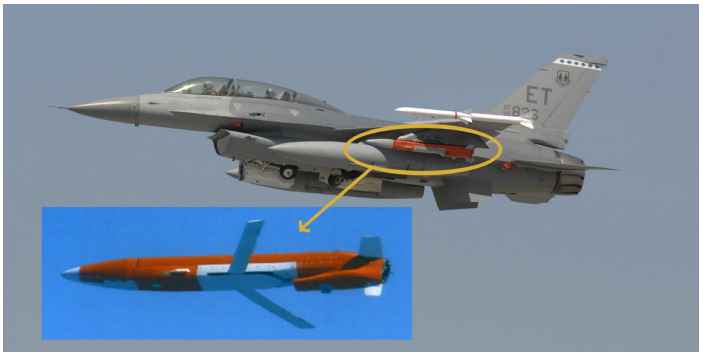
Miniature Air Launched Decoy (MALD) and Miniature Air Launched Decoy – Jammer (MALD-J)

Executive Summary
- The Miniature Air Launched Decoy – Jammer (MALD-J) mission planning tools, with the latest software upgrades, can support the 72-hour Air Tasking Order (ATO) planning cycle.
- Flight testing of a navigational system upgrade was stopped because of an anomaly observed in June 2016. The Program Office has corrected the software errors and verified the correction in both ground and flight testing in August 2016 and September 2016, respectively.

System
- MALD is a small, low-cost, expendable, air-launched vehicle that replicates how fighter, attack, and bomber aircraft appear to enemy radar operators.
- MALD-J is an airborne close-in jammer for electronic attack with the ability to loiter on station.
- MALD-J will jam specific Early Warning/Ground Control Intercept/Acquisition radars while retaining the capabilities of the MALD.
- MALD-J will stimulate and degrade an enemy's integrated air defense system.
- The F-16 C/D and B-52H are the lead aircraft to employ MALD and MALD-J.

Mission
- Combatant Commanders will employ units equipped with MALD or MALD-J to improve battlespace access for airborne strike forces by deceiving, distracting, or saturating enemy radar operators and integrated air defense systems.



- MALD is designed to allow an airborne strike force to accomplish its mission by deceiving enemy radars and air defense systems to treat MALD as a viable target.
- MALD-J is designed to allow an airborne strike force to accomplish its mission by jamming specific enemy radars and air defense systems to degrade or deny detection of friendly aircraft or munitions.
- MALD J-equipped forces will be able to stimulate an enemy's integrated air defense system enabling friendly forces to target and engage enemy components.

Major Contractor
Raytheon Missile Systems – Tucson, Arizona

Activity
- In January 2016, the Air Force Operational Test and Evaluation Center (AFOTEC) completed ground testing of the GPS Aided Inertial Navigation System (GAINS) obsolescence upgrade (known as GAINS2) to the MALD-J at the National Radar Cross Section Test Facility, New Mexico, which included a side-by-side test between a GAINS unit and a GAINS2 unit.
- In June 2016, the 28th Test and Evaluation Squadron (TES) partially executed a Force Development Evaluation (FDE) at White Sands Missile Range, New Mexico, in conjunction with a MALD-J Reliability Assessment Program mission, to assess the performance of the GAINS2 obsolescence upgrade to the MALD-J. The 28th TES launched only two missiles: one in an uncontested environment and one in a GPS-contested environment.
- In July 2016, the Program Office and Raytheon Missile Systems completed a review for the navigation anomaly observed in a GPS-contested environment during the FDE in June 2016.
- From March through June 2016, the Program Office completed four data collection events with respect to mission planning for MALD-J on the F-16 and B-52 platforms; one at Barksdale AFB in Louisiana, one at Eglin AFB in Florida, one at Spangdahlem AFB in Germany, and one at Aviano AFB in Italy.
- The Program Office verified during ground testing in August 2016, and during flight testing in September 2016, that the software update corrected the software anomaly.

Assessment

- MALD-J (and MALD) testing was done in accordance with a DOT&E approved test plan.
- The latest mission planning data collections for the MALD-J program show marked reduction in the time needed to plan a full load of MALD-J vehicles. The mission planning tools, with the latest software upgrades, can support the 72-hour ATO planning cycle.
- Preliminary results from ground testing indicate improved performance of the GAINS2 system in a GPS-contested environment as compared to the GAINS.
- Due to a navigation anomaly observed during the FDE in June 2016, no assessment of the GAINS2 free flight performance in a GPS contested environment can be made.
- The Program Office concluded that the MALD-J failed to reacquire any GPS satellites when the navigation system exited the GPS contested environment because of software errors introduced by Raytheon Missile Systems.

Recommendations

- Status of Previous Recommendations. The Air Force satisfactorily addressed the one remaining FY14 recommendation and one of the three FY15 recommendations. The Air Force still should:
  1. Incorporate additional operational elements into the mission-level simulation in the Digital Integrated Air Defense System.
  2. Improve horizontal navigational accuracy of the MALD-J (and MALD) vehicle.
- FY16 Recommendation.
  1. Once the GAINS2 software corrections are verified, the Air Force should return to free flight testing of the GAINS2 in a GPS-contested environment.