

## Identification of the Interior Noise Sources of Rail Vehicles

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**Abstract :** The noise source for the interior room of the high speed train is constituted by the rolling contact between the wheel and the rail, aerodynamic noise and structure-borne sound generated through the vibrations of bogie, connection points to the carbody. Air-borne sound is radiated through the panels and structures into the interior room of the trains. The high-speed lines are constructed with slab track systems and many tunnels. The interior noise level and the frequency characteristics vary according to types of the track structure and the infrastructure. In this paper the main sound sources and the transfer paths are studied to find out the contribution characteristics of the sources to the interior noise of a high-speed rail vehicle. For the identification of the acoustic power of each parts of the rolling noise sources a calculation model of wheel/rail noise is developed and used. For the analysis of the transmission of the sources to the interior noise noise and vibration are measured during the operation of the vehicle. According to operation speeds, the mainly contributed sources and the paths could be analyzed. Results of the calculations on the source generation and the results of the measurement with a high-speed train are shown and discussed.

**Keywords :** rail vehicle, high-speed, interior noise, noise source

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