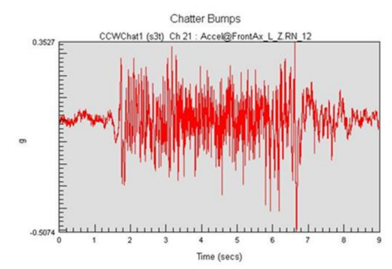
Generating Accelerated Loading Profiles from Measured Time Series Data

MCI® J4500 - AMERICA'S BEST-SELLING COACH

BACKGROUND

MCI® D4000 & D4500 - THE BEAUTY OF DEPENDABILITY

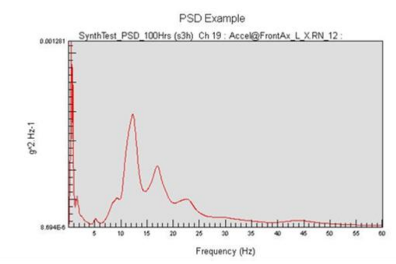
Example Event Time Series Data



METHODOLOGY

Generation of Mission Profile

Example of Accelerated Test PSD



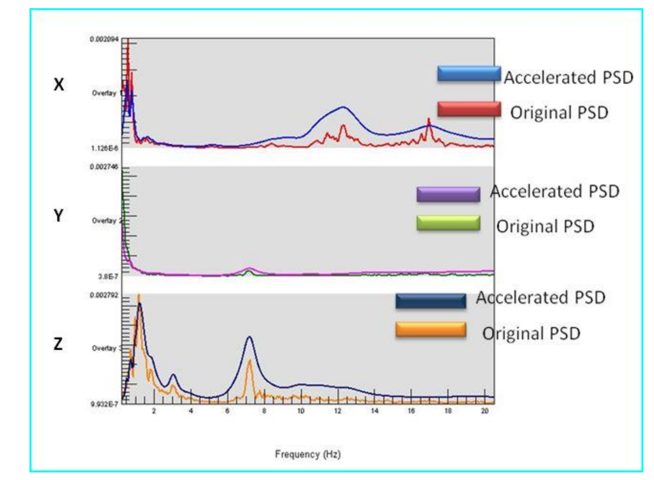
$$\text{Lifetime Damage} = \sum \text{FDS} = (\text{FDS}_1 \times \text{repeats}) + (\text{FDS}_2 \times \text{repeats}) + \ldots$$

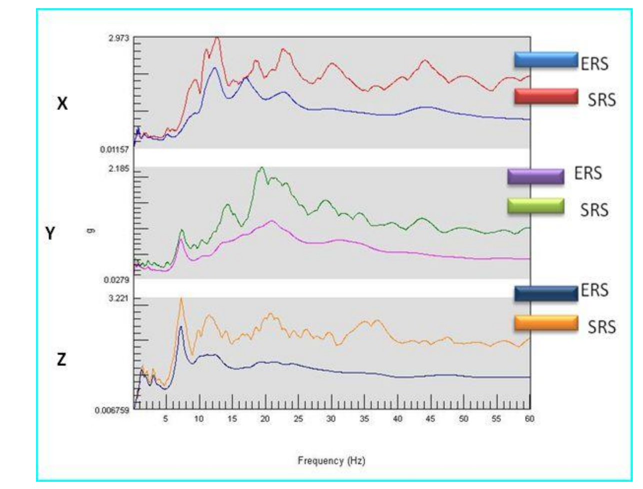
$$\ldots + (\text{FDS}_{(n-1)} \times \text{repeats}) + (\text{FDS}_n \times \text{repeats})$$

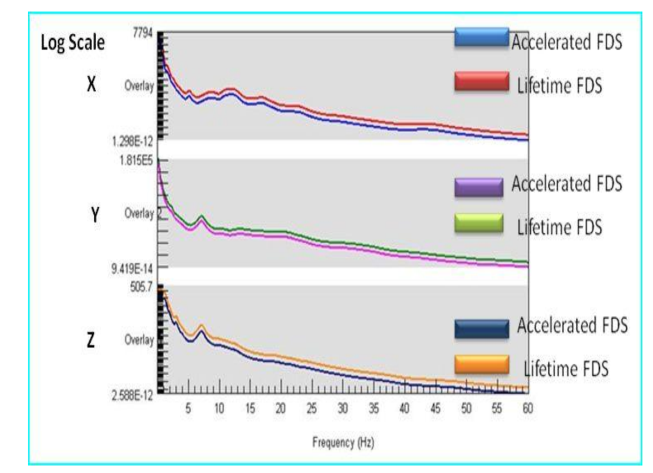
$$\text{Maximum Response} = \text{MAX}(\text{SRS}_1, \text{SRS}_2, \text{SRS}_3, \ldots, \text{SRS}_{(n-1)}, \text{SRS}_n)$$

Generation of Accelerated Test

RESULTS







CONCLUSIONS

OBJECTIVES

DEFINTIONS

Selected Test Parameters

Test Parameter	Value
Variabliity of Strength	8%
Variability of Loading Environment Damage	30%
Confidence Level	44%
Number of Tests	1
Safety Factor	1 (Set to value)
Test Factor	0.151052 (Calculated)
Test Distribution	log-normal
Accelerated Test Duration	**100 Hours**
Time Reduction	83.40%
Basquin Curve Slope	4