

Dismounted Assured, Positioning, Navigation, and Timing System (DAPS)



The Dismounted Assured, Positioning, Navigation, and Timing System (DAPS) program conducted an operational assessment (OA) to support an early fielding of the Generation (GEN) 1.0 and GEN 1.2 DAPS to an Army Infantry Brigade Combat Team in FY22. The Army selected the TRX Systems Inc. DAPS GEN II for the program of record and began a series of field and lab testing in June 2022 with a Limited User Test (LUT) scheduled in early FY23.

SYSTEM DESCRIPTION

DAPS provides Army forces with unhindered access to trusted Positioning, Navigation, and Timing (PNT) information under conditions where space-based GPS signals may be limited or denied. DAPS replaces the

Army's legacy Defense Advanced GPS Receiver (DAGR) used by dismounted soldiers. Unlike the DAGR, DAPS incorporates a Military Code receiver as well as non-GPS capabilities providing the user with PNT information from multiple sources.

DAPS GEN 1.0 includes a "boot module" to assist soldiers in maintaining position and navigation

capability based on soldier movements. Soldiers interface with the DAPS GEN 1.0 using the Nett Warrior End User Device (EUD). DAPS GEN 1.2 has an internal rechargeable battery as well as internal inertial measurement unit and alternative satellite reception capabilities. DAPS GEN II is an improved version of DAPS GEN 1.2 with an external, detachable

rechargeable battery, redesigned screen and soldier interface, and improved PNT data fusion capability. Both DAPS GEN 1.2 and GEN II can be used in a stand-alone mode or with the Nett Warrior EUD interface.

MISSION

A unit equipped with DAPS will use their trusted PNT information to conduct operations in conditions that impede or deny access to GPS signals, such as dense vegetation, built-up urban and mountainous terrain, and in the presence of electromagnetic interference or enemy jamming and spoofing of the GPS.

PNT information derived from DAPS directly enables positioning of forces; navigation across the operational environment; communication networks; situational awareness applications; and protection, surveillance, targeting, and engagement systems that contribute to combined arms maneuver.

PROGRAM

In 2019, the Commanding General, Army Futures Command issued two directed requirements for the DAPS effort directing the rapid prototyping, OA, and limited fielding of advanced PNT technologies to inform an enduring requirement and follow-on program of record. The PNT Program Manager is utilizing several Other Transaction Authority contracts and a phased prototyping approach to satisfy the

Army Futures Command directed requirements.

DAPS GEN 1.0 and DAPS GEN 1.2 followed the Urgent Capability Acquisition pathway culminating in an OA in 4QFY21 and a limited equipping of an Infantry Brigade Combat Team in FY22. In early FY22, the Army selected TRX Systems Inc. as the vendor for the DAPS GEN II program of record. The Army intends DAPS to transition to a major capability acquisition program at Milestone C in FY23. A DAPS Test and Evaluation Master Plan (TEMP) is currently in draft and expected to be approved by DOT&E prior to the planned Milestone C decision.

» MAJOR CONTRACTORS

- DAPS GEN 1.0 – Integrated Solutions for Systems, Inc., Auburn, Alabama
- DAPS GEN 1.2 – TRX Systems Inc., Greenbelt, Maryland
- DAPS GEN II – TRX Systems Inc., Greenbelt, Maryland

TEST ADEQUACY

In August and October 2021, the Army Test and Evaluation Command conducted an OA at Ft. Huachuca, Arizona, and White Sands Missile Range, New Mexico in accordance with the DOT&E-approved test plan, and observed by DOT&E. The OA was adequate to determine operational effectiveness and suitability of the GEN 1.0 and GEN 1.2 systems. The results of the OA informed the Army's decision to equip an

Infantry Brigade Combat Team and the selection of TRX as the vendor for the DAPS GEN II.

The Army has addressed a DOT&E recommendation from the 2021 Annual Report and found a suitable location to conduct the LUT in 1QFY23 in accordance with the DOT&E-approved test plan.

PERFORMANCE

» EFFECTIVENESS

Both the DAPS GEN 1.0 and 1.2 systems performed better than the legacy DAGR system in GPS-degraded environments. Dismounted infantry squads equipped with either GEN 1.0 or GEN 1.2 DAPS are operationally effective at accomplishing reconnaissance missions in contested GPS environments. Performance issues are detailed in the classified DAPS early fielding report (EFR) published January 2022.

» SUITABILITY

DAPS GEN 1.0 and 1.2 systems are operationally suitable. Neither system experienced a reliability failure during the OA. The training provided by the Army was not sufficient and soldiers require more hands-on training. GEN 1.0 users preferred a stand-alone capability and user interface separate from the Nett Warrior EUD. GEN 1.2 users indicated the need for longer internal battery life when disconnected from the conformal battery. The classified DAPS EFR

provides details on operational suitability.

» **SURVIVABILITY**

A cooperative vulnerability and penetration assessment was conducted on both DAPS prototypes and the results are detailed in the classified DAPS EFR. The Army plans to conduct an adversarial assessment in conjunction with the DAPS GEN II LUT in FY23.

RECOMMENDATION

The Army should:

1. Verify correction of DAPS performance deficiencies identified in the classified EFR prior to conducting the LUT.