

**ACOUSTICS2008/527**  
**Upgraded BB64700 locomotives - Noise Management Plan during  
the redesign process**

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To extend the working life of its BB 64700 locomotives, SNCF decided to upgrade a fleet of 19 tractive units. Priorities for the upgrading work include changing the motor and its cooling system, adding air conditioning to the cab while meeting new environmental obligations and improving cab acoustics. An acoustic model that combines calculations and experimental data is used as a platform to specify maximum allocated acoustic power to each system suppliers. The global approach to sub-structuring and acoustic synthesis is based on decomposition of the product in a main structure and several noise sources, and that their acoustic and vibration energy propagates via different identified transfer paths. The model, which is updated throughout the design process, serves as a decision tool to enable corrective action plans if a clause might be not respected. In the context of this project, measured noise levels on the upgraded locomotive meet SNCF specifications for interior and exterior acoustic according to the defined operating conditions (idling, max load traction).