Project Description: Adapt emerging designs in transducer and battery technologies into miniaturized sonobuoy components. Using FDM and SLS technologies, these components will leverage fabrication advantages of high-performance additive manufacturing (AM) processes and materials.

Business Case:
- Alternative ASW platforms including UxVs need deployable and expendable buoys small enough to meet platform size/weight/power restrictions.
- Existing fleet ASW air and undersea assets will be challenged to meet a growing number of threats.
- The ability to construct minibuoy containers aboard ships using mature AM capabilities reduces logistics requirements where storage capacity is limited.

The Technology:
- Industrial AM Systems: 3DSystems Vanguard si2 Selective Laser Sintering (SLS) and Stratasys FORTUS 900mc AM platforms
- AM Technology: Industrial-grade powder bed fusion and thermoplastic extrusion technologies.
- Materials: Nylon 11, PC-ABS, ULTEM9085
- Benefits:
  - AM provides the ability to design an expendable, part-count consolidated, weight-optimized container
  - Functional AM container with integrated wiring, as-printed air chambers, and quick-assembly features allow for the small form-factor design.
  - Watertight construction to incorporate quick post-processing solutions to seal/waterproof electronics.
  - Containers can be printed on-demand from at-sea platforms.

Transition:
- Proposed to PMA264 and PMA299
- 1 Year Development and Test Schedule
  - Design buoy internal components and modular container
  - Integrate into POD launcher
  - Perform testing on AM version of container
  - Incorporate into at-sea AM demonstration

Challenges:
- Container design to accommodate all deployment scenarios (launch, water impact, etc.)
- Flight certification for manned air platforms
- Maintaining backward compatibility with fielded ASW air systems that require RF communications

Everything you always wanted in a buoy...and less.