

“Noise – State of play – March 2015”

A Report by UIP Topical Committee Economic Evaluation

1. Introduction

Noise continues to be high on the agenda at European level where the European Commission is working towards legislative measures for noise reduction. Societal pressures regarding high noise receptions are creating political pressure to take action at European and national levels. While noise creation aspects are legislated at European level, noise reception is submitted to the subsidiary principles and legislated at a national level. At national level, almost all European countries have noise reception limit values for new railway lines and in almost all Member States limit values exist also for upgraded lines.

Initial considerations towards noise in rail transport were taken through the Interoperability Directive and the Noise Technical Specifications for Interoperability (TSI Noise). In addition, the Environmental Noise Directive (END) 2002/49/EC requires Member States to submit noise maps and action plans to assess the number of people exposed to different noise levels throughout Europe. The END does not define any noise limit values, nor does it prescribe the measures to be used in these action plans. As a consequence different pathways are being pursued at both European and national levels.

A common agreement is that noise is mostly driven from the wheel-track interaction and that retrofitting of existing freight wagons with LL- Brake Blocks is the most efficient method to reduce the noise emitted by such wagons. This paper provides an overview of the current and forthcoming legislative measures and initiatives by the EU and national activities in different European States related to noise reduction and retrofitting of rolling stock.

2. Overview of EU Legislation and Initiatives

→ Commission Implementing Regulation

As part of the EU Noise Abatement Strategy and under the Recast of the First Railway Package the European Commission (EC) introduced the concept of the Noise Differentiated Track Access Charges (NDTAC). This was followed by the recently drafted *COMMISSION IMPLEMENTING REGULATION “setting out the modalities to be followed for the application of the charging for the cost of noise effects”* which when published in the Official Journal enters into force on June 16th, 2015 and shall be applied until 31st December 2021.

According to the Regulation Member States may, on a **voluntary basis**, implement an NDTAC Scheme meeting the requirements set out under the Regulation. Member States who already have an NDTAC Schemes in place (i.e. Germany and Netherlands) can apply them until December 10th, 2016, and subsequently, if necessary¹, adjust their NDTAC schemes, to the new Regulation.

The objective of this Regulation is to provide an incentive for retrofitting of freight wagons. With regards to rolling stock, the Regulation does not apply to “(...) wagons for which there are no available TSI Wagon compliant composite brake blocks which can be directly fitted in the wagons without further modification of the braking system or dedicated tests”.

¹ The German NDTAC most likely must not be adjusted and may be terminated (as foreseen) in December 2020

Version / Status	V 1.0 / approved TC EE & UIP Office
Date	08.04.2015
Authors	Markus Vaerst & Maria Price

Where the NDTAC scheme is applied, the Infrastructure Managers (IM) shall introduce a bonus for Railway Undertakings (RU) using retrofitted wagons (with a minimum level of 0,0035 € / axle km (i.e. 0,35 €-CENT / axle km)). IMs may also introduce a malus for RUs running noisy trains, i.e. trains containing more than 10% of noisy wagons. Throughout the duration of the scheme the total malus received may not exceed the total bonus paid out and the latter is not capped.

To encourage further efforts by the RUs towards composing 100% of silent trains, the IM may introduce an additional bonus for complete silent trains. Last but not least, the IM may introduce an additional bonus if “very quiet²” wagons and/or locomotives are used.

By December 31st, 2018, the Commission shall evaluate the implementation of the NDTAC schemes, particularly the progress of retrofitting of wagons and the balance between deducted bonus and already paid malus. In addition, the Commission shall evaluate the impact of the schemes put in place according to this Regulation on the overall competitiveness of the freight railway sector, as well as on the passing on of the incentives or partial bonuses from RUs to wagon keepers, who normally bear the costs for retrofitting.

→ **Commission Communication on mitigating rail freight noise**

Apart from NDTAC, the European Commission plans to issue latest by the end of June 2015 a “*Communication on mitigating rail freight noise*”. The basis for this is the Roadmap proposed by the Commission in 2013³ and the results of a respective study commissioned to COWI. Although this Communication will **most likely not** make mandatory the provisions laid down in the TSI Noise for existing wagons (i.e. wagons that are put in service prior to the entering into force of this TSI), it **probably may** allow each MS to no longer permit the use of non-TSI Noise compliant wagons from a certain date onward on its territory.

If in line with the 6 year period starting from mid of 2016, as foreseen in the Implementing Regulation mentioned above, this ban date **could be** January 1st 2023.

→ **Funding initiatives on EU level**

Recognizing the political pressure to reduce environmental pollution such as noise, the EC has also introduced several funding initiatives and frameworks at EU level⁴, amongst which is the Connecting Europe Facility - CEF and the participation under the so called TEN-T Annual Calls. CEF provides for the funding of 20% of the initial cost for retrofitting of existing wagons. While the first calls were published in September 2014 no applications were submitted (to our knowledge) because of the rather low funding rate, as well as the highly complex administrative application process. UIP and other associations have already expressed those concerns to DG MOVE and INEA (the Agency who is responsible for the review and approval / rejection of the applications). It remains to be seen whether they will make the procedure less complex, more plausible, and relevant for future calls.

² It should be noted that the Regulation does not define „very quiet“.

³ “Roadmap: Effective reduction of noise generated by rail freight wagons in the European Union”, April 2013.

⁴ For further information refer to UIP Document „EU Funding 2014- 2020” (November 2014)

Version / Status	V 1.0 / approved TC EE & UIP Office
Date	08.04.2015
Authors	Markus Vaerst & Maria Price

3. Active NDTAC schemes

It is yet unclear if and which EU Member States will implement the Commission Implementing Regulation. Today only three countries, Germany, The Netherlands and Switzerland (who is a non-EU member) have defined a national legislative framework to provide financing and incentives to promote the retrofitting of the existing wagons fleet.

→ **Germany**⁵: The German NDTAC scheme started on December 9th, 2012 and will end on December 8th, 2020. Its main principles are explained as follows.

The compensation of cost for retrofitting⁶ is paid by the Government but limited to € 211 per axle. The beneficiary is the Wagon Keeper. In order to claim the bonus the Wagon Keeper must first (and prior to retrofitting) complete an application form and submit it for approval to the German Eisenbahnbundesamt (EBA). At present there is some uncertainty regarding requirements such as a proof of evidence on mileage information which is making it difficult not only to apply, but also to be approved for the bonus. The German association VPI is in discussion with the EBA with the objective to have a reasonable process for all applicants. VPI-DE will share the results of these discussions with UIP and other National Associations.

Other particularity of the German NDTAC Scheme, is that the operating RU may claim the same maximum (211 € / axle) for a retrofitted wagon if operating on DB Netz Infrastructure – but, these amounts are „self financed“ by the system: track access charges (paid by the RU) for trains with less than 90% TSI NOISE compliant wagons are higher (2,0% since December 2014).

Higher operational costs are not considered in the German NDTAC System.

Through its coalition agreement the German Government committed itself to “halve rail freight noise by 2020”; the same agreement foresees certain measures, e.g. night bans and speed reductions, as from 2017 on, if not 50% of the wagons operated in / through Germany will be “silent” by the end of 2016.

In order to demonstrate that the German main sector representatives⁷ take the issue seriously they published several arguments by the end of February 2015:

- The overall objective is supported, i.e. “halve rail freight noise by end of 2020”.
- Until then all wagons represented will be either retrofitted or new built
 - 23% were already compliant by the end of 2014;
 - nearly 40% are expected to be compliant by the end of 2016.
- A quicker increase is only possible if the higher operational cost for composite brake blocks is (at least partially) compensated.

⁵ In Germany the application is limited to DB Netz.

⁶ The cost are estimated by the German Ministry of Transport to be 1'688 € for a 4axle wagon

⁷ DB Schenker, VDV and VPI

Version / Status	V 1.0 / approved TC EE & UIP Office
Date	08.04.2015
Authors	Markus Vaerst & Maria Price

- Measures such as night bans or speed restrictions may not be introduced before the end of 2020; The German sector is convinced that such measures will jeopardize rail freight and intra-modal competitiveness, and therefore rather prefer a ban for wagons equipped with cast iron brake blocks only by the end of 2020 for the German territory. Any measure must be communicated well before that date.
 - The share of international rail freight traffic in Germany is quite high; it is therefore of utmost importance to integrate RUs and Wagon Keepers from outside Germany in the political processes.
- **The Netherlands:** In the Netherlands, the government pays to the RU a maximum of € 4'800 per retrofitted wagon that operates on the Dutch infrastructure network⁸. As the wagon keeper is not the direct beneficiary, contractual agreements between the RU and the Wagon Keeper must be concluded in order to enable the transfer of the bonus received by the RU. It is yet unclear if the scheme will be extended beyond 2017.
- **Switzerland:** The Swiss Government paid 100% of compensation for costs for retrofitting wagons with K brake blocks for wagons which were registered in the Swiss NVR by 2001; it is expected that the "Swiss Fleet" (approximately 15'000 wagons) will be fully retrofitted in 2015.

The Swiss NDTAC scheme foresees a compensation for higher operational costs for all TSI NOISE compliant wagons:

- approximately 0,019 € / axle km (1,9 €-CENT/axle km) for wagons equipped with K and LL brake blocks;
- approx. 0,028 € / axle km (2,8 €-CENT /axle km) for wagons equipped with disc-brakes.

This compensation (bonus) may be claimed by the operating RU. A contractual agreement between the RU and the Wagon Keeper must be concluded in order to enable the transfer of the bonus received by the RU.

As from January 1st, 2021, Switzerland plans to no longer permit wagons equipped with cast iron cast brakes on their territory⁹.

Other Member States such as France, Austria and Italy are still in the early stages of internal discussions, considerations, or in process of determining the most appropriate NDTAC Scheme according to the Regulation:

→ **France:**

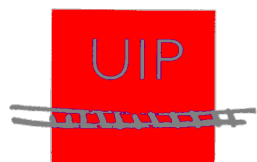
Recently the French "Ministère de l'Écologie, du Développement durable et de l'Énergie" published a report drafted in March 2014 titled "Le bruit du fret ferroviaire - Une stratégie pour en limiter les impacts"¹⁰. The main recommendations can be summarized as follows:

- France should not implement a NDTAC scheme but follow with great attention the evolution at EU level;

⁸ The 4'800 € equal a maximum of 120'000km on Dutch Infrastructure (respectively 0,04 € per WAGON-Kilometer); the RU must submit applications in order to benefit from this bonus.

⁹ This date may be postponed until January 1st 2023 if evaluation shows that the number of silent wagons is not sufficient to ensure rail freight traffic in / through Switzerland: the Swiss Government assumed that in total 200'000 wagons of the European fleet must be silent in order to not jeopardize rail freight.

¹⁰ "Rail freight Noise – A strategy to limit the impacts".



Version / Status	V 1.0 / approved TC EE & UIP Office
Date	08.04.2015
Authors	Markus Vaerst & Maria Price

- Possibly support for an EU ban of cast iron by 2022 (except for wagons used locally);
- Possibly support a general ban for wagons non-compliant with TSI noise by 2025;
- France should support operational research projects (conditions of use, life cycle costs) of RUs and Keepers via subsidies, but refrain from granting direct investment or operational subsidies;
- A way forward could be to strengthen and speed up research for better low noise brake blocks and track grinding methods (or any other solution to reduce noise without penalizing rail freight competitiveness).

→ **Austria:**

- The Austrian Ministry of Transport is about to develop a system in line with the Regulation; however, it is not known yet if and when these considerations will be made official and enter into force.

→ **Italy:**

- A subsidy scheme was proposed by the Italian Ministry of Transport, but was rejected by the Parliament end of 2014.

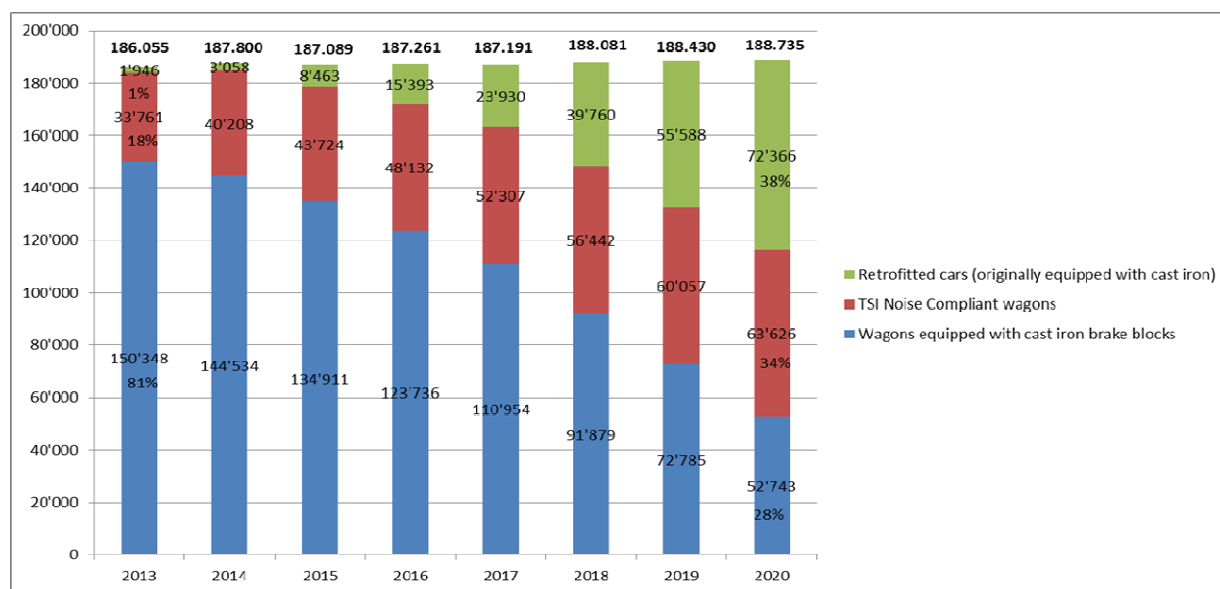
4. UIP initiative (Assessing the retrofitting strategy)

Given the importance of the on-going national and EU level discussions on “rail freight noise” and in order to enable UIP to further positively influence this issue at European level, it is crucial to support arguments and positions on solid facts and figures. Therefore, assessing the amount of wagons in service and deriving the operational and cost impacts related to retrofitting are some of the most important elements in the strategy of every company when determining how its fleet equipped with cast iron brake blocks will develop over the next years.

For this assessment in 2014 UIP launched a questionnaire through a neutral consultant (“hwh”, Karlsruhe). When responding the Wagon Keepers should have taken into account the following assumptions:

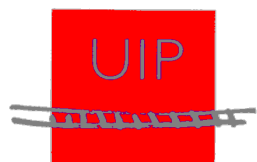
- The usage of wagons equipped with cast iron brake blocks will most likely be forbidden in Switzerland from January 1st 2021 onwards.
- The usage of wagons equipped with cast iron brake blocks will most likely be forbidden or at least strongly limited in Germany from 1st January 2021 onwards (i.e. prohibitive high track access charges for such wagons and/or speed reductions or night bans may be introduced).
- Wagons equipped with cast iron brake blocks may be retrofitted with K or LL brake blocks.

Between April and July 2014 hwh received answers from 62 Keepers, representing 186'000 wagons (as per December 31st 2013). The following table illustrates their strategies until the end of 2020:



In more detail, the strategies until the end of 2020 show that:

- the increase in the overall number of wagons between end 2013 until end of 2020 is rather low (plus ~ 2'700 wagons);
- the amount of wagons equipped with cast iron brake blocks will be reduced by 98'000; 28'000 are foreseen to be scrapped and 70'000 are foreseen to be retrofitted - the main retrofitting activities are likely to start in 2018 (probably triggered by announcements from CH & DE);



Version / Status	V 1.0 / approved TC EE & UIP Office
Date	08.04.2015
Authors	Markus Vaerst & Maria Price

- the amount of already TSI NOISE compliant new built wagons (36'000 as per December 31st 2013) will be increased to 76'000 wagons, i.e. 40'000 new wagons are foreseen to be ordered between 2014 and 2020.

Even though UIP does not know which Keeper (in which country) follows which strategy it is fair to interpret the findings as follows:

- There is a lack of certainty regarding development in other Countries (i.e. implementing NDTAC schemes, bans, operational restrictions, or do nothing).
- There is a lack of sufficient funding and incentives (especially for the higher operational cost after retrofitting).
- There are difficulties or impossibilities to impose cost after retrofitting to lessees and/or reclaim bonus-payments from the RUs (which are addressees for the Bonus / Malus in the three existing schemes).

5. Future priorities for UIP and its National Associations

On both national and EU level it is important to

- demonstrate that there is insufficiency in the passing on of the bonus payments received by the RU to the Keeper, who bears both the cost for retrofitting and higher operational costs caused by LL and K brake blocks;
- continuously stress the urgent need for granting of public funds to cover (at least partially) the higher operational cost which are likely to encourage faster retrofitting;
- support latest proposals to set up a “new build vs. old wagon scrapping compensation scheme” aiming at partially funding the purchase cost for new built wagons, while allowing at the same time for older wagons (equipped with cast iron brake blocks) to be scrapped. Such system is an economical solution and should provide not only an incentive towards noise reduction, but will reduce the administrative burdens to the applicant.