

Conventional Prompt Strike

The Navy is currently using Middle Tier of Acquisition Rapid Prototyping and Rapid Fielding acquisition authorities to develop and initially field the Conventional Prompt Strike (CPS) weapon system onboard a *Zumwalt*-class surface combatant, followed by a *Virginia*-class submarine. Not enough data are yet available to evaluate the CPS capabilities required for the CPS program to transition from rapid prototyping to fielding. Testing should incorporate operationally representative targets and environments to provide confidence in the system in support of an early fielding decision.



System Description

CPS is a conventional, boost-glide hypersonic weapon system. The CPS all-up-round missile includes a two-stage solid rocket motor booster and a Common Hypersonic Glide Body (C-HGB) containing a kinetic-energy-projectile warhead. The Navy intends to launch CPS from *Zumwalt*-class surface combatants and *Virginia*-class submarines to attack high-value and time-sensitive targets. The Army plans to employ the same all-up-round from mobile land-based launchers as part of the Long Range Hypersonic Weapon (Dark Eagle) program.

Program

The Navy's CPS acquisition strategy is designed to develop fieldable prototypes and transition to production in three phases. Phase 1 is a Middle Tier of Acquisition Rapid Prototyping program intended to develop and demonstrate a prototype cold-gas launched hypersonic missile system. Phase 2 is a Middle Tier of Acquisition Rapid Fielding program intended to field the hypersonic missile system onboard a *Zumwalt*-class surface combatant. Phase 3 intends to transition the program to a Major Defense Acquisition Program at Milestone C with the intent to conduct IOT&E and field the hypersonic missile system onboard the remaining *Zumwalt*-class combatants and *Virginia*-class submarines.

The Navy received an approval for Phase 1 Rapid Prototyping and expects to receive an approval for Phase 2 Rapid Fielding. The Army plans to deliver a land-based hypersonic prototype capability using the Navy developed missile. The Navy CPS program is responsible for the design and development for the C-HGB and the missile booster; missile booster production; integration of the Army-produced C-HGB with the missile booster to create an all-up-round; and design, development, and production of the Navy's sea-based weapon control system and launcher.

In 2019, the Navy developed a Master Test Strategy (MTS) for the initial phase of the program. In May 2021, DOT&E certified the MTS for the Phase 1 Rapid Prototyping strategy as appropriate to demonstrate the capability

of the cold-gas launched prototype hypersonic missile system. DOT&E is working with the Navy to update the Phase 1 MTS to include programmatic changes and additional performance metrics, and to develop an expanded scope Milestone B Test and Evaluation Master Plan-equivalent document for the Phase 2 Rapid Fielding on *Zumwalt*-class.

Major Contractors

Lockheed Martin Space Systems – Denver, Colorado.

Test Adequacy

The Army and the Navy will start the Phase 1 flight tests as Joint Flight Campaign events to determine Phase 1 flight performance and mission-relevant limitations of the common components of the hypersonic weapon systems. Collection of joint test data is necessary to identify and leverage common practices, test corridors and infrastructure, test data, and modeling and simulation (M&S) capability across the family of hypersonic weapon systems. The Navy intends to execute Phase 2 operational demonstrations, but limited flight test opportunities pose a risk to demonstrating the required operational capability in support of the fielding of the hypersonic missile system onboard a *Zumwalt*-class surface combatant.

In FY20, the CPS program performed a sled test of the CPS/Dark Eagle warhead, which provided data for validating the lethality M&S tools against materials but not operationally representative targets. The CPS program also conducted a Flight Experiment-2 in which a CPS missile was fired from the Pacific Missile Range Facility Barking Sands test range but did not provide data to validate the M&S tools against operationally representative targets. The program has not performed arena testing on the operationally representative warhead, which is fundamental to the development of lethality M&S.

Performance

Effectiveness

Not enough data are yet available to evaluate the CPS effectiveness and lethality required for the CPS program to transition from Phase 1 to

Phase 2. Demonstrated capabilities and limitations will be published in a classified Early Fielding Report after the completion of Phase 2 testing.

Suitability

Not enough data are yet available to evaluate the CPS suitability capabilities required for the CPS program to transition from Phase 1 to Phase 2. The program intends to complete an initial Life Cycle Support Plan to address product support and fielding on a *Zumwalt*-class in FY22.

Survivability

No data are currently available to evaluate the survivability of CPS in a contested environment. The Navy plans to evaluate the survivability of CPS in operationally relevant environments by modeling and simulation only, increasing the risk to the survivability assessment unless the modeling and simulation tools are adequately verified, validated, and accredited.

Recommendations

The Navy should:

1. Complete an update to the CPS Phase 1 MTS to account for recent programmatic changes and to include the required performance metrics.
2. Incorporate operationally representative targets and environments into CPS flight tests and other lethality and survivability tests.
3. Fully fund and execute the LFT&E strategy that adequately verifies and validates required modeling and simulation tools in order to create credible weaponeering and mission planning tools in support of the proposed operational fielding dates. Any delay in the start of this effort will substantially increase the risk to assessing the lethal effects of the CPS weapon system in time for operational fielding.
4. Collaborate with the Air Force to identify and leverage common practices, test corridors and infrastructure, test data, and M&S capability across the family of hypersonic weapon systems.