B-52 Radar Modernization Program (RMP)

In June 2021, the Air Force completed the Milestone B acquisition decision and awarded a four-year Engineering, Manufacturing, and Development (EMD) contract to Boeing as the prime contractor. DOT&E approved the B-52 Radar Modernization Program (RMP) Test and Evaluation Master Plan (TEMP) in April 2021 in support of this acquisition decision.

System Description

The B-52H is a long-range, all-weather bomber that can carry up to 70,000 pounds of precision-guided or unguided conventional and nuclear stores in an internal bomb bay and/or external wing pylons. Units equipped with the B-52H conduct long-range, all-weather conventional and nuclear strike operations against ground and maritime targets in low-to-medium adversary threat environments. The B-52H RMP will replace the legacy APQ-166 radar with the modified APG-79 Bomber Modernized Radar System (BMRS). Replacement of the aging legacy radar will increase system reliability and reduce sustainment costs. The BMRS will also provide new capabilities to track moving surface and air targets.

Program

The B-52 RMP is an acquisition category IB Major Defense Acquisition Program. The Air Force approved the initial acquisition strategy in March 2018 and released the development Request for Proposal in October 2019. DOT&E approved the B-52 RMP TEMP in April 2021.

In June 2021, the Air Force completed the Milestone B acquisition decision and awarded a four-year EMD contract with Boeing as the prime contractor. Critical Design Review is planned for early 2022, followed by the modification of two test aircraft.

Flight test is scheduled to begin in FY23 to support an FY24 Milestone C/low-rate initial production decision to modify 28 of the remaining 74 B-52 aircraft. A February 2021 USD R&E review of the developmental test strategy concluded that the program test schedule was high risk based on comparison to previous aircraft radar development programs.

Major Contractor

Boeing Defense, Space, and Security – St. Louis, Missouri.

Test Adequacy

DOT&E approved the B-52 RMP TEMP in April 2021. The TEMP defines an adequate operational test strategy and necessary test resources for integrated testing and IOT&E. The Program Office is developing a B-52 enterprise-level cybersecurity strategy to progressively evaluate cybersecurity vulnerabilities across multiple modernization programs, including B-52H RMP.

Performance

B-52 RMP is in the system design phase. Integrated ground and flight tests to characterize system performance are scheduled to begin in FY23. IOT&E to determine operational effectiveness, suitability, and survivability in both the conventional and nuclear environments is planned for FY25. Based on a review of previous aircraft radar modernization programs, system development strategy, and preliminary design, the developmental areas with highest potential to affect operational effectiveness and suitability include radar software performance, mission systems integration, and radar cooling systems.

Recommendation

1. The Air Force should complete development of a B-52 enterprise-level cybersecurity test strategy.