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SUPPLY CHAIN CHALLENGES AND SOLUTIONS FOR EEE PARTS IN SPACE APPLICATIONS

Abstract

The supply chain of Electrical, Electronic and Electro-mechanical (EEE) parts for space applications is a complex and critical aspect of ensuring the success of space missions. Given the specialized nature of components used in space systems, their supply chains face unique challenges. This topic explores the various elements that make up the supply chain for EEE components in space applications and discusses potential solutions to overcome these challenges.

This paper discusses the following topics:

- Component Sourcing for Space Missions
- Data-driven Obsolescence Management
- Component Certification for Space
- Logistics and Delivery Timelines
- Supply Chain Risks in Space Applications
- Sustainability and Ethical Sourcing
- Space Industry-Specific Challenges
- Custom Components vs. COTS (Commercial Off-The-Shelf)
- Recent Innovations in the EEE Supply Chain for Space

This paper also discusses potential solutions and recommendations, such as:

- Building Stronger Global Partnerships
- Utilizing Modular and Open Standards
- Developing contingency plans for supply chain disruptions, including alternative suppliers, redundant manufacturing options, and proactive inventory management.

These recommendations are crucial for space agencies and private sector players alike. Addressing issues like component certification, sourcing, logistics, obsolescence, and geopolitical risks will require innovation, strategic planning, and close collaboration between space agencies, private companies, and suppliers. Developing more robust, flexible, and sustainable supply chains will be key to supporting the growing demands of space exploration, from Space Stations and inter-planetary missions to commercial satellite constellations.