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<b>13. SUPPLEMENTARY NOTES</b>		
<b>14. ABSTRACT</b> Within the Air Force's acquisition process, test and evaluation plays a crucial part. Developmental test and evaluation satisfies the question of whether a given aircraft/weapons system meets Department of Defense or Air Force requirements, while operational test and evaluation determines the utility of the aircraft, platform, or weapons system under realistic combat conditions. The Air Force conducts test in two phases: developmental test conducted largely by the Air Force Test Center (AFTC), and operational test conducted by the Air Force Operational Test and Evaluation Center (AFOTEC), the USAF Warfare Center, or using Major Commands. The clarion call issued by Chief of Staff of the Air Force General Charles Q. Brown, Jr. in 2020 to accelerate change or lose to pacing competitors and peer-to-peer threats has intensified the drive toward change in the Air Force, including re-envisioning acquisition and test and evaluation. A tangible commitment within the test enterprise to accelerating change came about in mid-September 2021 with the first annual Tri-Center Test Integration Summit held at Edwards AFB. AFOTEC, the AFTC, and the USAFWC signed a Tri-Center Integrated Test and Evaluation Memorandum of Understanding committing to integrating test and evaluation.		
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# AFOTEC

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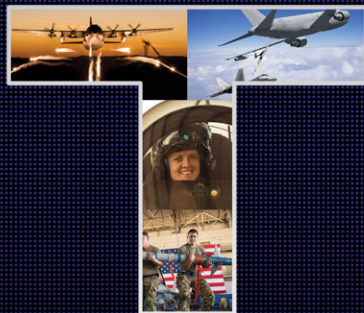
## THE TRI-CENTER TEST INTEGRATION SUMMIT AND ACCELERATING CHANGE IN TEST AND EVALUATION

by Dr. Stephanie Smith  
AFOTEC Chief Historian



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Within the Department of the Air Force's acquisition process, test and evaluation plays a crucial part. Developmental test and evaluation satisfies the question of whether a given aircraft or other weapons system meets Department of Defense or Department of the Air Force requirements, while operational test and evaluation determines the utility of the aircraft, platform, or weapons system under realistic combat conditions. Developmental and operational test took place in completely separate and distinct phases in the period between 1945 and 1972. Since then, the Air Force split test into two phases: developmental test conducted largely by the Air Force Test Center (AFTC), Edwards Air Force Base (AFB), Calif., and operational test conducted by the Air Force Operational Test and Evaluation Center (AFOTEC) at Kirtland AFB, New Mexico, the USAF Warfare Center at Nellis AFB, Nev., or using Major Commands.

Air Force test and evaluation since then occasionally took place via combined or integrated developmental and operational test conducted with shared test facilities and resources, often due to convenience, or financial shortfalls. The end of the Cold War created an impetus for greater speed and efficiency, which instigated an initial movement for acquisition reform aimed at reducing costs and development time. These efforts began to break down the barriers between developmental and operational test. A series of high-priority, fast-tracked projects to meet short-notice warfighter requirements commenced during the Global War on Terror (GWOT). The test community often met these challenges by integrating and combining test, while embracing support for the warfighter as their *raison d'être* and ultimate customer.

Efforts at acquisition reform have continued. However, the clarion call by Chief of Staff of the Air Force General Charles Q. Brown, Jr. in 2020 to accelerate change or lose to pacing competitors and peer-to-peer threats has only intensified the drive toward change in the Air Force, including re-envisioning acquisition and test and evaluation. As General Brown warned in September 2021, "our own bureaucracy and constrained thinking may contribute to losing our advantage" over our competitors. The following examples use the history of



some of these accelerated projects, speeding urgently needed systems to the field, as well as of combined or integrated test, to illustrate the potential for future cooperation in order to accelerate change within the test enterprise.<sup>1</sup>

For example, the Battlefield Communications Node (BACN) began in 2006 as an Advanced Concept Technology Demonstration, intended to enable communications during deployed operations in locations with limited line-of-sight, such as in mountainous areas. BACN would provide a coalition-wide, high-altitude, communications relay between air, space, and ground systems across a range of dissimilar networks, typical of joint/Allied operations. In May 2009, BACN became a Joint



The Battlefield Airborne Communications Node (BACN) mounted in a RQ-4 Global Hawk

Urgent Operational Need program on behalf of the U.S. Central Command, hosted either on E-11A business jets or RQ-4 Global Hawks.<sup>2</sup> Test professionals from the Air Force Test Center and the Air Force Operational Test and Evaluation Center's Detachment 5 began execution of integrated test and evaluation of the BACN system on the RQ-4 Global Hawk Block 20 in September 2009. Indeed, the Commander of the Air Force Operational Test and Evaluation Center directed the integration of developmental and operational test opportunities to the maximum extent possible.<sup>3</sup> The test team succeeded in supplying the BACN capability to the field ahead of schedule, and in less than 9 months. By 30 January 2016, the system had accumulated 100,000 combat flying hours.<sup>4</sup>

In a more recent example, in 2020, personnel from over a dozen Air Force organizations cooperated in the test and evaluation of a U.S. Transportation Command urgent operational need for

safe, high-capacity C-5 and C-17 airlift of COVID-19 patients, the Negative-Pressure CONEX and Negative-Pressure CONEX-Lite solutions. Those who developed the idea, Lt Col Paul Hendrickson and Capt Alexis Todaro, saw it proceed from a sketch on the back of a napkin to proof of concept in only nine days.<sup>5</sup> The test team, including aeromedical personnel, delivered the capability to the field in only 95 days.<sup>6</sup> Developmental test took place under the aegis of the 417th Flight Test Squadron, assigned to the 96th Test Wing at Eglin AFB under the Air Force Test Center.<sup>7</sup> Members of the 28th Test and Evaluation Squadron, part of the 53d Wing assigned to the USAF Warfare Center, and of Detachment 2 of the Air Force Operational Test and Evaluation Center, also undertook operational test and evaluation for the project.<sup>8</sup>



Negatively Pressurized Conex (NPC) onboard a C-17 Globemaster III

The leadership of the Air Force Test Center, the Air Force Operational Test and Evaluation Center, and the USAF Warfare Center intend to build on this shared history of cooperation, and to continue such efforts. The Air Force Operational Test and Evaluation Center, as a Direct Reporting Unit to Chief of Staff of the Air Force, General Brown, has the ability to advocate for the test community while helping build further collaboration and enhancement of the test enterprise as a whole. AFOTEC hopes thereby to prepare the test community to meet the future, ensuring the test enterprise remains relevant in 2030, in order to continue providing warfighters with the materiel they need.

A tangible commitment within the test enterprise to accelerating change came about in mid-September 2021 with the first annual Tri-Center Test Integration Summit held at Edwards AFB. Those in attendance included: members of the Air Force Operational Test and Evaluation Center; the Air Force Test Center; of U.S.



Space Force's test and evaluation community; and the USAF Warfare Center. At the summit, the three centers, building on their shared mission and history, agreed to further integration of developmental and operational test. They did so via the signing of a Tri-Center Integrated Test and Evaluation Memorandum of Understanding. The three centers agreed to plan for mutual aid with respect to manpower and resources, collaborative data sharing, integrated test planning, and adoption of best practices in digital engineering. They also decided to form a provisional integrated test organization around a specific test program. This would allow the centers to try out the idea, with the potential to scale up this organization for approval as a permanent one in the future.<sup>9</sup>



2021 Tri-Center Test Integration Summit held at Edwards Air Force Base, California

Examples of accelerated test projects undertaken cooperatively by members of the Air Force Operational Test and Evaluation Center, the Air Force Test Center, and the USAF Warfare Center from test to the warfighter highlight the value of the integration of developmental and operational test and evaluation. They also point the way to the cooperation envisioned by the Tri-Center Integrated Test and Evaluation Memorandum of Understanding, particularly the potential for a unified, combined organization conducting test and evaluation.

## Endnotes

<sup>1</sup> (U) Video (U//Dist. A), Gen Charles Q. Brown, Jr., CSAF, "Accelerate Change to Empower Our Airmen," Air Force Association Air, Space, and Cyber Conference, 20 Sep 2021, Rel (U//Dist. A), Charles Pope, SECAF/PA, "Brown Presses Case for Speed, Innovation, Culture Change across the Air Force," 20 Sep 2021.

<sup>2</sup> (U) Rel (U//Dist. A), Patty Welsh, 66 ABG/PA, "Comms Program Hits 100,000 Hours of Warfighter Connectivity," 2 Feb 2016.

<sup>3</sup> (U) Order (U//Dist. F), HQ AFOTEC to All AFOTEC Personnel, "Tasking Order Change 1 2009-044 //BACN-JUON," 5 Nov 2009. Note: Further dissemination only as directed by AFOTEC/CV.

<sup>4</sup> (U) Fact Sheet (U), Northrop Grumman, "Battlefield Communications Node (BACN)," [n.d.], Rel (U//Dist. A), Patty Welsh, 66 ABG/PA, "Comms Program Hits 100,000 Hours of Warfighter Connectivity," 2 Feb 2016.

<sup>5</sup> (U) Video (U//Dist. A), Gen Charles Q. Brown, Jr., CSAF, "Accelerate Change to Empower Our Airmen," Air Force Association Air, Space, and Cyber Conference, 20 Sep 2021.

<sup>6</sup> (U) Rel (U//Dist. A), D. Todd Lopez, DOD News, "Urgent Acquisition Effort Provides Safe COVID-19 Patient Transport in 95 Days," 7 Jul 2020.

<sup>7</sup> (U) Rel (U//Dist. A), 1Lt Savannah Bray, 53rd Wing, "NPC Determined to Be Successful Proof of Concept," 3 May 2020.

<sup>8</sup> (U) Rel (U//Dist. A), 1Lt Savannah Bray, 53rd Wing, "53rd Squadron Supports COVID-19 Isolation Container Testing," 24 Apr 2020.

<sup>9</sup> (U) MOU (U), AFOTEC/AFTC/USAFWC, "Memorandum of Understanding (MOU) Between Air Force Test Center (AFTC) Edwards Air Force Base, California and U.S. Air Force Warfare Center (USAFWC) Nellis Air Force Base, Nevada and Air Force Operational Test and Evaluation Center (AFOTEC) Kirtland Air Force Base, New Mexico Regarding Integrated Test and Evaluation: Agreement# AFTC-2021-002," 15 Sep 2021.



The seal of the Department of the Air Force, United States of America, is centered in the background. It features an eagle with wings spread, perched on a shield, surrounded by stars. The text "DEPARTMENT OF THE AIR FORCE" is arched above the eagle, and "UNITED STATES OF AMERICA" is arched below. The Roman numeral "MCMXLVII" is also visible at the bottom of the seal.

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