Aegis Modernization Program

In FY25, the Navy's Operational Test and Evaluation Force (OPTEVFOR) conducted an FOT&E of Aegis Advanced Capability Build (ACB) 16 on USS *Chosin* (CG 65), a *Ticonderoga*-class guided missile cruiser. In March 2025, DOT&E published a classified early fielding report (EFR) for the ACB 16, Baseline 9.2.3 Capability Package (CP) 22-1 variant of the Aegis Weapon System (AWS). Operational testing continues to demonstrate hardware reliability and software stability concerns with the Aegis Display System (ADS) and the AN/SPY-1 radar.

The Navy plans to submit a TEMP update to DOT&E for approval in FY26 as well as an updated test plan for the ACB 16, Baseline 9.2.4 CP 24 and Baseline 9.3 variants. The Navy expects to complete the FOT&E of ACB 16 variants in FY27, after which DOT&E will publish a classified FOT&E report.

SYSTEM DESCRIPTION

The Aegis Combat System (ACS) is an advanced weapon control system comprised of sensors, control elements, and weapons to detect, track, engage, and destroy airborne, surface, and subsurface threats. The ACS's key components include: (1) AWS, which comprises the hardware and software to integrate combat systems capabilities, as well as the legacy AN/SPY-1 (series) radar; (2) the AN/SPY-6(V)1 radar on Flight III DDGs; (3) the Phalanx Close-In Weapon System; (4) a 5-inch diameter multipurpose gun system; (5) the Vertical Launch System that can launch Tomahawk missiles, Standard Missiles (SM-2, SM-3, and SM-6), Evolved Sea Sparrow Missiles (ESSM), and Vertical Launch Anti-Submarine Rockets; (6) AN/SPQ-9B or SPS-67 surface search radars; (7) Surface Electronic Warfare Improvement Program (AN/SLQ-32); (8) Cooperative Engagement Capability (CEC); and (9) the AN/SQQ-89A(V)15 undersea warfare suite, which also integrates with the MH-60R helicopter when embarked. The Navy's Aegis Modernization Program updates the AWS to support improved integration and advancing capabilities on CG 47 *Ticonderoga*-class guided missile cruisers and DDG 51 *Arleigh Burke*-class guided missile destroyers.

MISSION

The Joint Force Commander/Strike Group Commander employs CG 47-class and DDG 51-class ships equipped with Aegis to conduct:

- Area and self-defense anti-air warfare in defense of the strike group.
- Anti-surface warfare.
- Anti-submarine warfare.
- Strike warfare, when armed with Tomahawk missiles or other missiles.
- Integrated air and missile defense (IAMD).
- Operations independently or in concert with carrier or expeditionary strike groups and with other joint or coalition partners.

PROGRAM

The Aegis Modernization Program is a non-acquisition category program of record. The Navy now plans six incremental deliveries within ACB 16: Baseline 9.2.0, Baseline 9.2.1, Baseline 9.2.2, Baseline 9.2.3 (referred to as CP 22-1), Baseline 9.2.4 (referred to as CP 24), and the new Baseline 9.3. Each baseline update is intended to build on the previous baseline and improve capabilities through a combination of hardware and software upgrades.

To support Navy operational testing, DOT&E approved the ACB 16 (Baseline 9.2) test plan in July 2023. DOT&E approved the TEMP for the test program of ACB 16 (Baseline 9 series) in September 2024. The Navy is working on an update to the TEMP and a new test plan for ACB 16 (Baseline 9 series, CP 24 and Baseline 9.3) and expects to submit both for DOT&E approval in FY26.

The newest Aegis variant, ACB 20 Baseline 10, has an updated system design architecture from the Baseline 9 series and is required for ships with a AN/SPY-6 variant radar, to include DDG 51-class Flight III destroyers with the AN/SPY-6(V)1 and FFG 62 *Constellation*-class guided missile frigates with AN/SPY-6(V)3. DOT&E approved a TEMP for the combined test programs of DDG 51 Flight III, AN/SPY-6(V)1, and Aegis ACB 20 Baseline 10.0 in September 2022. The Navy took delivery of the first DDG 51 Flight III guided missile destroyer with Baseline 10.0, USS *Jack H. Lucas* (DDG 125), in June 2023. The Navy commenced operational testing of Baseline 10.0 in FY24 and expects to complete in FY28. The Navy expects to deliver both the IOT&E test plan and cyber survivability test plan to DOT&E for approval in FY26; both test plans will cover DDG 51 Flight III, AN/SPY-6(V)1, and Aegis ACB 20 Baseline 10.0.

In FY26, the Navy expects to deliver to DOT&E for approval an updated FFG 62 *Constellation*-class guided missile frigate TEMP that supports OT&E of Baseline 10. In addition, the Navy is developing a TEMP update to support the test program of Baseline 10 for DDG 51-class Flight IIA destroyers with AN/SPY-6(V)4.

» MAJOR CONTRACTORS

- Lockheed Martin Rotary and Mission Systems – Bethesda, Maryland
- Raytheon, a subsidiary of RTX – Arlington, Virginia

TEST ADEQUACY

In March 2025, DOT&E published a classified EFR for the ACB 16, Baseline 9.2.3 CP 22-1 variant. The EFR provided an initial assessment of operational effectiveness and suitability. DOT&E will assess cyber survivability on Aegis ACB 16, for CP 22-1 variant in FY26.

Also in March 2025, OPTEVFOR conducted an FOT&E of the ACB 16, Baseline 9.2.1 on the USS *Chosin* (CG 65), a *Ticonderoga*-class guided missile cruiser. Testing was conducted in accordance with a DOT&E-approved test plan and observed by DOT&E. Operational tracking exercises, conducted by USS *Chosin* including tracking exercises with USS *Mustin* (DDG 89) operating in a CEC network, revealed performance issues of both Aegis and CEC. The test period was reduced due to hull, mechanical, and electrical problems aboard the ship.

DOT&E approved the cyber survivability test plan for ACB 16, Baseline 9.2.3 CP 22-1 variant on USS *Frank E. Petersen Jr.* (DDG 121) in February 2025, and an updated version of it in September 2025. The Navy intends to complete cyber survivability testing of ACB 16, CP 22-1 in FY26, and complete operational testing of ACB 16, Baseline 9.2 series in FY26, with additional testing of AEGIS Baseline 9.3 in FY26 and beyond. The Navy expects to deliver an updated TEMP and a new test plan for ACB 16 CP 24 (Baseline 9.2.4) and Baseline 9.3 for DOT&E approval in FY26.

In FY25, the Navy continued to develop a Combat System Test Bed (CSTB) modeling and simulation suite to support the test strategy for Baseline 10.0. The Navy plans to deliver CSTB in incremental stages that align with planned operational testing within the Baseline 9 series and Baseline 10.0. The Navy expects to verify, validate, and accredit the CSTB for OA of Baseline 10.0 in FY28.

PERFORMANCE

» EFFECTIVENESS

DOT&E's assessment of the operational effectiveness of Aegis ACB 16, Baseline 9.2.3 CP 22-1 is classified and can be found in DOT&E's March 2025 EFR.

Insufficient data are available to determine the operational effectiveness of Aegis ACB 16, Baseline 9 series variants. DOT&E will publish a classified FOT&E report upon completion of operational testing that the Navy expects to occur in FY27.

Insufficient data are available to determine operational effectiveness of Baseline 10.0. DOT&E will publish a classified OT&E report after completion of the operational testing that the Navy expects to occur in FY28.

» SUITABILITY

Aegis ACB 16 CP 22-1 is not currently operationally suitable due to low reliability and availability concerns. Details can be found in DOT&E's March 2025 EFR.

Insufficient data are available to determine operational suitability of Aegis ACB 16, Baseline 9 series variants. However, testing continues to demonstrate hardware reliability and software stability concerns with the ADS and the AN/SPY-1 radar. DOT&E will publish a classified FOT&E report upon completion of operational testing that the Navy expects to occur in FY27.

Insufficient data are available to determine Baseline 10.0 operational suitability. DOT&E will publish a classified OT&E report after completion of the operational testing that the Navy expects to occur in FY28.

» SURVIVABILITY

Insufficient data are available to assess the cyber survivability of Aegis ACB 16, Baseline 9 series variants. DOT&E will publish a classified cyber survivability OT&E report upon completion of the ACB 16, CP 22-1 cyber survivability test that the Navy has scheduled in FY26.

Insufficient data are available to assess cyber survivability of Baseline 10.0. DOT&E will publish a classified OT&E report after the completion of the operational testing that the Navy expects to occur in FY28.

RECOMMENDATIONS

As recommended in the FY24 Annual Report, the Navy should:

1. Continue to update and correct hardware reliability and software stability issues with the ADS and AN/SPY-1 radar.
2. Complete development, verification, and validation of the CSTB by FY28 to support an OA of Baseline 10.0 and subsequent upgrades to AWS.
3. Schedule and conduct remaining test requirements for the Aegis ACB 16 test program, Baseline 9 series in FY26 and FY27.
4. Provide to DOT&E for approval in FY26, a TEMP update and test plan for Aegis ACB 16 Baseline 9 series for CP 24 (Baseline 9.2.4) and Baseline 9.3.
5. Develop and provide to DOT&E for approval in FY26, a TEMP update for Baseline 10 to support DDG 51-class Flight IIA destroyers with AN/SPY-6(V)4.