

Miniature Air Launched Decoy

Effects-Based Solution to Adversary Air Defenses



Miniature Air Launched Decoy (MALD)

- A force multiplier providing responsive and persistent protection for air operations threats in the near-term
- An expendable, cost-effective modular design coupling propulsion, a versatile airframe and payload
- An interoperable system for employment from current and future coalition aircraft
- A high-fidelity decoy target causing extended disruption to opposing Integrated Air Defense Systems (IADS)

Benefits

- Stimulate Integrated Air Defense Systems (IADS)
- Deceive and confuse IADS commanders, forcing difficult engagement decisions
- Saturate IADS by generating multiple realistic targets
- Reduce reliance on manned aircraft for defense suppression
- Aid in seizing control of enemy airspace

The Rationale

Modern air campaigns have underscored the need for counterair operations to neutralize, if not destroy, air defense systems that pose a threat to U.S. and coalition aircraft. In the past, manned aircraft have been used to conduct counterair operations, requiring significant pre-mission coordination of various combat and support assets. Often, ground-based defenses were suppressed, but never totally eliminated, continuing to pose a threat to friendly aircraft. Friendly aircraft were still required to fly in harm's way.

A New Approach

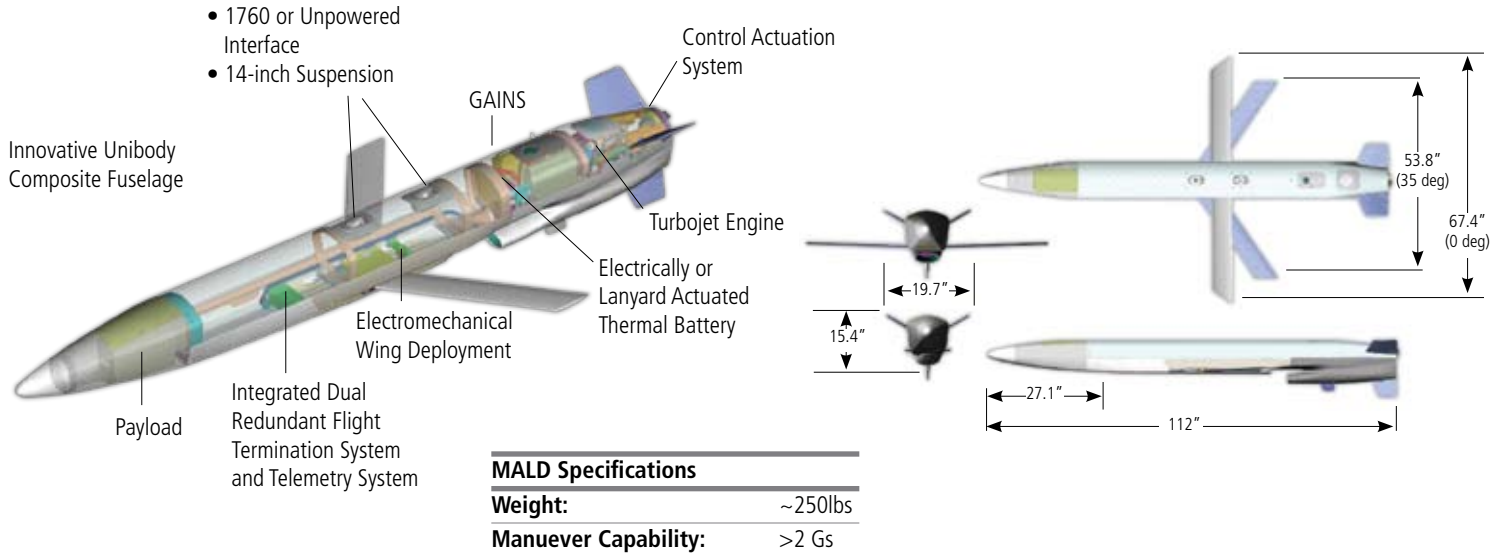
A new effects-based approach to counterair operations is now possible through the use of low-cost air launched programmable decoys. Cost-effective technology is available today to equip decoys with systems to stimulate adversary air defense systems into engaging on unfavorable terms. It is possible to accurately replicate the combat flight profiles and signatures of U.S. and

coalition aircraft, forcing IADS elements into differentiating between real and surrogate targets, greatly reducing their effectiveness and increasing their risk of exposure, identification and location. The ability to have a formation of decoys penetrate hostile airspace, loiter, and provide persistent coverage over an area of air operations can force IADS elements into extended shutdown periods. IADS commanders will have to decide if a tracked target is a manned aircraft or a low-cost decoy and whether to make engagement decisions that will expose IADS elements and make them vulnerable to attack. IADS commanders can be forced into "use it and lose it" decisions.

Enabling Technology

Affordable propulsion, flight control and navigation systems are available today to allow unmanned air vehicles and decoys to replicate manned aircraft combat flight profiles and signatures. These decoys can fly at ingress speeds,

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altitudes and in formations that are representative of current fighter, attack and bomber aircraft and can generate radar signatures that are representative of these aircraft. Preprogrammed mission flight profiles can enable a small group of MALDs to replicate an air strike package by presenting various aircraft signatures that an opposing IADS might expect. If the MALD strike package is not totally engaged on ingress, causing IADS to use precious interceptors, the remaining MALDs are to disperse and loiter in the area of interest for an extended period. It will be possible to identify and geolocate IADS elements. Manned aircraft will then be less vulnerable to IADS and able to take full advantage of the disruption created by the MALD group to take control of enemy airspace.



preprogrammed navigation and enable targeting capabilities. MALD's ample payload volume will be able to house a variety of sensor and electronic packages for growth missions.

Growth Options

MALD's versatile, modular design will enable effects-based application in several future combat missions. Payloads are possible to accomplish various electronic countermeasure missions, including active jamming of IADS elements. In its most obvious application, MALD can be used as a future subscale target to test and evaluate

evolving weapons and to train aircrews and ground-systems against realistic targets at affordable costs.

Contract Award

In May 2003, Raytheon Missile Systems in Tucson, Ariz., USA, was awarded a contract for System Development and Demonstration.

The MALD Team

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 SASG/MA
 Air-to-Air Missile Systems Wing
 AFOTEC
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Raytheon MALD Team:

Raytheon – Tucson, AZ
 Raytheon – El Segundo, CA
 Raytheon – Goleta, CA
 Hamilton-Sundstrand
 CEI
 Moog
 Eagle Picher
 ASEI
 AUSCO
 Enser

The technology and manufacturing know-how exists today to build a high-fidelity unmanned decoy aircraft, at a cost-effective, affordable, expendable-weapon price. Low-cost reduces the need to develop manned-controller and recovery systems. GPS-Aided Inertial Navigation Systems (GAINS) can enable precise

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