



Accredited measuring expertise  
for rail applications

# **Acoustics and Vibrations Test Laboratory**

# Product quality thanks to accredited test methods: **Acoustics and vibrations**

All kinds of railway customers (railway and infrastructure companies as well as their suppliers) use our services.

## **As experts in the field of acoustics and vibrations we offer you:**

- Test results recognised by regulatory authorities regardless of investigation problem
- Full-service tests carried out during operation
- Use of proven rail-specific testing techniques

## **Our wide range of testing and acceptance procedures:**

- Testing of railway vehicles and components
- Testing of infrastructure (e.g. tracks and retarders)
- Testing of acoustic warning devices and sources of noise

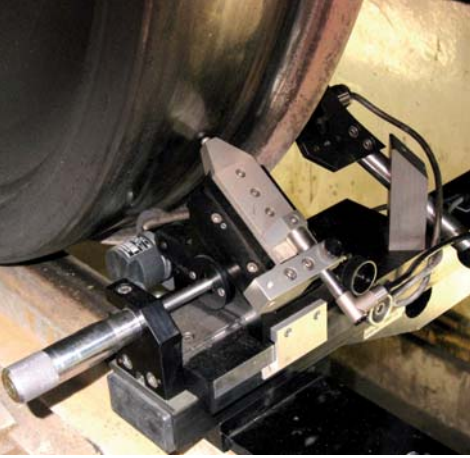
## **Therefore, we can ensure:**

- Smooth and economic approval process for your operating equipment
- Rapid deployment of your products and those of your customers
- Product compliance with environmental guidelines relating to noise and vibrations

## **All from a single source:**

DB Systemtechnik will also gladly offer you engineering services in the field of acoustics and vibrations.

## Our services



We can offer you a variety of customised testing services that can be carried out during operation.

### Vehicles

- Measurement of interior and exterior vehicle noise in accordance with DIN EN ISO 3095\* and DIN EN ISO 3381\*
- Measurements of acoustically relevant surface roughness of rail wheels
- Comprehensive vehicle noise emission measurements for approval purposes in accordance with TSI Noise and TSI HS RST\*
- Determination of sound power levels of noise sources by carrying out sound pressure measurements in accordance with DIN EN ISO 3744 and DIN EN ISO 3746\*
- Measurement of acoustic warning devices for high-speed train horns in accordance with DIN EN 15153\*
- Vibration measurements in railbound vehicles\*
- Measurement of the audibility of shunting whistles and detonators in the driver's cab of locomotives in accordance with UIC 643 (approval: Italy, France)
- Speech intelligibility measurements in railway vehicles in accordance with DIN EN 60268-16
- Measurement of reverberation time in railway vehicles in accordance with DIN EN ISO 3382.

\* Accredited test methods in accordance with DIN EN ISO/IEC 17025:2005

## Our services



All photos: DB Systemtechnik

### Infrastructure

- Testing of acoustically relevant surface roughness of the rail in accordance with DIN EN 15610\*
- Measurement of track decay rates in accordance with DIN EN 15461\*
- Vibration measurements on railway lines in accordance with DIN 45672 and/or DIN 45669\*
- Emission measurement of retarders in marshalling yards in accordance with DB guideline Acoustics 35.3
- Speech intelligibility measurements at stations in accordance with DIN EN 60268-16

### Other test methods

- Measurement of traffic noise in accordance with DIN 45642\*
- Acoustic measurement of micro pressure waves (MDW) in railway tunnels of high-speed lines (sonic boom phenomenon)
- Examination of noise or vibration stress at the work place in rail vehicles in accordance with EC Directives 2003/10/EC and/or 2002/44/EC

\* Accredited test method in accordance with DIN EN ISO/IEC 17025:2005

## Reference examples of our accredited quality



Photo: DB Systemtechnik

### Neutral and independent

Our test lab in Munich is accredited by the accreditation body Deutsche Akkreditierungsstelle GmbH (DAkkS) for acoustic and vibration measurements in the railway industry in accordance with DIN EN ISO/IEC 17025.

The accreditation includes the relevant test methods, for example in accordance with TSI specifications or DIN EN ISO 3095. See annex to accreditation certificate. Our services are QMS-certified in accordance with DIN EN ISO 9001:2008.



### Selected references in the field of acoustics and vibrations:

- **Bombardier ET 440/Talent 2:** measurements of exterior noise
- **Alstom Prima II:** sound emission measurements and measurements of the audibility of shunting whistle and detonator inside driver's cab for acceptance purposes
- **Siemens Velaro D:** sound emission measurements for acceptance purposes in accordance with TSI Noise and DB Fernverkehr specifications
- **DB Schenker:** determination of daily noise exposure in train driver's cab of Class 294 I locomotives
- **DB Netz:** rail dampers, measurements of track decay rates (TDR) on various test sections for rail dampers in the Middle Rhine Valley
- **FEW Blankenburg:** operation of a measuring station for acoustic measurements of a retarder



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## Imprint

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