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International Space Station Passive Thermal Control System Analysis, Top Ten Lessons-Learned

The International Space Station (ISS) has been on-orbit for over 10 years, and there have been numerous technical challenges along the way from design to assembly to on-orbit anomalies and repairs. The Passive Thermal Control System (PTCS) management team has been a key player in successfully dealing with these challenges. The PTCS team performs thermal analysis in support of design and verification, launch and assembly constraints, integration, sustaining engineering, failure response, and model validation. This analysis is a significant body of work and provides a unique opportunity to compile a wealth of real world engineering and analysis knowledge and the corresponding lessons-learned. The analysis lessons encompass the full life cycle of flight hardware from design to on-orbit performance and sustaining engineering. These lessons can provide significant insight for new projects and programs. Key areas to be presented include thermal model fidelity, verification methods, analysis uncertainty, and operations support.

Regards,

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