

Capability Statement (SBA certified 8a)

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Capability Statement – The Continuum Engineering

- **Business**

- Incorporated in California
- Located in Los Angeles, California
- Established in January, 2005
- Point of Contact: Tarun K. Ghosh, PhD
- Phone: 818-481-9284
- Fax: 213-389-6931
- E-mail: tghosh@continuumus.com
- Website: www.continuumus.com
- Debt: None
- Profitability: Every year
- Status: Certified 8a and SDB
- We are in the CCR with DUNS# 194611666

Capability Statement – The Continuum Engineering

- **Services**

- Design, analysis, testing and certification of aerospace hardware
- On-site technical support
- Independent verification, review and checking of structural analysis
- Technical advise in solving structural problems
- Set up computational procedures by developing pre- and post-processors
- Performing technical research and study
- Teaming with other companies in undertaking bigger projects
- Training and placement of staff
- IT Support
- Business law

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- Expertise
 - Finite Element Modeling of Structures and Components
 - Modal testing and model correlation
 - Bolted joint analysis per different standards
 - Modal synthesis and coupled load analysis (CLA)
 - Frequency and time domain structural analysis
 - Fatigue and damage tolerance (fracture) analysis
 - Buckling, gap/contact, preload and tolerance analysis
 - Failure investigation and providing corrective measures
 - Stress, dynamics and thermal analysis of metallic and composites
 - Functional testing and model validation
 - Static, time history, shock, harmonic and random vibration analysis
 - Response minimization through isolation and notching
 - Certification of commercial over the shelf (COTS) in aerospace application

Capability Statement – The Continuum Engineering

- 8(a) Certification

- It is by Small Business Administration (SBA) based on
 - demonstrated profitability
 - good conduct and credit of company owners
 - payment of all tax liabilities
 - growth and prosperity potential
 - small size of company
 - owners do not have too much asset
- Certified company qualifies for set-aside federal contracts
- Certified company can join mentor-protégé program

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- Client Companies and Projects
 - Barry Controls Aerospace/Burbank: Airbus A400M Engine Vibration Isolation System (EVIS)
 - ATK/Pasadena: NASA/JPL Mars Science Laboratory (MSL) Chemical Mineral Analyzer (CheMin)
 - Raytheon/EI Segundo: NASA Virago project to modify and qualify COTS chassis to meet Aerospace Standards
 - NASA-GRC/Cleveland: CoNNeCT design, analysis and test support to meet ISS, shuttle and JAXA requirements
 - Wyle Laboratories/Huntsville: Analysis of isolation system of shaker on test stand

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- Software

- General Purpose Codes

- FEM Codes: NASTRAN, ANSYS
 - FEM processor: PATRAN, FEMAP, IDEAS
 - Composite Analysis: Composite-Pro, Hypersizer
 - Fracture: NASGRO
 - CAD: PRO/E Mechanica

- In-house Codes and Procedures

- Life Cycle Analysis based on MicroSoft Visual Basic
 - Modal Synthesis Package based on MSC/NASTRAN
 - Modal Testing and Model Correlation based on FORTRAN
 - Bolt Analysis using MATHCAD
 - Fatigue Analysis using EXCEL spreadsheet
 - Tolerance Analysis using NASTRAN gap elements
 - Notched PSD analysis

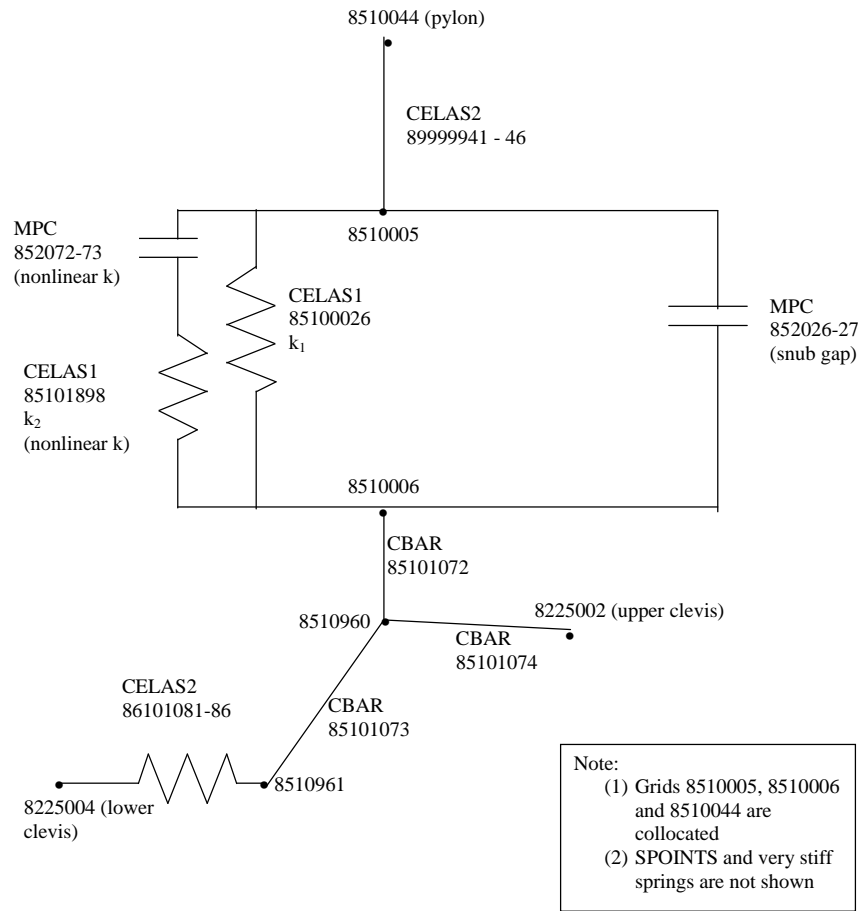
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- Technical Papers

- "MSC/NASTRAN Based Component Mode Synthesis Analysis Without The Use of DMAPs"
- "Model Validation and Testing of International Space Station Structures using MSC/NASTRAN"
- "International Space Station Thermally Induced Solar Array Base Loads"
- "Component Mode Synthesis of Structures with Geometric Stiffening in MSC/NASTRAN"
- "Space Station Solar Array Pointing System Control/Structure Interaction Study using CO-ST-IN for modal reduction"

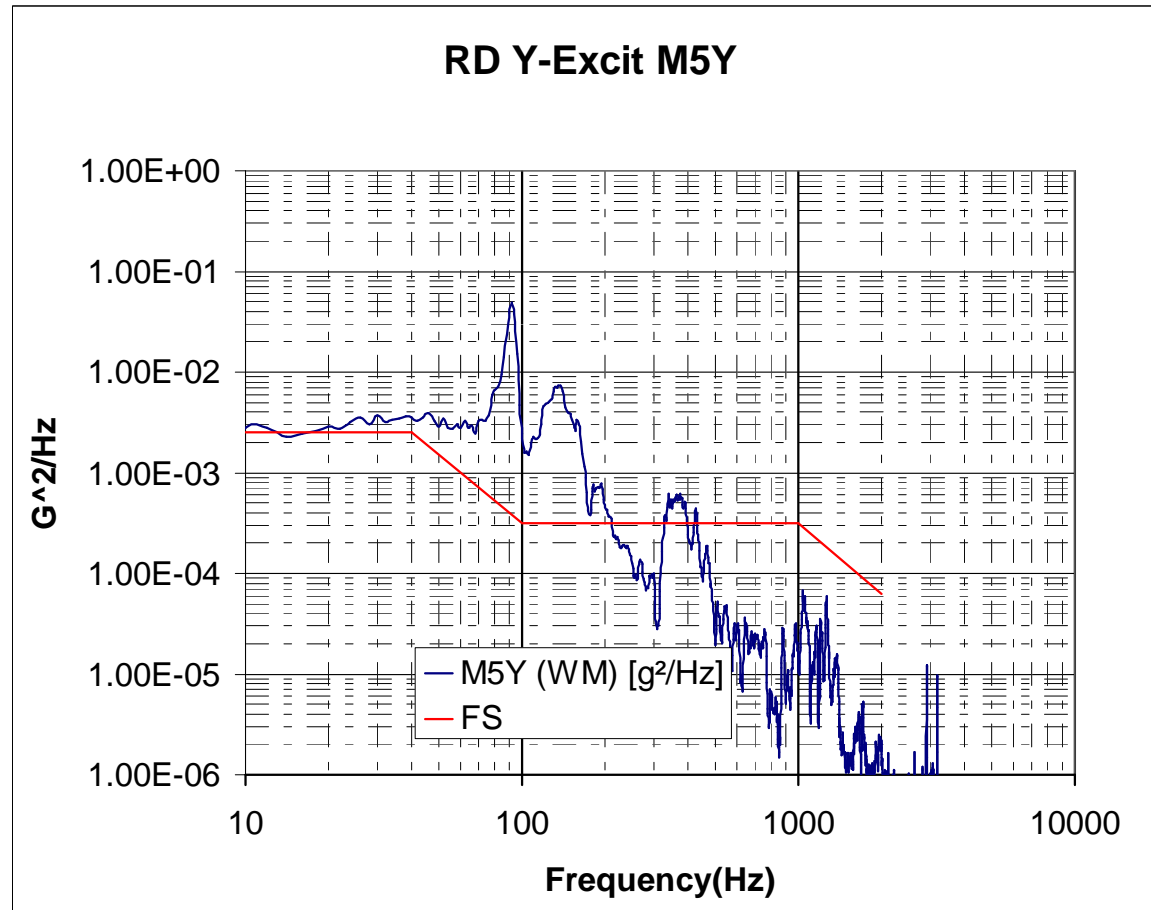
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- Samples from Projects
 - EVIS Isolation System Modeling



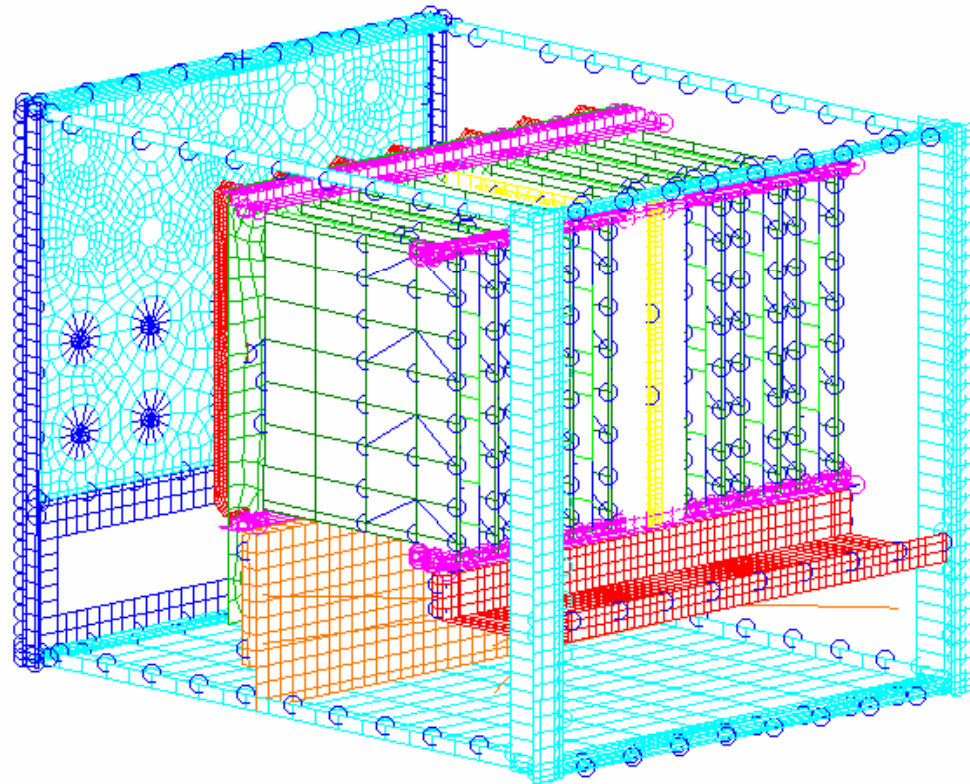
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- Samples from Projects
 - Response of COTS Chassis to random vibration excitation



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- Samples from Projects
 - FEM of typical COTS chassis with some panels removed

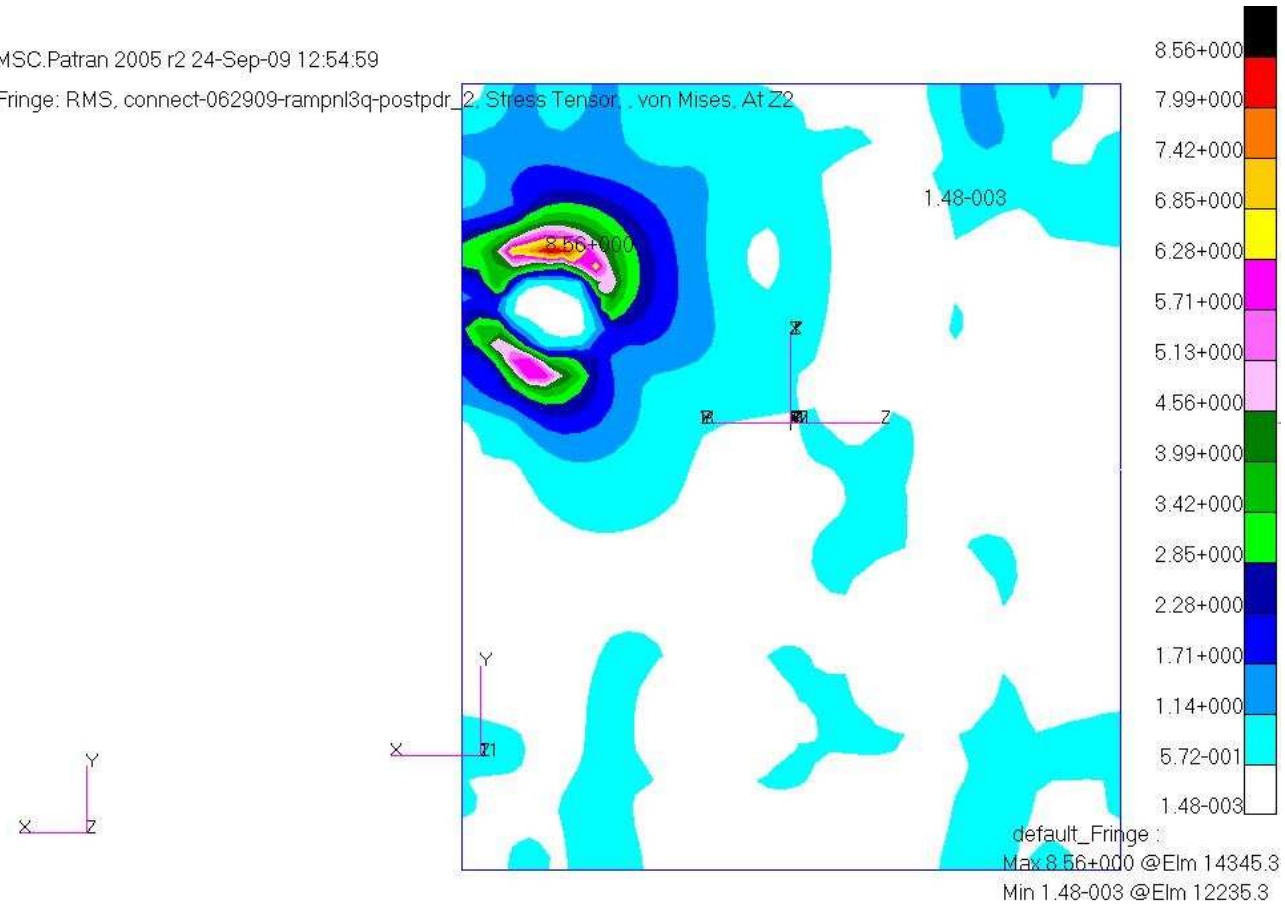


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- Samples from Projects
 - Typical plot showing high stress area of chassis panel

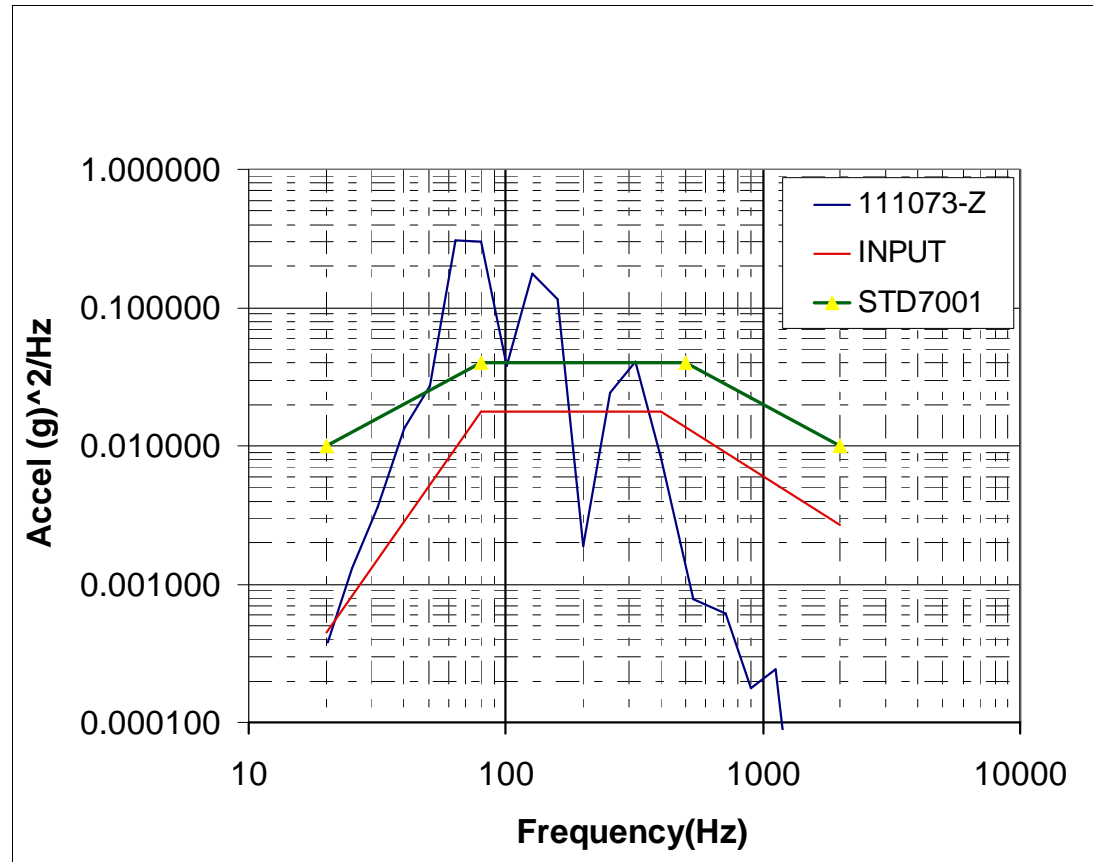
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Fringe: RMS, connect-062909-rampnl3q-postpdr_2, Stress Tensor, von Mises, At Z2



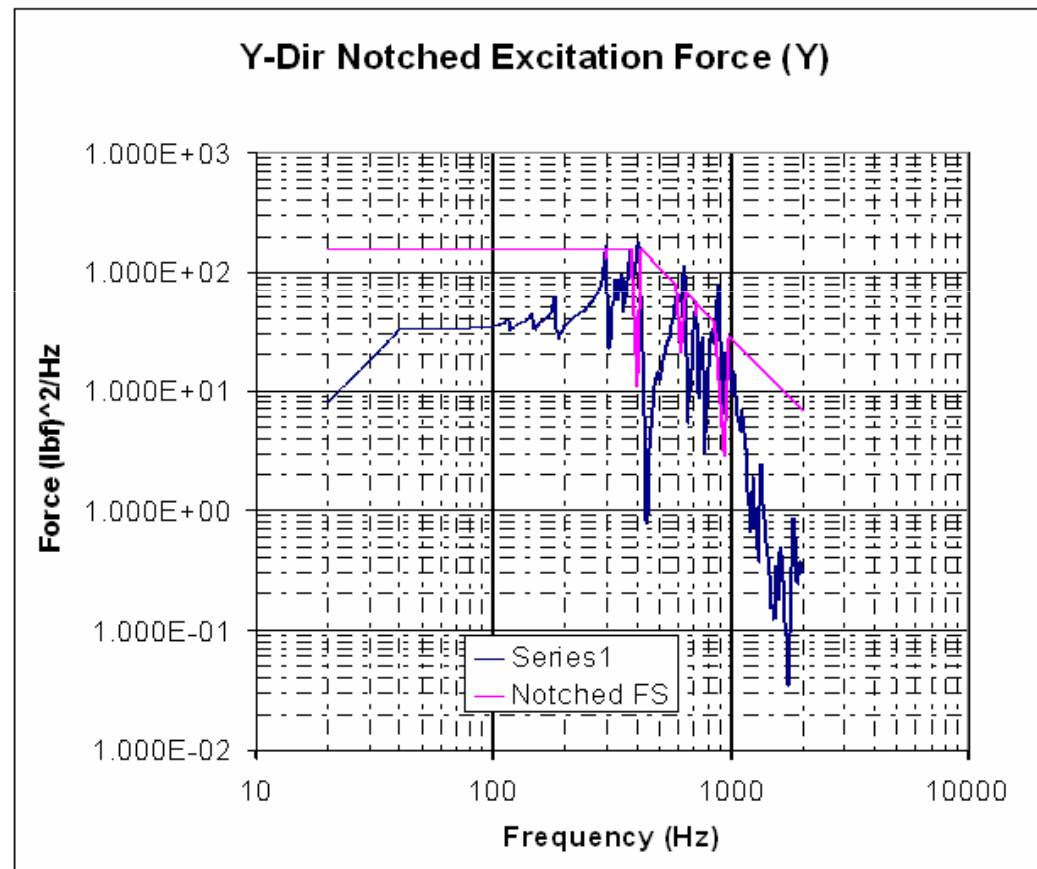
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- Samples from Projects
 - Typical Accel PSD at base of chassis mounted component



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- Samples from Projects
 - Response limitation by the use of notched PSD



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- Conclusion
 - Based on the proprietary and sensitive nature of the work performed, discretion was used in preparing this presentation
 - This presentation shows our ability to perform
 - Required structural design, analysis and testing using procedures, standards and software widely used
 - Specialized tasks using innovative (but simple) methods, widely used software and non-proprietary material
 - We believe that working as a team and knowing our abilities and limitations, we can do an outstanding job