER advocates a European solution that respects the principles outlined in this paper. The rail sector is ready to move forward on this issue, provided that Member States provide adequate policies and funding.

Measures to reduce noise reception are very useful to solve these issues, e.g. noise barriers, insulation of housing, urban planning. This is even more the case along TEN-T corridors and in particular in dense areas.

The best way to deal with transport noise in general would be to have a global view on all external costs of all transport modes and deal with them in a similar way. The process of internalisation of external costs should be carried out taking into account the principle of proportionality, a proper level playing field between transport modes and bearing in mind the negative trend which rail freight transport faces in Europe despite the importance given to it in the 2011 Transport White Paper.

It should also be remembered that rail freight transport is the greenest transport mode compared to the several externalities produced by road transport.

Public concern

In the context of the Commission’s 2013 Roadmap and of the future revision of the Environmental Noise Directive (among other relevant legislation), public concern on rail freight noise, where it exists, should not be ignored. Only public acceptance of rail freight will enable more growth of rail freight.

³ SBB and BLS have reservations on several points of this position paper which does not fully reflect the official view of the Swiss Confederation and of the two companies on rail freight noise mitigation.

On the other hand, policy options resulting in a reverse modal shift must not be implemented, as the negative consequences of additional road transport would drastically exceed the benefits of less rail freight noise. This would hinder the goals of the overall European transport policy especially the objectives mentioned in the Transport White paper 2011 towards a higher modal share for railway transport in 2030/2050.

Low-noise brake blocks

While different mitigation possibilities are available, one major cost-effective measure is to equip freight wagons with low-noise brake blocks ⁽⁴⁾. To the extent that more rapid effects are desired, retrofitting existing wagons before the end of their natural lifespans also becomes necessary. However the latter leads to significant costs both for retrofitting and for operating with the low-noise brake blocks due to increased life-cycle costs. This raises the question of who should cover such costs.

CER considers that as long as noise is not subject to the polluter-pays principle across both road and rail in a balanced and effective manner, any measures to reduce railway noise emissions should be accompanied by financial support measures that cover the full cost of the measures imposed.

CER considers that this principle must therefore be applied notably for the specific case of retrofitting costs and increased life-cycle costs related to retrofitting.

The adoption of low-noise composite brake blocks can play a major positive role towards noise reduction, but it can only be truly effective if it is applied on a large scale throughout the standard gauge network of the continental European Union. It should be noted that the measures considered in the Commission

⁴ This is feasible with the vast majority of freight wagons, i.e. over 90%. The most significant exceptions are: vehicles fitted with steel tyres (an older technology, mainly prevalent in the Polish fleet), vehicles with small wheels (below 920 mm in diameter) which are specific to low-floor vehicles, vehicles with a maximum axle load above 22.5 tonne per axle, and vehicles with a tare weight below 3.6 tonne per axle. For steel-tyre vehicles with a standard wheel size, it is possible to replace the wheel-sets (fitting standard rail vehicle wheels that have no tyre) and then retrofit the brake blocks. This is naturally much costlier than retrofitting normal vehicles. As a result, depending on the age of the vehicle, it may be more favourable to replace the entire vehicle in favour of standard ones equipped with composite brake blocks. For this specific case, additional funding should be secured and applied for example in the context of a scrappage payment.

For small-wheel vehicles, heavy vehicles, and low tare weight vehicles, no homologated LL-block technical solutions exist at present, and there is no replacement solution for these classes of vehicles, so they need to be entirely excluded from the scope of measures relating to the Roadmap and should continue to circulate freely across the Union.

An additional case is SS wagons. In this case, composite brake blocks can be used but this requires mandatory use of a “kink” valve and of wheels compliant with EN 13979-1, which is more costly. Adequate funding should be available for this class of vehicles as well.

Finally, heritage trains operated for purposes of tourism or leisure should be excluded from the scope of the noise reduction measures.

Roadmap should not be applied on the EU part of the 1520 mm network (Baltic States), given that the relevant wagon fleets are part of a far broader pool together with third countries (CIS countries) where EU standards are not applicable.

Protecting the Single Market

EU policy-makers should ensure that measures leading to less rail freight noise do not have a negative impact on freight on rail. CER therefore calls upon the Commission to ensure that the actions of a minority of Member States do not cause undue costs or difficulties for other Member States, so as to uphold the Single Market and ensure interoperability within the Union.

In addition, it has to be taken into account that measures such as unilateral vehicle or traffic restrictions would go against the principle of Free Movement of Goods, as the Single Market is the most important achievement of the European Union, of which the Commission is the guardian.

Traffic restrictions

In the context of the Commission's 2013 Roadmap and of the future revision of the Environmental Noise Directive (among other relevant legislation), CER takes the position that **traffic using existing infrastructure should not be restricted in the sense of operational restrictions (e.g. general speed limits, night bans), regardless of the level of noise caused.**

In exceptional cases, on local sections that are not yet fitted with noise barriers or infrastructure-based noise reduction solutions, speed limits could be considered as a noise mitigation measure, provided that no better solution exists and that no substantial loss of capacity is incurred.

Besides such exceptional cases, for traffic using existing infrastructure the only acceptable measures would be: certain measures at source (subject to the principles in the previous sub-sections); internalisation according to the polluter-pays principle (after 2020, and provided equivalent measures apply to the road sector); or measures to reduce noise reception, e.g. noise barriers and other noise reducing measures on the rail infrastructure, insulation of housing, urban planning.

New infrastructure projects, on the other hand, should be subject to ex-ante environmental noise assessments subject to a principle of fair treatment between transport modes.

Vehicle bans

Certain types of vehicles or wagons could in future be subject to de jure or de facto bans. An example of the latter would be the policy option referred to as the 'mandatory application of TSI-Noise limits to all existing railway wagons'.

De facto or de jure bans should only be applied if Member States commonly agree on a single date EU-wide, not sooner than 2028, and that there is financial compensation on an equal basis for the prejudice caused to railway undertakings and/or wagon keepers covering the reduction of the value of their existing assets. Unilateral vehicle bans would go against the principle of Free Movement of Goods. EU policy-makers should ensure that such measures shall not be permitted under EU law.

However, a Member State wishing to move forward faster than other Member States should be permitted to take measures to accelerate the turnover of vehicles passing through its territory, on a non-discriminatory basis, provided that the measures do not in any way hinder market access for vehicles or wagons from other Member States that belong to the category that is subject to these measures.

These principles should apply to all measures that would impose or accelerate retrofitting or withdrawal of vehicles, e.g. increases in track access charges or new administrative measures that would be de facto prohibitive for the operation of a given category of vehicle or wagon.

Noise reporting thresholds

CER considers that EU policy options based on noise reporting thresholds (locally, regionally, along specific corridors or along the entire TEN-T network) may only be applied in order to assess the need for measures relating to noise reception (such as noise barriers) or to measure the effects of these and other measures, including measures at source. EU policies based on noise reporting thresholds should not be used to justify the imposition of traffic restrictions or vehicle bans as this would damage the Single Market and endanger the competitiveness of the rail sector.

Finally, CER considers that the noise reporting thresholds currently specified in the Environmental Noise Directive should remain unchanged in any revision of that Directive.

Disclaimer

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