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

In November 2023, the Army conducted Dismounted Assured Positioning, Navigation, and Timing System (DAPS) GEN II IOT&E. The DAPS GEN II IOT&E was conducted in accordance with a DOT&E-approved test plan and was adequate to inform a full-rate production (FRP) decision. DOT&E published a classified IOT&E report in May 2024, and the Program Executive Officer, Intelligence, Electronic Warfare and Sensors (PEO IEW&S) approved the DAPS GEN II FRP in August 2024.

SYSTEM DESCRIPTION

DAPS is a handheld Military-Code (M-Code) GPS receiver that integrates multiple Positioning, Navigation, and Timing (PNT) sources to provide Army forces with access to trusted PNT information in conditions where GPS signals may be degraded or denied. DAPS supports the Army's transition to M-Code GPS and will replace the Defense Advanced GPS Receiver (DAGR) currently used by Nett Warrior equipped soldiers.

DAPS GEN 1.0 includes a boot attached inertial module to improve position and navigation accuracy based on soldier footsteps. 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 module and alternative satellite reception capabilities. DAPS GEN 1.2 can be used in a stand-alone mode or with the Nett Warrior EUD interface. DAPS GEN II is an improved version of DAPS GEN 1.2 with an external rechargeable battery, redesigned screen and soldier interface, and improved PNT data fusion capability. DAPS GEN II can be used in a stand-alone mode, with the wrist-wearable device, or with the Nett Warrior EUD interface.

The Army is experimenting with the DAPS GEN II in a vehicle-mounted configuration to determine if the DAPS would be suitable to replace DAGR in some mounted applications.

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 electronic warfare.

PNT information derived from the 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

DAPS GEN 1.0 and DAPS GEN 1.2 are quick reaction capabilities developed in response to an Army-directed requirement that culminated in a limited equipping of four infantry brigade combat teams (IBCT). As of 4QFY24, one IBCT has been equipped with 754 DAPS GEN 1.0 units and three IBCTs have been equipped with 2471 DAPS GEN 1.2 units. All DAPS GEN 1.0 and GEN 1.2 deliveries are complete.

In early FY22, the Army selected TRX Systems Inc. as the vendor for the DAPS GEN II rapid prototyping program. In March 2023, DAPS GEN II transitioned from rapid prototyping to a major capability acquisition program at Milestone C with an updated DOT&E-approved TEMP. In November 2023, the Army conducted the DAPS GEN II IOT&E, and in August 2024, PEO IEW&S approved the DAPS program to proceed to FRP. In May 2024, DOT&E published a classified IOT&E report supporting the Army's FRP decision. The DAPS GEN II program is on track to achieve initial operational capability by March 2025. The DAPS TEMP is being updated to support post-FRP decisions and T&E activities.

» MAJOR CONTRACTORS

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

TEST ADEQUACY

In November 2023, the Army conducted the DAPS GEN II IOT&E and cyber survivability adversarial assessment at Fort Huachuca, Arizona, in accordance with a DOT&E-approved test plan and TEMP. The IOT&E and adversarial assessment were observed by DOT&E and were adequate to determine that DAPS GEN II is operationally effective, suitable, and survivable. The Army addressed FY23 Annual Report recommendations to verify deficiency corrections prior to conducting the IOT&E.

PERFORMANCE

» EFFECTIVENESS

The DAPS GEN II is operationally effective, though exhibited decreased position and notification accuracy under very challenging threat environments. The DAPS GEN II performs better than the legacy DAGR in GPS-contested environments and improves soldiers' situational awareness, supports navigation, and allows the unit to maintain operational tempo while moving between mission objectives. Additional details are contained in the May 2024 classified IOT&E report.

» SUITABILITY

The DAPS GEN II is operationally suitable. The DAPS GEN II experienced no essential function failures during the IOT&E. The most prevalent non-essential function failure was due to software integration issues with the wrist-wearable device. Operational availability was 99 percent, due to the rapid reparability of faults. Failure modes found during previous testing had been corrected prior to IOT&E, which improved the system's overall reliability. Training was sufficient for soldiers to operate the DAPS GEN II, though they expressed the need for training on how to adjust the threat notification frequency and sensitivity. Additional details are contained in the May 2024 classified IOT&E report.

» SURVIVABILITY

The DAPS GEN II is cyber survivable to outsider and nearsider threats. The DAPS program mitigated vulnerabilities found during previous testing, minimizing an adversary's attack opportunities. Additional details are contained in the May 2024 classified IOT&E report.

RECOMMENDATIONS

The Army should:

1. Improve the DAPS GEN II ability to determine GPS signal assurance and valid position location under very challenging GPS threat environments.
2. Add a training module on adjusting threat notification parameters.
3. Improve DAPS GEN II software integration with the wrist-wearable device.