Damage Potential Predictor

A new comprehensive Software Product

A GHI Productivity Tool For ESS Testing

Key Factors

DP(f) IS

- A Unique analysis tool.
- Based on Fatigue Theory.
- A Damage Spectrum (Frequency Domain).
- A Fatigue Accumulation Predictor.
- A Broad Applications Tool.
- A Close cousin to ASD.

Required Inputs
For Operation

- Snapshot of Time History of Test.

- Estimates of:
- Excitation Duration,
- Typical Materials Beta,
- Typical Component Damping.

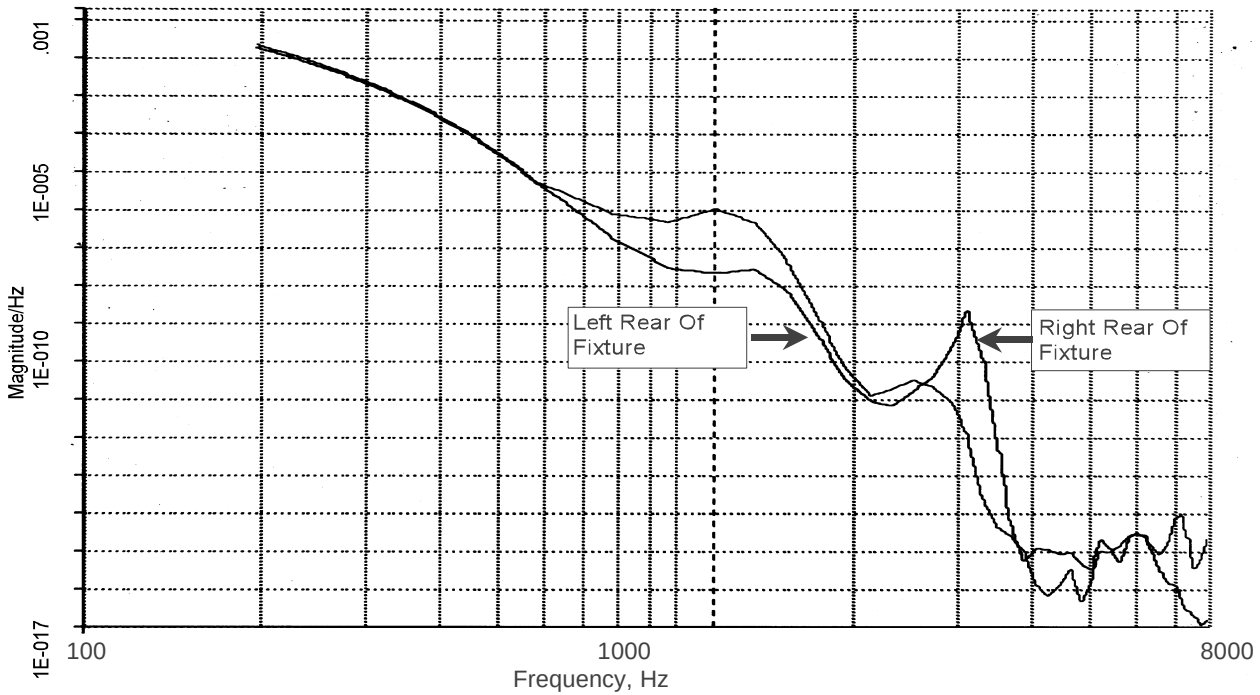
Computation Steps

The Process

- Estimates autospectrum from time history.
- Applies Transform to produce Velocity Spectrum.
- Applies Weighting for
  - **Test duration.**
  - **Beta Slope.**
  - **Damping.**
- Plots Resulting Damage Potential (f) Spectrum.

Differential DB(f) Illustration

Fatiguing differences between fixture points.



Estimation Mode	=	Damage Potential	Frequency	=	1166.19Hz
Source Channel	=	1	Amplitude #1	=	1.008E-006/Hz
Window Length	=	5.12 ms	Amplitude #2	=	2.282E-008/Hz
Duration	=	3600 sec			
Damping Ratio	=	0.05			
S/N Slope	=	8.0			

Benefits

Productivity Increase

- Predicts Relative Damage for specific test item input loadings *at the mounting point.*
- Shows effects of:
  - **Test duration,**
  - **Damping.**
  - **Fatigue Beta.**
- Provides Comparative analysis for:
  - **Before and after tests.**
  - **HALT/HASS Machine tables and fixtures.**
  - **Product Improvement history.**