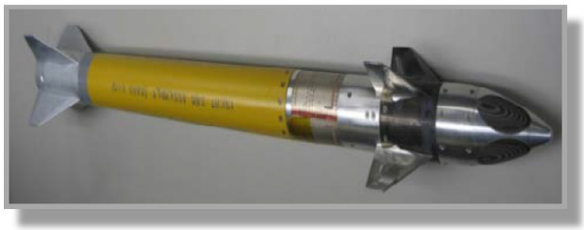
Guided Missile Antenna Manufacturing

Objective

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

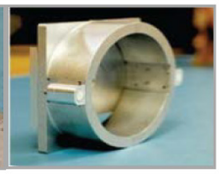


Extended Area Protection & Survivability- Miniature Hit to Kill Missile

How It's Accomplished

- Developing new **processes** that use the **latest** flexible circuit manufacturing techniques **which** increase the mechanical strength of **antennas** and retain their flexibility **simultaneously**
- Addressing new chemical etching and **lay-up** processes, reduction in wrap phases **and** automated riveting and venting **manufacturing**
- Completing antenna tests for government **owned** miniature in-fin **antenna**
- Injecting mold antenna substrate directly **into** missile **nosecones**
- Evaluating polishing of magnesium **fluoride resonators**
- Automating alignment for antenna **frequency enhancement**

Antenna



Antenna Mount

Achievements

- Creation and **implementation** of new **processes** using the latest flexible circuit **manufacturing** techniques which increase mechanical **strength** and retain flexibility **simultaneously**
- Development of new chemical etching and **lay-up processes**
- Reduction in material wrap/build **phases**
- Automated riveting and venting **manufacturing** for use in many antenna **applications**

Traditional Multi-Layered Riveted Conformal Antenna

Benefits

- Increased yield rates by 25%
- Elimination of autoclave **processes**
- Decrease in labor time, wasted material and life cycle costs (Average Unit Production **Costs**)
- Transition to PM Cruise Missile **Defense** Systems with Engineering and **Manufacturing** Development late in 2014

Two Piece Molded Conformal Antenna

Point of Contact: Army ManTech Manager, US Army Research, Development, and Engineering Command (RDECOM), Aviation Missile Research, Development and Engineering Center (AMRDEC), Manufacturing Science & Technology Division, ATTN:RDMR-SEM, 5400 Fowler Road, Redstone Arsenal, AL 35898-5000