

At a Glance

What is it?

- The High Speed Components (HSC) FNC is a radome development effort that will maximize the operational performance of the AGM-88E Advanced Anti-Radiation Guided Missile, while also offering new cost effective manufacturing and production methods.

How does it work?

- The HSC FNC will achieve this through a combination of materials selection, design configuration, and production methods, which will deliver both increased performance characteristics and cost savings.

What will it accomplish?

- HSC will enable AARGM to ensure maximum sensor performance while keeping pace with expected kinematic enhancements.

Points of Contact

Mr. Ken Heeke, ONR Code 352
kenneth.heeke@navy.mil

Mr. Jerry Kong, ONR Code 352
jerome.kong@navy.mil



The High Speed Components (HSC) Future Naval Capability (FNC) Product is a technology development effort intended to improve the performance of the current AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) strike weapon system and future high speed and time sensitive strike weapons. This effort will deliver a more robust and less expensive radome system. Development will focus on improving high speed performance characteristics with advanced manufacturing processes to produce a superior product at a substantial cost savings.

The HSC effort will investigate materials, designs and fabrication processes in order to develop a radome capable of mitigating thermal and structural loads experienced during extended periods of high speed operations and minimizing surface degradation due to high-speed water impact, while at the same time maintaining acceptable electrical properties. Initial work focused on formulating a material or combination of materials that would have suitable electrical, thermal, and structural properties for meeting increased weapon system kinematic performance and flight duration requirements. Later work is focused on developing manufacturing tools and processes for fabricating radomes in the requisite form factor, that the radomes are homogeneous within themselves, and that there is repeatable performance from one radome to the next.

The HSC product is responding to higher kinematic and range performance requirements for AARGM as expressed by the Fleet. This product is part of a system wide approach to extend the missile's range, while also decreasing time of flight to target at that achieved maximum range. Potential benefits derived from HSC over current radomes would be enabling AARGM to withstand increased thermal shock and structural loads associated with advanced airframes and weather encounters, while maintaining suitable electrical properties for enabling accurate weapon guidance to the target.

The product is primarily focused on transition to an Engineering Change Proposal (ECP) to AARGM; however, the materials, design concepts and processes investigated during this FNC effort have applicability to other missile radomes as well.

Research Challenges and Opportunities:

- Development of a repeatable, low-cost radome fabrication and manufacturing approach using new processes for either new or existing materials

