Prenscia HBM

GlyphWorks

Vibration Profile Design

Vibration Profile Design (formerly Accelerated Testing) is a specialized product option within nCode GlyphWorks that provides the ability to help specify accelerated durability tests, saving both time and money in environmental qualification and product validation. With Vibration Profile Design, users can create a PSD or swept sine shaker vibration test based on measured data. Multiple time or frequency domain data sets can be combined into representative test spectra that accelerates the test without exceeding realistic levels.

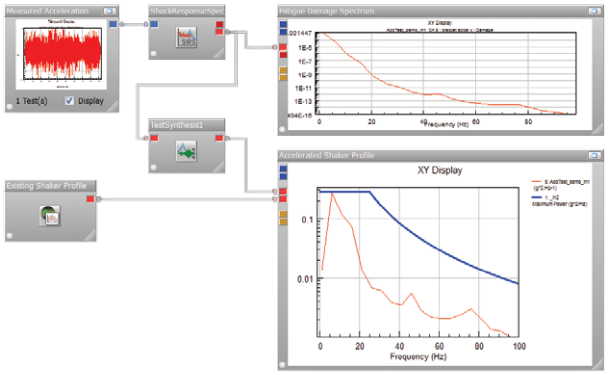
Key Benefits:

- Create a realistic accelerated shaker test – based on equivalence of fatigue damage or shock
- Quantify how different test methods impact component durability
- Rapidly compare an existing test specification with service vibration data
- Extend the life of parts in service or avoid unexpected failures
- Understand the impact of exposure time in service and on the test rig

Key Features:

Enables comparison of:

- Different shaker tests: Which is more severe - swept sine or random vibration testing?
- Existing test specification with service vibration data in terms of severity. The Vibration Manager database contains 100+ vibration profiles from various standards.
- Two different sets of service vibration data: Is usage in one region more severe than in another?



Predicting product life expectancy

Vibration Profile Design uses the fatigue damage spectrum (FDS), a mathematical approach described in standards NATO STANAG 4370 (AECTP-240)/UK DEF STAN 00-35/MIL-STD-810G. With the FDS, engineers can apply widely used fatigue concepts like the SN curve and Miner's Rule for damage accumulation. The FDS is computed from either measured vibration data or existing shaker specifications to quantitatively assess the potential for fatigue failure in parts that are exposed to vibration loading. It provides a relative fatigue damage estimate based on acceleration levels and exposure time.

Brüel & Kjær LDS shaker system from HBK

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