

## HEIKO KUNST:

### 'NOISE ABATEMENT MEASURES CONTRIBUTE SIGNIFICANTLY TO EU'S SHIFT FROM ROAD TO RAIL TRANSPORT'

Early October 2008, Dresden, Germany.

*Heiko Kunst, for the European Union DG TREN, has just addressed the participants of the Hamann Consult Congress on noise abatement.*

*A couple of days earlier, on the 29th of September, he discussed noise abatement on freight trains with the rail industry and all parties involved in the EU's 'Communication on rail noise abatement measures', during a well-attended workshop on low-noise brake block technology and homologation in Brussels.*

It has been a long process to get to this point. Little by little, significant progress was made towards solving the noise issue. Kunst doesn't consider the relatively lengthy period that it took to reach this point as 'lost time', "as it allowed for the development and refinement of suitable measures".

#### Milestone

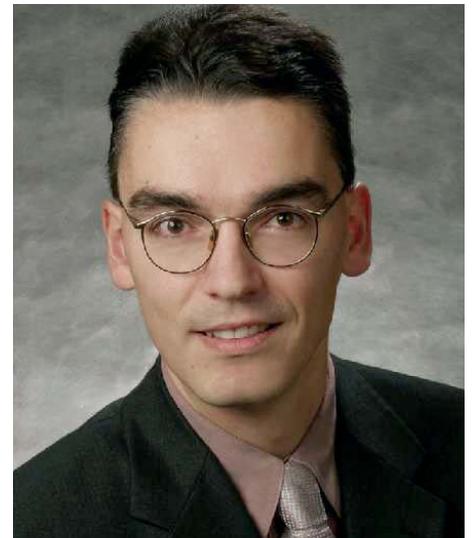
The 'Communication on rail noise abatement measures' reflects the results of several years of work. "A milestone", continues Kunst, "has been the adoption of the TSI Noise and END the Environmental Noise Directive, in 2005, in which strict but realistic goals on noise emission levels were set. This was a very meaningful moment, as it introduced detailed measures for the very first time, Europe-wide."

Ever since, discussions have emerged from 'why' to 'how' and 'when'. Kunst: "The study performed for the Commission on assessing various policy instruments has proved that, within the legal framework and with respect to the position of the countries involved, differentiating track access charges can be a very effective and efficient instrument, beneficial for the people living along the tracks, as well as freight operators and infrastructure managers."

The financial discussions, the EU representative says, also revealed interesting information. "In a wider perspective, the costs involved in retrofitting freight wagons are significantly lower than the increase of energy costs the transport sector is currently facing."

#### Formalised specifications

After the general discussion to prepare the Communication, the European Commission will continue to work together with member states and the rail freight industry towards a Europe-wide implementation of retrofitting of freight wagons. "Here, the focus should be on formalised European specifications for K and LL brake blocks", Kunst explains. "Once achieved, the legal framework for brake blocks will be the same as for any other safety relevant component used in the rail industry. The second major development should be a harmonised system of reducing track access charges.



HEIKO KUNST, EUROPEAN UNION DG TREN  
(SOURCE: EC)

The Dutch system for the reduction of track access charges for silent freight wagons is currently being implemented in Austria. Germany will take a similar initiative next year."

All these exciting developments in rail noise abatement can only lead to one conclusion, claims Kunst enthusiastically: "The Commission's policy to support the shift from road to rail in a balanced way, with respect for the environment, is on its way to become true!" ■

## COMPOSITE BRAKE BLOCKS: THE LATEST NEWS

*Within Europe, UIC's team B126.13, as lead by Dr. Stefan Dörsch, is responsible for research and advice on the admission of composite brake blocks. In order to allow international approval of these blocks, a fully safe application and an economical use of the blocks needs to be guaranteed. This requires several tests, in both testing areas and the actual rail service. Most of these tests have by now been recorded in UIC's standard 541-4.*

The UIC issued international approval of K blocks in 2003. LL blocks are being tested since 2004. In these tests, a limited number of LL blocks have been allowed for testing during the actual rail service. The blocks are being checked regularly, specifically with regards to their shape and the effect they have on the wheels. All brake blocks currently allowed by the UIC can be found on the UIC website, <http://www.uic.asso.fr>.

At this moment, the following K blocks are (temporarily) permitted: CoFren C810, Jurid 816M and Becorit 929-1SG.

Four other K blocks are in the approval process, at various stages. The allowance of a number of K blocks can be expected around the summer of 2009.

LL blocks which have been allowed for testing are Jurid 777 (previously PM132), CoFren C952 en Icer-Becorit IB116\*. The CoFren C952 block will not get a final approval: it was unsuccessful during brake interruption tests and is being followed up by the C952-1 brake block. Meanwhile, there is increasing

(political) pressure regarding the release of LL brake blocks. To accelerate this release, an High level group has been set up.

International application of LL blocks should start 2009. ■



NOISE MEASUREMENTS IN SUSTEREN  
(SOURCE: TNO)

## FOURTH WORKSHOP ON RAILWAY FREIGHT NOISE REDUCTION: EXCELLENT PROGRESS, BUT MORE WORK TO BE DONE

*With more than 90 guests attending, the fourth workshop on railway freight noise reduction – held in Paris on the 25th of November 2008 – was a real success. Not just in numbers, but above all because of its relevance: with the obligatory bonus/malus calculation mechanism for rail access charges due to be introduced in 2013, the clock is ticking – and the bonus/malus has made noise reduction a crucial part of the rail cargo business.*

The morning programme of the workshop dealt with political aspects of the matter. The workshop guests heard all about the latest points of view of the European Commission, UIC presented its overall strategy regarding railway noise and CER gave an interesting presentation about the position of railway companies. In addition, a substantial part of the morning was dedicated to the interesting German pilot project in which a start will be made with freight wagons retrofitting.

### Useful new tool

During the afternoon, technical aspects were discussed, such as the latest news about the development of composite brake shoes and the brake shoes manufacturers' points of view. The workshop also provided an ideal opportunity for the presentation and distribution of the new UIC tool 'FreightSimSilent'. It allows users to evaluate the costs of different retrofitting schemes.

For more information, please go to page 5.

### Progress regarding retrofitting

A real positive outcome of this particular workshop, compared with earlier ones, was the progress which could be reported on the technical aspects of, and incentives towards retrofitting. However, technical issues – as well as political ones – are always far more complex than they seem at first. Hence, everybody agreed that a lot of work remains to be done, such as service tests and a pragmatic application of track access charges. Another conclusion was that an increase in freight transport by rail will only be possible by reducing the amount of noise – which emphasizes the importance of sustainable rail cargo.

### All workshop presentations can be found on

[www.uic.asso.fr/baseinfo/reunion/reunion.php?id=61456](http://www.uic.asso.fr/baseinfo/reunion/reunion.php?id=61456)

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# COMPOSITE BRAKE BLOCKS: THEIR EFFECT IN TERMS OF TSI NOISE

*A recent series of noise measurements on TSI reference tracks has led to interesting new insights into the effect of composite brake blocks on noise reduction. The findings show that the development of composite brake blocks could mean a significant contribution to noise reduction within the European rail sector.*

The European rail sector is on the eve of a big step forward in the abatement of freight wagon noise. The key ingredient: composite brake blocks, which decrease the roughness of wheels. And this decrease results in a significant reduction of rolling noise. Led by UIC the further development of composite brake blocks is currently being worked on.

This development is significant in many ways, but of course the effectiveness in terms of noise reduction is of the most important aspect. For K blocks, much knowledge about their noise reducing capacities has already been gathered. The effect of LL blocks, however, is not yet thoroughly known. At the end of last year, both UIC and the Dutch 'Noise Innovation Programme' (IPG) performed a series of measurements using several types of freight wagons and brake blocks.

The aim of this was to gather more knowledge about the performance of different kinds of composite blocks. Both series of measurements were executed independently, but in the end they showed very similar results.

## UIC measurements

The UIC measurements were done within its NICOBB ('Noise Impact Composite Brake Blocks') project. This project aims to develop a test procedure for predicting noise emissions by (future) composite brake block products. Knowing this will help the rail industry in the future, by enabling a reduction in time and effort during the development of new types of composite brake blocks. The French and German railway companies SNCF and DB participated in NICOBB. Amongst other resources UIC used field results. The results were gathered during noise measurements on a TSI Noise reference track between Augsburg and Donauwörth in Germany, in

September 2007. A train, consisting of fifteen sliding-wall Hbbins14 wagons, was equipped with organic K blocks, organic LL blocks and traditional cast iron blocks.



HBBINS WAGONS WITH K BLOCKS (SOURCE: UIC)

The train drove past the measurement site several times. The measurements showed that the noise emission levels of wagons with K blocks and LL blocks are comparable at all speeds. The wagons with cast iron blocks produce 12.5 to 13.5 more decibels than the wagons which were equipped with composite brake blocks. In terms of pass-by levels the wagons comply with TSI Noise limit values.

## Holland's IPG

IPG, the Dutch 'Noise Innovation Programme', was sponsored by the Dutch Ministry of Transport. One of its goals was gaining practical experience with composite brake blocks, for example by organizing a noise measurement campaign for several types of wagons. Pass-by levels of car transport wagons, coil wagons, container wagons and selfunloading wagons with several types of K blocks and LL blocks were measured at a TSI Noise reference track near the

Dutch city of Susteren. Organic K blocks and organic LL blocks showed a reduction of 11 to 14 decibels compared with cast iron blocks, whilst sintered LL blocks

resulted in a reduction of 9 to 12 decibels. All wagons IPG used for these measurements comply with the TSI noise limit values for existing wagons.

## Satisfying results

Both series of measurements clearly show that both K blocks and LL blocks can be used very effectively for reducing noise. They also make clear that further development and homologation of LL blocks, something UIC is aiming for, will be very important for an effective reduction of the noise produced by existing freight wagons.

*More information about the UIC and the IPG measurements and their results:*

[www.fluistertrein.nl/GBpage.asp?id=1071](http://www.fluistertrein.nl/GBpage.asp?id=1071) ■

## DIPL-ING. DIETMAR GILLIAM AAE, SETS GOALS FOR SILENT FREIGHT WAGONS

### OUTSIDE IN:

In the years to come noise emission will become an important quality issue. As AAE wants to expand its position as market leader with entrepreneurial commitment, innovative impulses and creative ideas – having a clear objective in mind: to generate added-value for the customers! How do you value the present developments towards silent freight wagons?

- It is clear that the noise emission will become more important in the years to come. We consider the development of LL-blocks of the utmost importance to our fleet as it is in our opinion the only affordable solution for the modification of existing wagons. AAE as a mayor private wagon owner supports the development of LL blocks with a series of tests. AAE believes that block manufacturers should be supported by all involved parties in the further development of LL-blocks.

### INSIDE OUT:

What developments are in your point of view necessary to speed up the development of silent freight wagons?

- The development of silent freight wagons is an economical issue, technically all solutions are available. At this moment the key to success is in the hands of the manufacturers of brake blocks. It is clear that if you look into the life cycle costs of LL blocks that the wear of wheels is too high. This wheel wear counts heavily in the price for silent wagons. It is clear that the operational behaviour of the composite brake blocks has to improve especially in regard to the wear of the wheels.

### OUTSIDE IN:

What are the main technical demands from your customers when hiring the relative new freight wagons of AAE? What is the impact on the noise subject?

- In general our customers don't ask for silent freight wagons yet. They have to solve the logistical problems of their customers. What they expect the wagons to do is to perform under all circumstances, be it snow or rain, heat of cold. We as a leasing company want our wagons to be able to perform up to our customers expectations. Whenever a failure occurs the process of repairing must be simple and efficient. This last point is a reason AAE prefers LL brake blocks. All components in use remain the same so there is no extra effort needed in technical, logistical or maintenance processes.

### INSIDE OUT:

What contributions has your company planned for the next years?

- AAE tries to be an innovative company. We heavily support the in service tests in four pilot projects. Next to that we have started a development with disk brakes on sggmrs wagons. First results indicate that technically the solution is applicable. The first experiences with these wagons show that the investment in the wagon can be

more than 80.000 km/year. We intend to contribute to further developments in the near future.



DIETMAR GILLIAM, AAE  
(SOURCE: AAE)

- A development, that worries us is the system of reduced track access charges for operators using wagons with composite brake blocks. The major part of the costs involved in using composite brake blocks lays in general with us, the wagon owner. Wagons with composite brake blocks will inevitably become more expensive in lease. On the other hand, the reduced track access charges, are a complex system as it seems to be different for each country in Europe. In the competitive environment of freight transport one doesn't even want to imagine the administrative burden of such a system. ■

### Innovation:

## AAE WAGON WITH LL BLOCKS



(SOURCE: LLOYD'S REGISTER RAIL EUROPE)

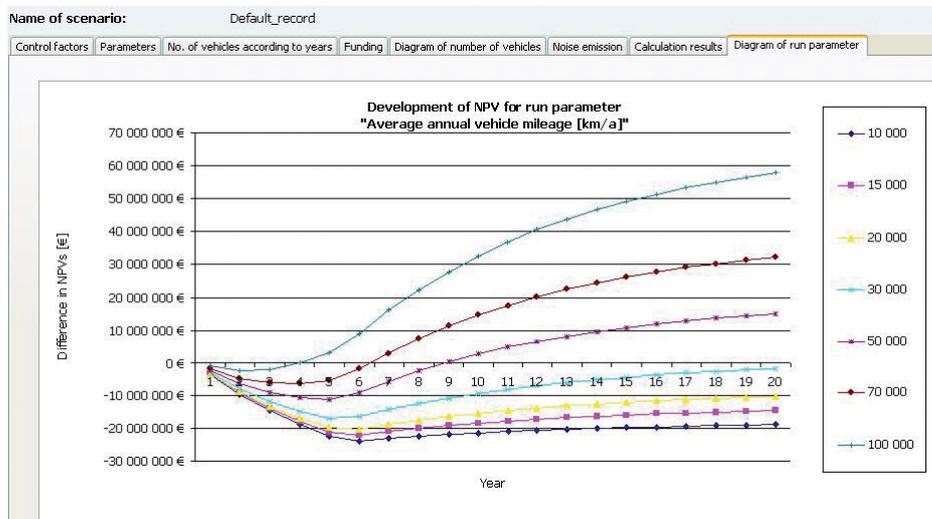
# CALCULATING RETROFITTING COSTS - NEW TOOL AVAILABLE!

Retrofitting of freight wagons from cast iron to composite brake blocks is one of the most efficient solutions to reduce noise emissions of the rail freight sector in Europe. But the calculation of the economic consequences for freight wagon operators are dependent on a multitude of different influencing parameters: From pure financial parameters to maintenance costs, material costs, possible funding or track access charges and many more. This makes it very difficult to forecast the economic impact of different retrofitting scenarios and to take sound decisions.

With the new IT application FreightSimSilent 2.3 all cost influencing parameters of retrofitting can be handled in an easy and transparent way and presented graphically over a 20 years time period. This supports well founded decision making and optimisation for different retrofitting conditions. The IT Tool was developed by Deutsche Bahn in co-operation with the Berlin based IT consultant Join & Share on behalf of the International Union of Railways (UIC). Target group for the use of the tool are economical as well as technical experts, who are dedicated to support decision making for retrofitting and the concrete planning of retrofitting itself.



(SOURCE: UIC)



(SOURCE: UIC)

## MAIN FEATURES OF FreightSimSilent ARE:

- Calculation of the Net Present Value (NVP) over a 20 year period for retrofitting of single wagons as well as whole wagon fleets.
- Free choice of values for more than 30 parameters for highest possible flexibility of the tool.
- Calculation of scenarios for more than 30 run parameters (e.g. NPV over time for different values of annual vehicle mileage).
- Calculation of break-even points (e.g. "at what average mileage turns my scenario into positive").
- Calculation of scenarios with possible funding and track access charges
- Calculation for wagon fleet possible with free composition of the fleet over 20 years time.
- Free choice of number of retrofitted wagons per year(K and/or LL).
- Export functionality from MS Access to MS Excel allows full compatibility and customized presentation.
- Professional mode for enhanced use.

FreightSimSilent comprises an MS Access-based tool for managing and storing the retrofitting scenarios for vehicle fleets and an MS Excel-based calculation module. The MS Excel-based calculation module can also be used as a separate application in order to give the expert user the highest possible freedom to adjust the tool according to his needs.

The IT tool is available in German, English and French. A further language can easily be added by the user. A manual and full documentation are provided together with the tool.

UIC members can order FreightSimSilent from UIC.

The tool is also available on UIC website : <http://www.uic.asso.fr/uic/spip.php?article1537> or send an email to Henning Schwarz, UIC ([schwarz@uic.asso.fr](mailto:schwarz@uic.asso.fr)) ■