

ACOUSTICS2008/2636

Railway vibration mitigation - An innovative concept

Frederic Le Corre, Christine Charles and Marcel Girardi
Alstom Transport, TGS Engineering - 33, rue des Bateliers, 93400 Saint-Ouen, France

These last decades, rail transportation has known an amazing development. Hence, the resulting pollution on people living alongside lines or above underground lines has become a crucial subject of consideration. The disturbance has two origins: the direct noise or vibration from the railway traffic and the noise produced by vibration of the building walls, the so-called re-radiated noise. Noise and vibration excitation is essentially due to wheel and rail roughness at the contact point. From this excitation point, the track acts as a filter of vibrations. Hence, spectrum of emitted vibrations can be controlled with the design of railway track. Providing vibration mitigation with the track is now commonly encountered, especially on urban projects (LRT MRT...). This is usually achieved by introducing an adequate resilient layer to provide the required attenuation. Alstom Transport and Sateba are developing a system to mitigate vibrations. This system called AFST is based on the booted sleeper system. After a complete analysis of critical parameters, a special design has been drawn. The resulting antivibratile solution is a high-performance system suiting areas where vibration mitigation and/or attenuation of re-radiated noise are required.