

# Ken Harp

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## Profile

As a Staff Mechanical Engineer, I specialize in systems thermal management and new product design in the Satellite Communications, Aviation, Defense and Information Technology industries. I lead projects from the trenches and by example ensuring robust yet cost-conscious solutions for challenging environments.

## Professional Experience

**Staff Mechanical Engineer**, Kymeta Corporation, Redmond, WA 01/2016 - Present

- **Lead Mechanical Engineer:** Developed innovative mobile satellite terminal designs with a focus on enhanced performance, reliability, and manufacturability. Utilized advanced design principles and collaborated with cross-functional teams to integrate diverse requirements seamlessly. This approach led to the delivery of groundbreaking, state-of-the-art terminals within stringent timelines.
- **Technical Project Leadership:** Managed complex workstreams in a fast-paced setting using a hybrid Agile approach, ensuring efficient triaging, assignment, and progress tracking. This approach kept critical satellite terminal development efforts on track, overcoming challenges and meeting strategic deadlines successfully.
- **Thermal Systems Architecture:** Designed thermal management systems for new satellite terminals, applying expert knowledge in thermal analysis to create efficient passive and active cooling systems. As a recognized expert in computational fluid dynamics and other analytical methods, I ensured the terminals' optimal performance and longevity under extreme conditions.
- **Structural Systems Design:** Executed structural design and optimization for terminal systems, creating vibration and shock profiles based on commercial and military standards to broaden market coverage. Conducted detailed vibration analyses and validation testing, leading to significant weight and cost reductions in current and future generation terminals through validated FEA models.
- **Digital Twin Development:** Developed digital twins for thermal management and field performance estimation, using global climatic data and correlating it with comprehensive system-level analyses. Conducted real-world testing in extreme conditions, including Death Valley in August, which enhanced the accuracy and reliability of our thermal management strategies.
- **Cross-Functional Collaboration:** Built and maintained strong relationships with cross-functional teams, aligning on critical development and change management efforts. My ability to remain calm and collaborative while driving workstreams forward was consistently recognized.
- **Cost Reduction Leadership:** Led mechanical cost reduction initiatives by critically assessing products and processes to identify improvement opportunities. This relentless pursuit of efficiency yielded significant cost and manufacturing time savings supporting a 40% decrease in overall terminal build cost.
- **Team Mentorship:** Mentored a team of 8 mechanical engineers, providing technical guidance and promoting skill development in a collaborative learning environment. This fostered a high-performing team dynamic that enhanced project execution efficiency and quality.

**Principal Mechanical Engineer**, Astronics AES, Redmond, WA 04/2008 - 09/2015

- Avionics Research and Development: Conducted comprehensive mechanical research, new product design, and development across various projects and aircraft platforms including Bombardier, Pilatus and Bell Helicopter. Specialized in avionics and power distribution systems for commercial aircraft, applying expertise to create innovative packaging solutions. My leadership and technical skills resulted in numerous first-to-qualify designs transitioning smoothly into production, receiving consistent praise for efficiency and effectiveness.
- Lead Mechanical Engineer: Led the end-to-end mechanical research and development for avionics, from concept through sustained production. Guided technical teams through the design, analysis, and testing phases, aligning with technological advancements, market demands, and regulatory standards. Ensured the successful introduction of numerous innovative designs into production, establishing a track record of technical excellence.
- Lead Thermal and Structural Analyst: Implemented analytical methods ranging from initial hand calculations to advanced CFD and FEA system-level analyses. These techniques validated design robustness and ensured successful environmental qualification of avionics systems, providing critical reliability and performance in challenging conditions.
- Technical Mentorship and Presentation: Authored and delivered presentations on thermal systems design, structural analysis, and solder joint reliability. As a mentor, I cultivated a collaborative team culture, enhancing skill development and best practices among team members. This mentorship built a skilled and cohesive team, improving collaboration and excellence in project execution.

**Senior Mechanical Engineer**, Raytheon Integrated Defense, Keyport, WA, 9/2006 – 3/2008

- Lead Mechanical Design Engineer: Rapidly identified numerous design changes to restore a halted multimillion dollar Torpedo program. Successfully performed extensive analysis and environmental qualification testing to vet needed design changes. Customer restored program production without reservation based on the results.

**Mechanical Design Engineer II**, Northrop Grumman Space Tech, San Diego, CA, 12/2004 – 8/2006

- Avionics Design and Testing: Conducted design, analysis, and testing for critical avionics applications in military aircraft, including the F-22 Raptor, F-35 Joint Strike Fighter, and AH-64D Apache Longbow, ensuring the reliability and performance of communication, navigation, and identification systems, thereby enhancing the capabilities and survivability of these aircraft.

**Mechanical Design Engineer**, Raytheon Integrated Defense, San Diego, CA, 5/2000 – 11/2004

- Lead Mechanical Design Engineer: Spearheaded a US Navy Shipboard Wide Area Network (SWAN) Gigabit Ethernet migration, integrating rack-mounted network servers and data storage into ruggedized cabinet assemblies for Navy shipboard use. This integration focused on enhancing electronics system reliability in maritime environments and boosting communication capabilities on Navy vessels.
- Thermal and Structural Analyst: Performed thermal and structural analyses for electronics rack enclosures at both system and component levels to ensure they met stringent environmental requirements, which significantly enhanced system reliability and performance.
- Technical Product Leadership: Led a team of five engineers to complete complex drawing packages within stringent schedules and budgets. Ensured the timely and budget-compliant delivery of these packages, meeting project specifications and surpassing customer expectations.

**Education**

**University of California, San Diego**, B.S. Mechanical Engineering

**University of Southern California**, Graduate Level Coursework; ME & Antenna Analysis, EM Theory