

Evaluation and Improvement of Envelope Spectrum Technique for Bearing Fault Detection

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Project Summary

Vibration Specialty Corporation (VSC) uses the industry standard envelope spectrum based vibration analysis to detect faults in rotating element bearings. The focus of this project is to evaluate the envelope spectrum technique and identify its shortcomings for bearing fault detection. Furthermore, alternative signal processing methods will be investigated for improved performance. Particular emphasis will be given to signal processing methods such as homomorphic and nonlinear filtering to extract fault signature hidden in the complex vibration data in which the fault signature modulates the characteristic frequencies of the machinery.