Guided Missile Antenna Manufacturing

*Develop and demonstrate cost effective, repeatable manufacturing technology and processes that can be utilized for conformal missile antennas, including transmit, receive, and datalink.*

**OBJECTIVE / SOLUTION**

The objective of this project is to develop and demonstrate new methods and processes to produce low cost missile borne antennas in high volume. Currently manufacturing issues exist in antenna manufacturing for radar guided missiles. While the antennas can be and have been manufactured in a laboratory environment it is clear that significant gains can be made in the reliability, producibility and cost of production through technology improvements. The benefits from this project are developing new processes that use the latest flexible circuit manufacturing techniques which increase their mechanical strength while at the same time retaining flexibility. New chemical etching and lay-up processes, reduction in wrap phases, and automated riveting and venting manufacturing will also be addressed.

**ACHIEVEMENTS**

- Design and implement new processes using the latest flexible circuit manufacturing techniques which increase mechanical strength while at the same time retaining flexibility
- Develop new chemical etching and lay-up processes, reduction in wrap phases, and automated riveting and venting manufacturing for use in many antenna applications

**BENEFITS**

- Increases yield rates by 25%
- Eliminates autoclave processes
- Decrease in labor time, wasted material, and life cycle costs (Average Unit Production Costs)
- Transition to PM Cruise Missile Defense Systems (CMDS) with EMD late in 2014

**STATUS**

- Program is in first year of funding (FY11) with tasks including:
  - Evaluate nosecone and antenna materials
  - Identify design concepts and vendor/suppliers
  - Fabricate tooling and prototype
  - Test to verify results

**WEAPON SYSTEMS / SECONDARY ITEMS IMPACTED**

- Indirect Fire Protection Capability (IFPC) Incr 2
- Radars
- Ground Vehicles

**POSSIBLE COST AVOIDANCE**

- Return on Investment of 9.0 to 1 with a cost benefit of $44.7M

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