

Affordable Weapon

Cruise missiles have proven themselves in combat many times since the Gulf War, but the Navy would like to drive their cost down—the ones currently in service cost hundreds of thousands of dollars. The Office of Naval Research has transitioned a program to use commercially-based equipment to build a “cruise-like” missile with good performance at a price ten times lower than the norm. The new missile is called, appropriately, the Affordable Weapon (AW).

Launched from its shipping container by a small rocket booster and powered in flight by a small turbojet engine, the AW is designed to carry a significant payload to a target several hundred miles away. Equipped with both line-of-sight and satellite data links, it can fly directly to its target guided by the Global Positioning System (GPS). Alternatively, it can fly to an area and loiter until a forward observer directs it to a target. It can also be retargeted in-flight—an observer can direct it to switch to a target different from the one the weapon was originally sent to attack. The Precision Targeting System enables the Forward Observer to designate targets and communicate target locations to the AW platform, directly to the AW vehicle or relayed through an AW base station system, via the SINGARS network.



Test flight of the Affordable Weapon

The Affordable Weapon was tested on desert ranges in the Western United States. All the capabilities needed to field it were demonstrated:

- The weapon was launched at 45 degrees from a short rail inside an enclosed cell.
- The weapon flew to a target designated before launch, guided by GPS.
- The weapon correctly responded to a forward observer’s command to divert from a pre-designated target and loiter instead.
- It accepted a new target from the forward observer via a data link.

Using a parachute to safely land on the ground, the missile was recovered after each test flight.

The Affordable Weapon System (AWS) will be fitted with a unitary warhead. Based on a proven design, the blast fragmentation warhead will effectively neutralize a variety of combat threats including heavy armored battle tanks, parked aircraft, mobile radars and jammers, and air defense and support vehicles. It could also be fitted to counter these target sets with the combat-proven Sensor Fuzed Weapon (SFW); BLU-108 “smart” Submunition and targeted Skeet (STS) Submunition (up to 12 per AWS).

Production Performance

Maximum Velocity: 250kts

Endurance: 6 hours @ 140kts

Accuracy: 10 meters

Boost Climb: 9000ft/min

Cruise Velocity: 140kts

Range: >840nm

Accuracy DGPS: <2 meters

Turn Rate: >8.7 deg @ 150 kts

Dash Speed: 220kts

Maximum Altitude: • 15,000ft

Climb Rate: 500ft/min @ 140kts

GTOW: 737 pounds

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