QUIET-TRACK

Quiet Tracks for Sustainable Railway Infrastructures

**Funding:** European (7th RTD Framework Programme)

**Duration:** Jun 2013 - May 2016

**Status:** Complete with results

**Total project cost:** €3,555,430

**EU contribution:** €2,598,115

**Call for proposal:** FP7-SST-2013-RTD-1

**CORDIS RCN:** 109752

**Objectives:**

The objective is to provide step changing track based noise mitigation systems and maintenance schemes, to provide reliable improved TSI based rolling noise calculation procedures with harmonized monitoring of the required input parameters and to provide track noise management tools, for use in noise mapping and hot spot action plans according to the END, for use as engineering tools and solutions in new railway projects and in refurbishment projects and for use by the track maintenance managers and track maintenance industry. The existing rolling noise models will be enhanced with new fundamental features: the integration of the low frequency noise emission and of the actual wheel rail contact conditions for more accurate predictions of the noise emitted by the track. On-board monitoring systems will be developed to make it possible to use the real roughness values and track decay rate values measured directly at the track location where maintenance action is required or where mitigating solutions have to be applied.

**Methodology:**

New track solutions, including embedded track systems, will be developed which yield a noise reduction performance of at least 6 dB(A) in comparison with the global rolling noise measured on a well maintained standard track in the network of the participating infra managers. The solutions will be applicable to tram, LRT and metro tracks as well as to conventional tracks in the whole European Union. The developed solutions should not back-up a poor initial design. This is why attention is paid to a good initial design with a procedure for selecting the best rail type and the best rail hardness in terms of minimising noise related wear. A procedure for checking the economic viability of the solutions will be developed. This will result in holistic noise management plans for the introduction of the noise abatement solutions and for the noise related track maintenance.

**Parent Programmes:**

FP7-TRANSPORT - Transport (Including Aeronautics) - Horizontal activities for implementation of the transport programme (TPT)

**Institute type:** Public institution

**Institute name:** The European Commission

**Funding type:** Public (EU)

**Lead Organisation:**

Akron Nv

**Address:**
MECHELSEVEST 18/301
3000 LEUVEN
Belgium
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<th>Organisation Website:</th>
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<td><a href="http://www.akron.be">http://www.akron.be</a></td>
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**Partner Organisations:**

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<td>Tunnelbanan Teknik Stockholm Ab</td>
<td>Garagevägen 18, 121 26 STOCKHOLM, Stockholm, Sweden</td>
<td>49,200</td>
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<td>Accon Gmbh</td>
<td>Gewerbering 5, 86926 Greifenberg, Germany</td>
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<td>Tyrens Ab</td>
<td>Peter Myndes Backe 16, 118 86 STOCKHOLM</td>
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Sweden

**Organisation Website:**
http://www.tyrens.se

**EU Contribution:** €225,950

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I-Moss Nv

**Address:**
Corbielaan 5
3060 Bertem
Belgium

**EU Contribution:** €387,400

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Tt & E Traffic Transportation And Environment Consultants

**Address:**
Ventouri Street 47
15562 Athens
Greece

**EU Contribution:** €336,000

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Vlaamse Vervoersmaatschappij De Lijn

**Address:**
Motstraat 20
2800 Mechelen
Belgium

**EU Contribution:** €78,660

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Dynamics, structures And Systems International Nv

**Address:**
Jules Vandenbemptlaan 71
3001 Heverlee
Belgium

**EU Contribution:** €180,000

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Stockholms Lans Landsting

**Address:**
Hantverkargatan 45
104 22 Stockholm
Sweden

**EU Contribution:** €54,400

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**Technologies:**
Noise testing, modelling and reduction
Tools for noise prediction and measurement of trains and subsystems

**Development phase:** Research/Invention

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**Key Results:**

Quiet tracks for sustainable railway infrastructure

New techniques and tools promise to reduce noisy rail travel, encouraging healthier and more
Sustainable rail and metro travel in Europe is improving as rail technology advances and standards become increasingly harmonised. Faster, quieter, safer and more eco-friendly trains are making rail travel more popular across the continent, taking sustainable urban, rural and transnational rail transport to new levels.

Against this backdrop, the EU-funded http://www.quiet-track.eu (QUIET-TRACK) (Quiet tracks for sustainable railway infrastructures) project is striving to ensure that trains travel more quietly through the European countryside and cities. It is developing track-based solutions for decreasing railway rolling noise through improved noise mitigation and maintenance systems.

This is being achieved by improving current rolling noise models through better noise estimation, better on-board monitoring systems and high-tech preventative maintenance. In this context, the project team is developing embedded track systems that reduce noise by at least 6 dB(A), in comparison with state-of-the-art systems.

Already, the project team has undertaken significant modelling and simulation trials to calculate rolling noise. It has also developed and tested solutions to reduce noise such as track absorbing panels, rail dampers and low-noise barriers, yielding excellent results that were in line with simulations. The results are not only useful for improving travel and comfort on long-distance trains, but also on metro and tram lines in urban areas.

Overall, the project will produce an impressive set of solutions and tools for mitigating railway noise, from tracking decay and rail roughness to identifying sections in need of maintenance. Harmonised procedures for measuring roughness and decay, coupled with powerful simulation software, will help engineers, consultants, railway operators and infrastructure managers to improve rail transport. A more sustainable rail system that encourages comfort and health of society is expected to emerge from this ambitious endeavour.

Documents:
- Final Report Summary - QUIET-TRACK (Quiet Tracks for Sustainable Railway Infrastructures)

**STRIA Roadmaps:** Infrastructure

**Transport mode:** Rail transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Environmental/Emissions aspects

**Geo-spatial type:** Other