



The State of NEPP



NASA Electronic Parts & Packaging Program

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NASA/GSFC
<http://nepp.nasa.gov>

Mission Statement

Provide NASA's leadership in the development and maintenance of guidance to support the reliable use of electrical, electronic, electromechanical, and electro-optical (EEEE) parts through characterization, lot acceptance, screening, and qualification testing in collaboration with academia, industry, international partners, and other government agencies.

NASA Electronic Parts Assurance Group (NEPAG) is a core portion of NEPP





NEPP Overview – Mission Statement

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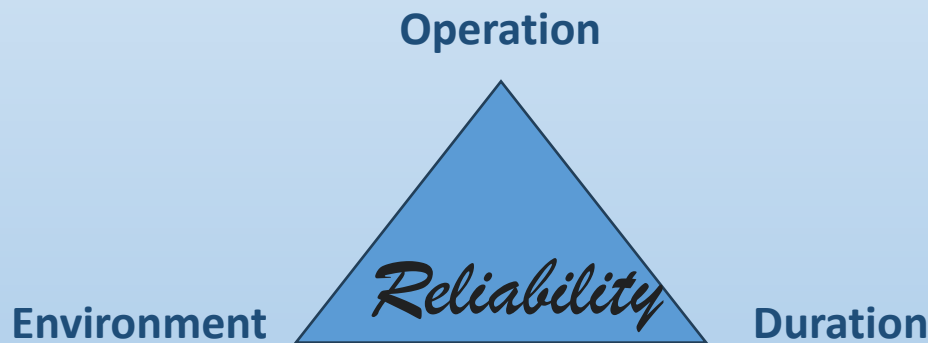
**NASA Quad-E Parts Selection,
Testing and Derating Standard
NASA-STD-8739.11**

**NASA Radiation
Hardness Assurance
(RHA) Process Standard**

**MIL-SPEC &
Industrial Standard
Support**

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Quality - Robustness - Screening - Derating - Physics of Failure

Mission, Environment, Application and Lifetime (MEAL)

Mission Specific Requirements

CLASS D

CLASS C

CLASS B

CLASS A



Image credit: nasa.gov



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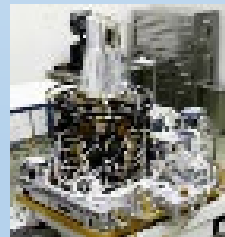


Image credit: nasa.gov



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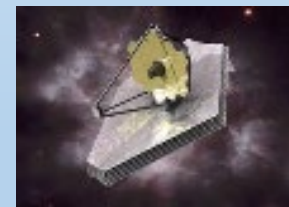


Image credit: nasa.gov

Quality - Robustness - Assurance - Screening - Derating - Physics of Failure

Mission, Environment, Application and Lifetime (MEAL)

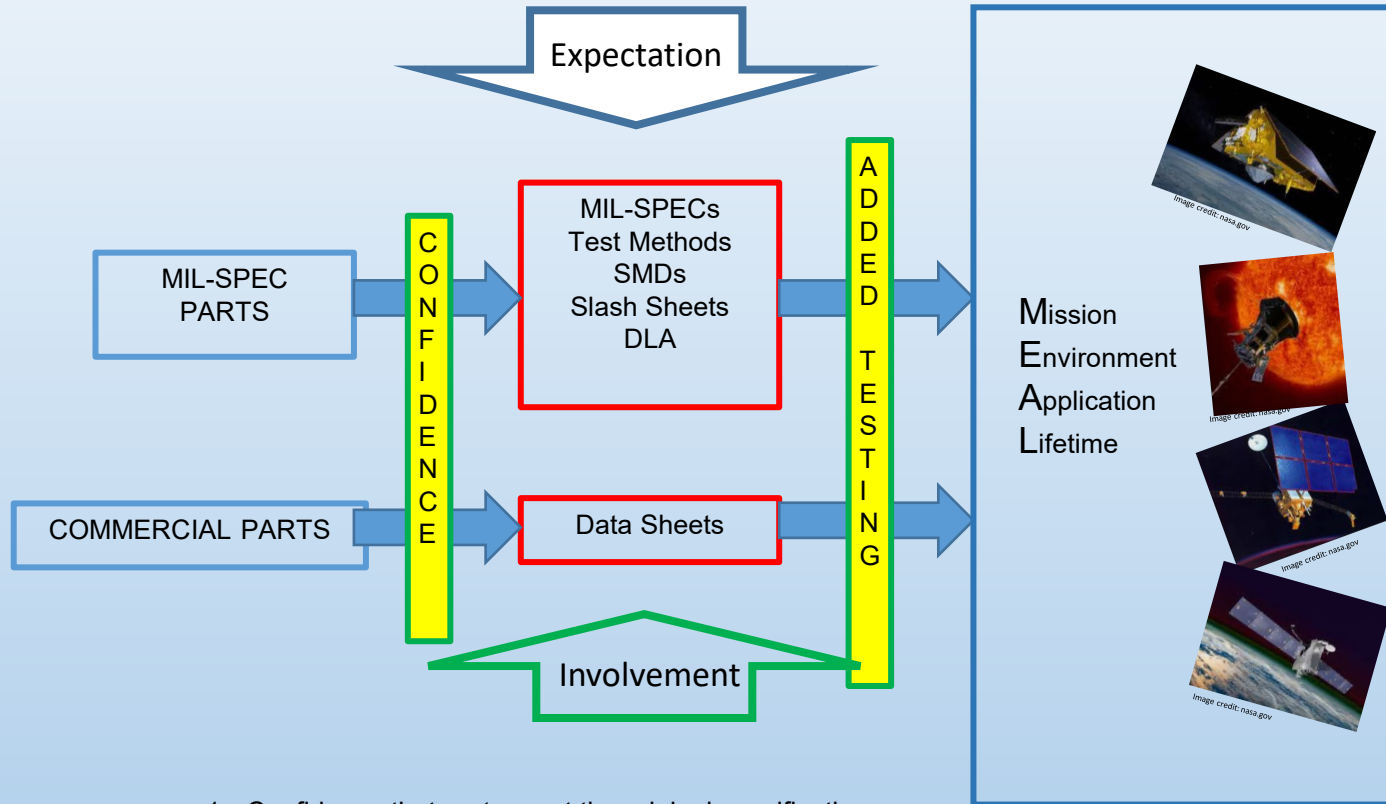


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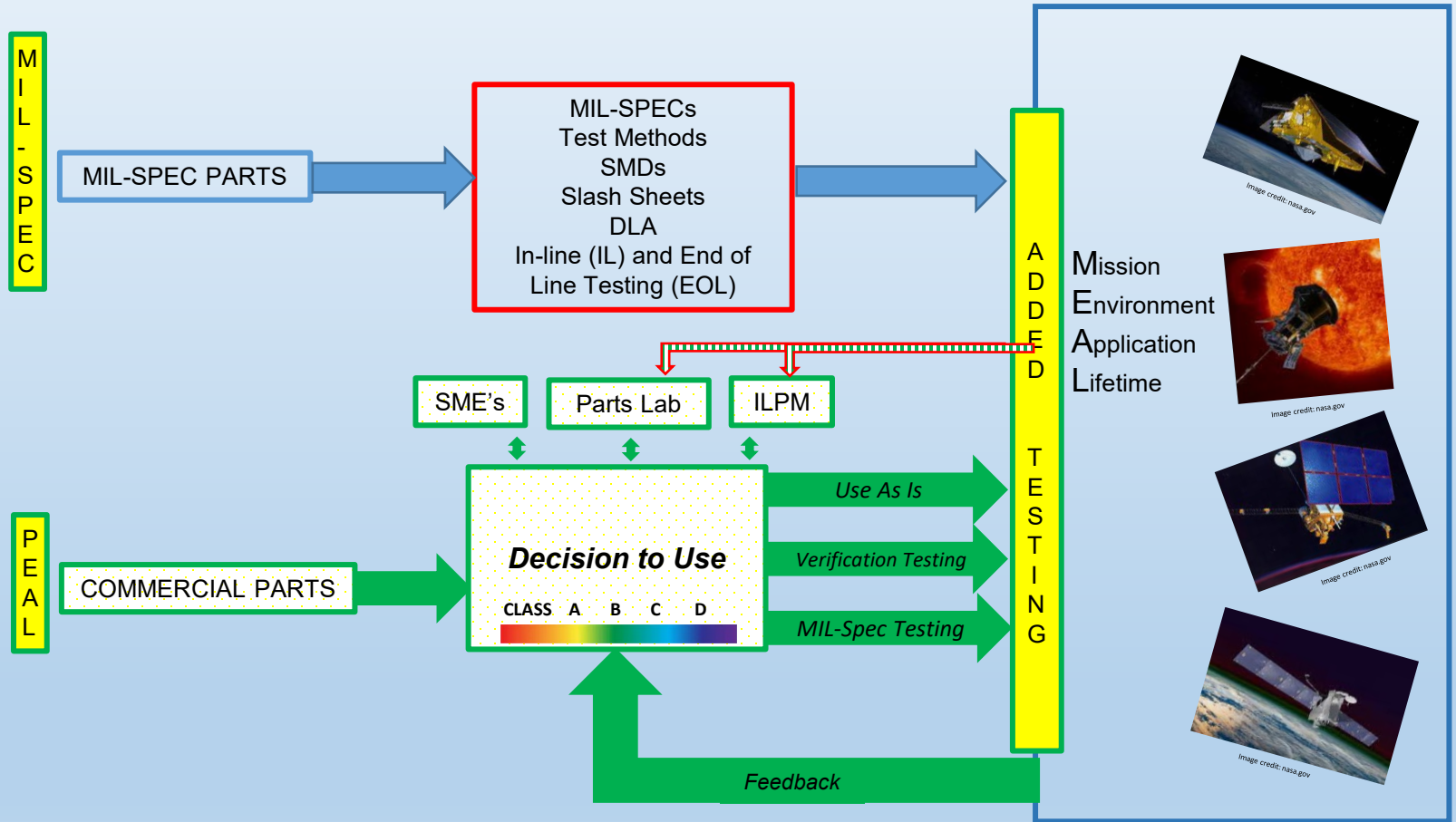
Work will be directed by
Programs & Projects
providing funding.

Evolution of Strategies

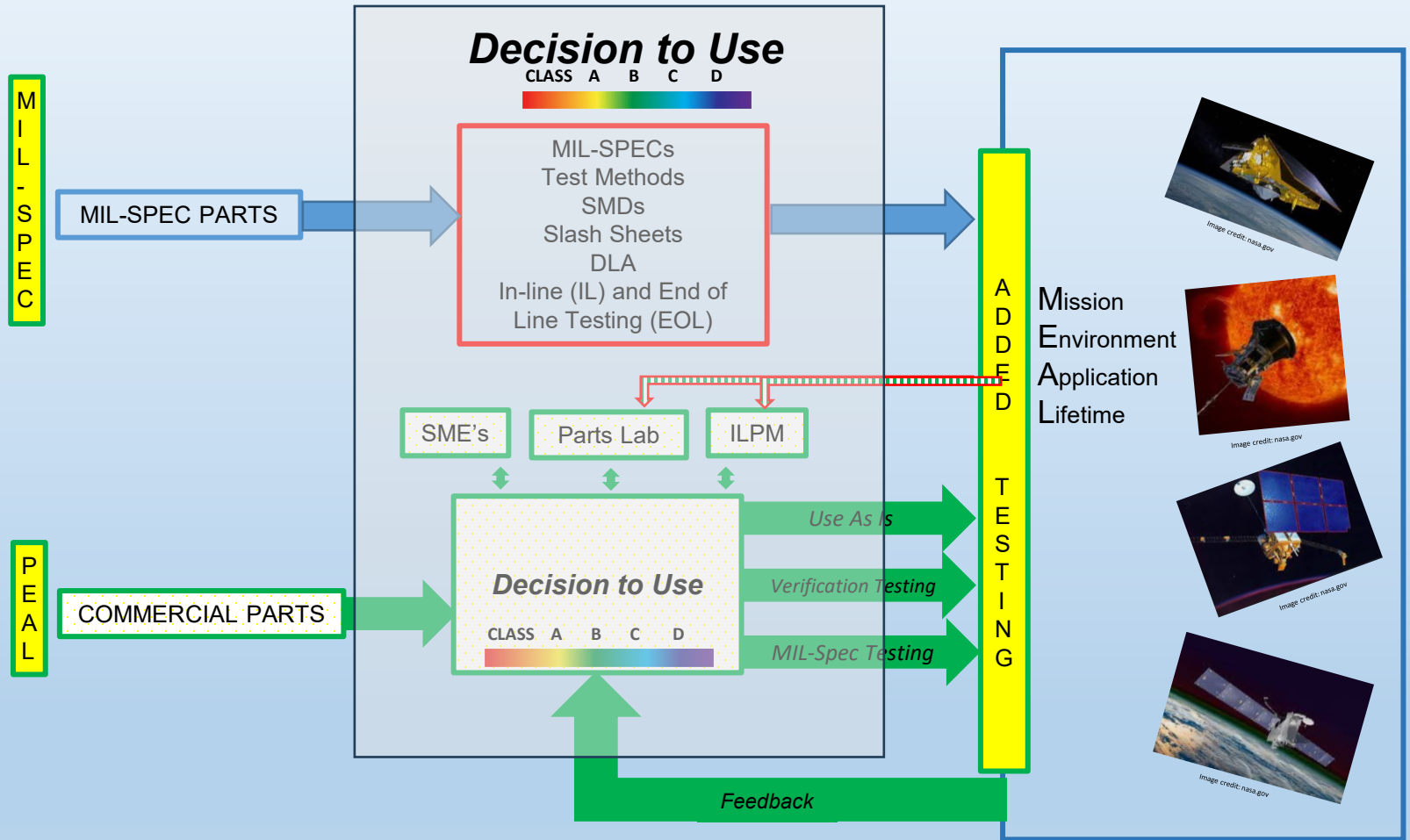


1. Confidence that parts meet the original specifications.
2. Analysis to ensure mission requirements are being met, especially if requirements are above data sheet/SMD limits.
3. Added testing should be done with extreme caution

Evolution of Strategies



Evolution of Strategies



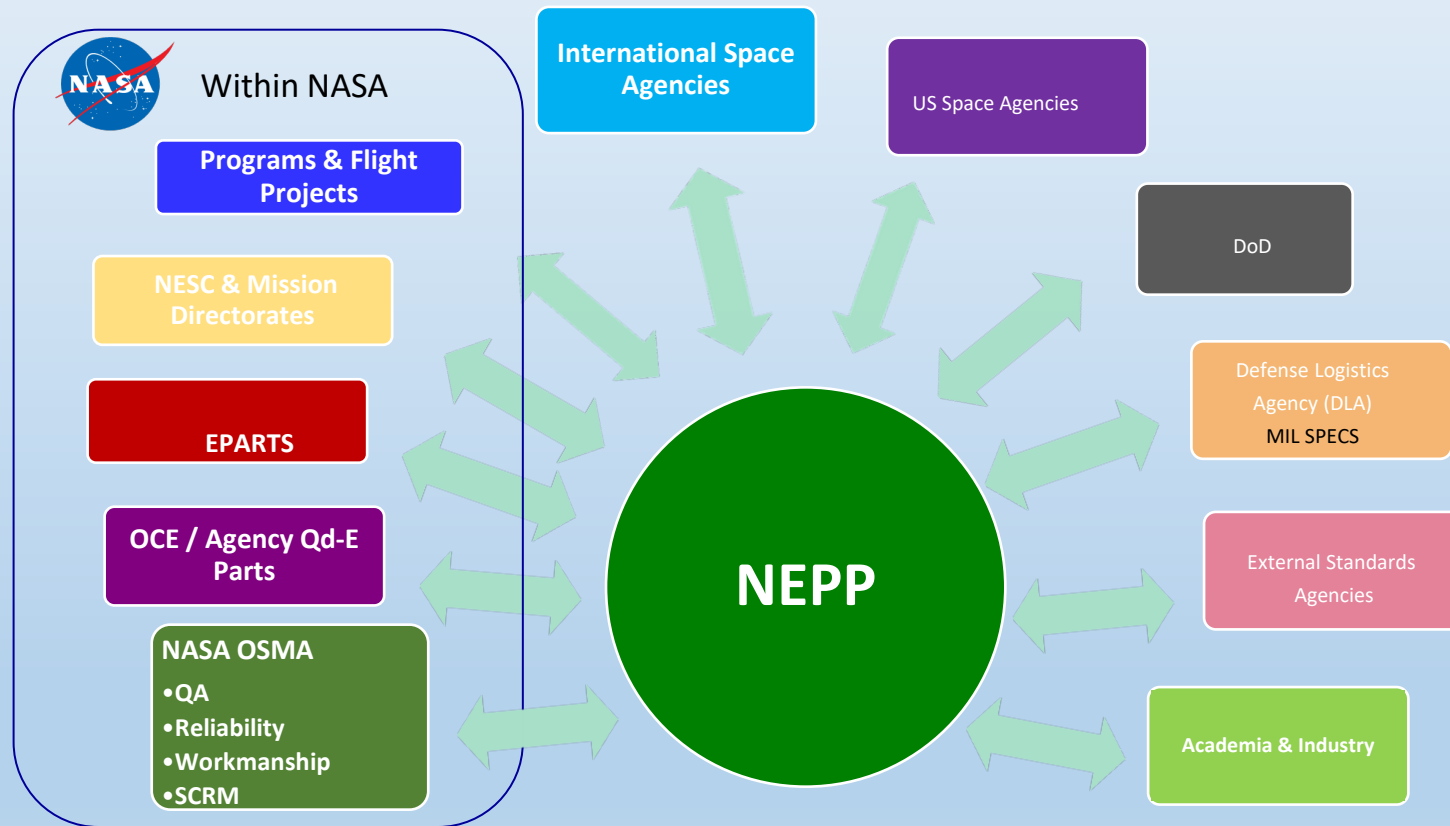
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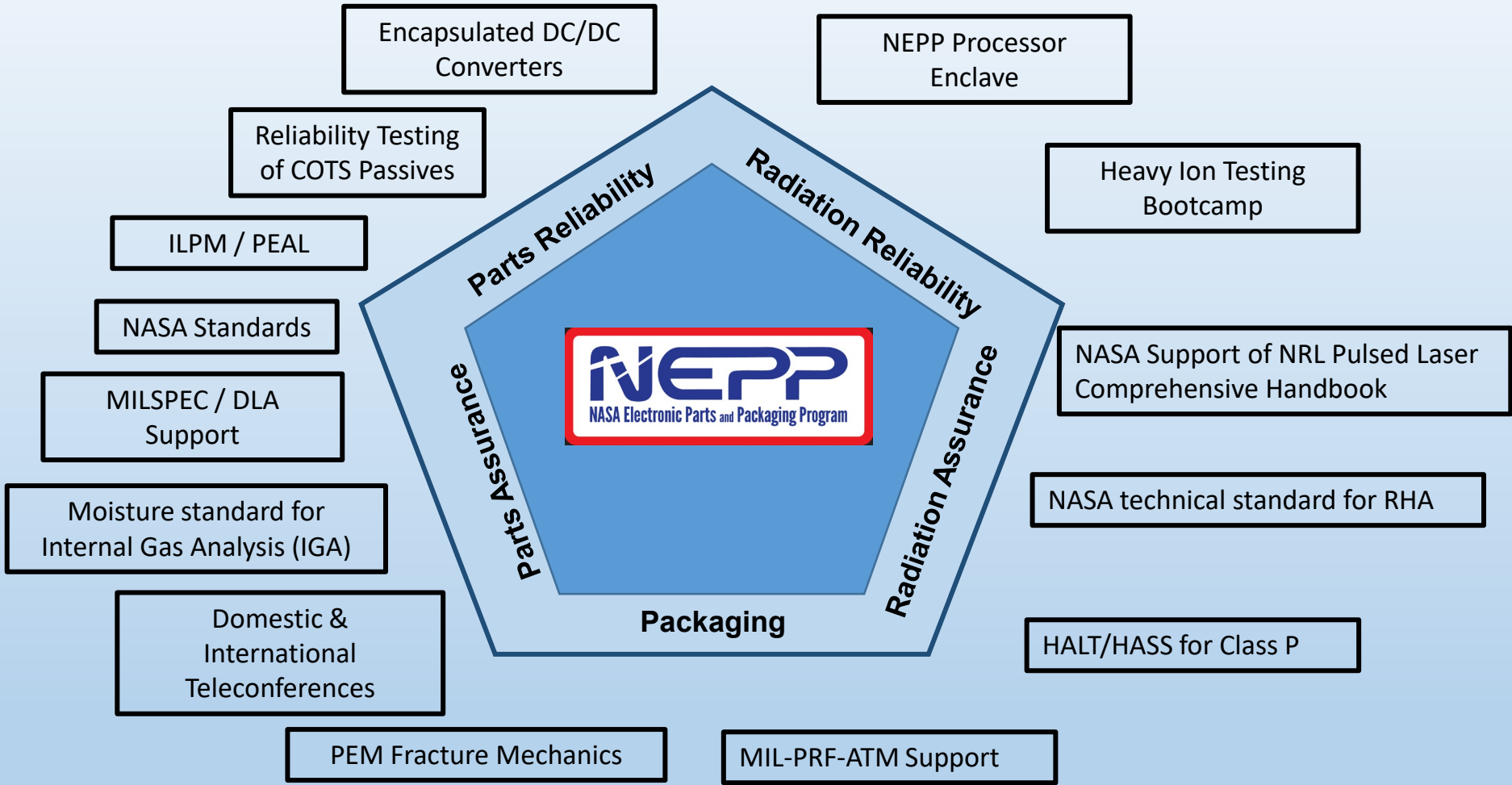


NEPP Collaborations / Interfaces





NEPP Work in FY25



The Road Forward

- More questions than answers
- The NEPP Program, as we know it, is not continuing.
- NASA top-down reorganization
- More Program-specific Work
- Collaborations will be more vital

- It's still all about the people!!

Michael J. Sampson

Michael (Mike) Sampson on passed away on September 23, 2024 at the age of 74 at his home in Greenville, SC after a protracted illness. Up until his retirement in 2020, Mike spent the last ~30 years of his career supporting NASA's electronic parts assurance activities and was instrumental in fostering relations with JAXA, ESA and CSA.

DISTINGUISHED SERVICE MEDAL



Michael Sampson

For a distinguished career of service to NASA in Electrical, Electronic & Electromechanical (EEE) Parts Assurance.

During his 20-year career, Mr. Sampson became the Agency's most influential expert for EEE parts quality and reliability assurance. As the leader of the NASA Electronic Parts and Packaging Program, he led the availability of new EEE part technologies and sustained established parts that NASA, international space agency partners, and the Department of Defense depend on. He is NASA's leader and voice for the sustainment of military specification products and assurance standards for the space market, directly influencing specifications and determining supplier capability. He also contributed significantly to NASA's understanding and management of counterfeit part avoidance and risks associated with lead-free platings. Mr. Sampson is invaluable as a researcher, manager, consultant, and guide enabling the NASA to successfully maneuver through EEE problems and industry challenges.



John W. Evans
Former Program Executive of
the NEPP Program



John first joined NASA in 2008 as part of GSFC's Reliability and Risk Analysis Branch. As a senior engineer supporting development of the James Webb Space Telescope (JWST), he was instrumental in applying Physics of Failure and Bayesian approaches to more accurately assess the reliability of critical systems including JWST's Sunshield Deployment Subsystem.. John was also the creator of NASA's Model-Based Mission Assurance (MBMA) Program and worked in partnership with OCE's Model-Based Systems Engineering (MBSE) Program to bring SMA and Engineering together as part of the Digital Engineering Environment.

November 2024



Questions?