



**UNITED STATES ARMY  
SPACE AND MISSILE  
DEFENSE COMMAND**

**Future Warfare Center**

# High Altitude Airship



## Summary

- Station-keeping Endurance—1 month
- Station-keeping Altitude—65,000 ft mean-sea-level (MSL)
- Payload Weight—500 lb
- Payload Power—3 kW
- Cruise Speed—25 kts
- Station-keeping Accuracy— < 2 km 50 percent of time, <150 km 95 percent of time
- Command and Control—Remotely Piloted

**HAA is an Advanced Concept Technology Demonstration (ACTD), with Office of the Secretary of Defense oversight, North American Aerospace Defense Command user sponsor, U.S. Army lead service, Missile Defense Agency executing agent/technical manager, Space and Missile Defense Technical Center transitional manager, and Space and Missile Defense Future Warfare Center operational manager.**

The objective of this ACTD is to demonstrate the engineering feasibility and potential military utility of an unmanned, untethered, gas-filled, solar powered airship that can fly at 65,000 feet. The prototype airship developed under this effort will be capable of continuous flight for up to a month while carrying a multi-mission payload. This ACTD is intended as a developmental step toward an objective HAA that can self-deploy from the continental United States (CONUS) to worldwide locations and remain on station in a geo-stationary position for a year or more before returning to a fixed launch and recovery area in CONUS for service on the ground.

*Secure the High Ground*

### Program Objectives

- Design and produce a lighter-than-air, High Altitude Airship — Advanced Concept Technology Demonstration (ACTD) Prototype
- Demonstrate the feasibility and potential military utility of an unmanned, untethered, airship that can fly at nominal 65,000 feet mean-sea-level altitude for up to one month while carrying a multi-mission payload

### Benefits

- Persistent 24/7 capability
- Low cost, rapid reconstitution of capabilities
- Multi-mission, exchangeable/repairable/upgradeable payloads
- Long duration aloft greater than an unmanned aerial vehicle
- Low inherent detectability, observability
- Repositionable
- Improves performance of nearly all sensors

### Altitude

The desired altitude to operate an HAA is approximately 65,000 feet. This is due to many factors, including it is above the weather and Federal Aviation Administration air traffic control. The winds are relatively benign and the thin atmosphere allows for extended range of Electro-Optical/Infra-Red (EO/IR) equipment. Importantly, at 65,000 feet, the HAA will have more than a 600-mile footprint on the ground

### Experimentation Architecture

The HAA fits into a layered architecture. It operates at the same altitude as the U2 and Global Hawk. While not providing the same ability for quick reaction operations, once on station, it provides long endurance continuous/persistent support that is not practical using combinations of manned and unmanned aircraft. Because it maintains geo-stationary position at 12 miles above the Earth, it does not have the latency issues associated with geo-synchronous satellites. The airship serves a transformational purpose by filling the capability gap between aerial vehicles and satellites.



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