



PROJECT PROFILE

SUSTAINING ENGINEERING – ACOUSTICAL NOISE REDUCTION

CLIENT CHALLENGE

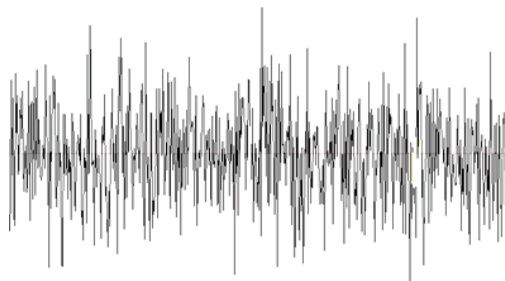
A world-wide manufacturer of visual solutions with a 75 year history was experiencing negative customer feedback for one of its newest electronic projection systems. Excessive noise levels during operation were negatively affecting sales of this otherwise superior state of the art digital projector. As it was a newly launched product, the client desired to eliminate/reduce the noise without modifying the exterior or internal component layout of the projector. Several current Palladium personnel were retained to assist with this goal (prior to the incorporation of Palladium Product Development & Design).

SOLUTION

Extensive baseline measurements, calculations of noise and airflow were performed to characterize the system. Multiple mock-ups were constructed and tested to determine and prove the designed solution measures. The multiple air-cooling system configuration was identified as the major source of system noise and overall system balancing with a simplified single cooling system was achieved, resulting in a more efficient and quieter projector. Other noise reduction measures contributing to the successful resolution of the problem included; fan voltage reduction, rerouting of air ducting, and the introduction of air and noise baffling.

PROJECT HIGHLIGHTS

- 12 dBA noise reduction was achieved without altering the external design or negatively affecting the internal layout in terms of final assembly.
- The internal temperature profiles of the digital projector were not negatively affected and in fact were lowered in a few critical locations.
- The part count of the digital projector was lowered and the assembly was greatly simplified.



SUSTAINING ENGINEERING REQUIREMENTS

Is provided by Palladium Product Development & Design for many products, industries and companies such as the case history described above. Many of the same personnel involved with the electronic projector above (some with over 20 years industry experience) are still active with Palladium and providing services to past clients they have served, as well as taking on new clients with machine upgrades and product improvement programs. Design modifications related to manufacturing/machine design, packaging and transportation efficiencies, researched product quality improvements and implementation of client/user feedback are routinely implemented as a result of these analyses and design engineering services.