

ACOUSTICS2008/2584

Noise reduction applied to an engine cooling system for a diesel railway vehicle

Anders Frid^a and Karl-Richard Fehse^b

^aBombardier Transportation, Östra Ringvägen 1, SE-72173 Vasteras, Sweden

^bBombardier Transportation, Am Rathenaupark, 16761 Hennigsdorf, Germany

In recent years there has been growing attention to reduce the noise from rail traffic in urban areas. In or around stations and depots noise from cooling systems and traction and auxiliary equipment normally dominates. New legislation setting noise limits for stationary and accelerating trains puts further emphasis on increased noise reduction of such sources. An experimental investigation has been carried out in which several design changes on a roof-mounted diesel engine cooler from the AGC (Autorail Grande Capacité) train have been assessed in laboratory and on a train. Even though this train is considered as a state-of-the-art product having very low noise emission, the engine cooler is identified as the dominating noise source when operating at its maximum capacity. The wide range of minor and major modifications tested includes different ways to guide the air flow into the fans, reduced tip clearance, absorption material in various positions inside and outside the cooler. Also different fan types have been tried (an axial fan with swept blades and a radial fan). The work has been carried out within the 6th framework EU-project "Silence" (ref TIP4-CT-2005-516288)