International Test and Evaluation (IT&E) Program

DOT&E, under the authority of section 2350(1), title 10, U.S. Code in 2001, manages the International Test and Evaluation (IT&E) program for the DOD. This program directly aligns with the FY18 National Defense Strategy second Line of Effort – strengthen alliances and attract new partners. Since 2002, over 185 test projects have been executed under IT&E program bilateral and multinational agreements. These projects benefit the United States and our allied partners by enabling access to environments and facilities to achieve coalition and joint force operational realism; sharing T&E technologies, data, and costs; and standardizing test and analytical procedures. By engaging international partners, IT&E projects address warfighter needs in the expected operational environments and improve interoperability among coalition and joint forces. The IT&E bilateral and multilateral agreements allow for:

- Cooperative Test and Evaluation (CTE) Project Arrangements (PAs)
  - Each nation has an interest in a system's performance and agrees to share the test planning, conduct, data analysis, reporting, and costs on an equitable basis.
- Reciprocal Use of Test Facilities (RUTF) PAs
  - Use of another nation's test facilities on a "fee-for-service" and "cost-to-test" basis.
- Equipment and Material Transfer Agreements
  - Loan of one nation's test equipment and tools to another nation for testing.
- Working Groups
  - Data exchanges and discussions to develop PAs or address other mutual warfighter concerns.

PAs authorize U.S. and partner nation test organizations to conduct test planning, conduct, and data sharing. The PA identifies the systems being tested, the test location, and the test organizations and their responsibilities, including points of contact, estimated test dates, and financial, legal, and security arrangements.

CTE and RUTF PAs allow the use of test environments and test facilities that best represent the operational environment where the warfighter will use the system to accomplish the mission.

The RUTF PAs are not available under any other international agreement.

The United States has bilateral agreements with Australia, Canada, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, and the United Kingdom. During FY18, IT&E bilateral discussions continued with two additional allied nations pursuant to developing two new bilateral agreements.

Built upon the success of past IT&E bilateral agreements, in 2015 DOT&E negotiated its first multinational T&E agreement among the defense establishments of the United States, Australia, Canada, New Zealand, and the United Kingdom. The Multinational Test and Evaluation Program (MTEP) leverages the goodwill, expertise, and experience of the bilateral agreements and accommodates changes in the evolving international security environment. It expands and simplifies T&E cooperation, beyond just one-on-one agreements, to the benefit of multiple international partners. The MTEP paves the way for the five participating nations to access ranges, test facilities, and natural environments in circumstances where they may not be available within a particular country. Test results and information of mutual interest is shared, thus the MTEP creates an efficient "test-once and use-by-all" T&E framework for participating nations.

The MTEP allows all five nations to test together, but also for testing to be developed bilaterally, or among three or four of the MTEP nations. Most testing is completed at the unclassified level, but may be conducted up to TOP SECRET when justified and properly approved. Considering budgetary issues, and the threat environment, the MTEP has become the "go-to" agreement for efficient testing of common interest systems that promote interoperability among participating partners.

The impetus for creating the MTEP was the need for open-air testing of aircraft survivability systems. This testing is technically complicated and requires specific natural environments. Alone, each of the participating nations could not fill all of the test environment requirements. The MTEP and its inherent "sharing" concept is also well suited for projects in other areas such as integrated tactical avionics systems; integrated air and missile defense (IAMD) systems; and chemical, biological, and radiological systems. As an example, MTEP provides the mechanism for Australia, Canada, the United Kingdom, and the United States to test aircraft survivability equipment together on a recurring basis in a common operating environment. Recent PAs reflect autonomous and robotic systems, and determining how to integrate these new technologies into joint systems and coalition operations.

The successful implementation of the MTEP provides a working model for more multinational agreements with other partner nations who share interest in expanding international cooperation that will enhance coalition warfare capabilities and mutual defense interests. In FY18, DOT&E initiated negotiation on a multinational Trans-Atlantic MTEP among France, Germany, Italy, the United Kingdom, and the United States. Additional Trans-Atlantic countries may be added by amendment following the implementation of this agreement. Table 1 identifies the existing bilateral and multinational IT&E agreements.

TABLE 1. BILATERAL AND MULTINATIONAL IT&E AGREEMENTS

PARTNER COUNTRY	BEGIN DATE
Italy	2017 (December)
Sweden	2017 (June)
Denmark	2017 (March)
Finland	2017 (January)
Germany	2017 (January)
Norway	2014 (December)
United Kingdom	2006 (November)
Netherlands	2004 (February)
Australia	2003 (April)
France	2003 (January)
Canada	2002 (September)
Australia, Canada, New Zealand, United Kingdom	2015 (April)

During FY18, DOT&E approved 19 CTE and RUTF PAs. The RUTF PAs were particularly useful for partner nations to test new capabilities in geographic environments not available in home countries. For example, due to lack of tropical or desert-like conditions, the German military used a RUTF PA to validate their night vision goggles (NVG) under such conditions at the U.S. Army Test and Evaluation Center (ATEC) Tropical Region Test Center (TRTC) in Panama. Following the success of that assessment, German Special Operation Forces performed an operational test of the G95K Rifle and NVG at the ATEC TRTC in jungle conditions and at the ATEC Yuma Test Center in desert conditions.

Figure 1 – Night Vision Goggle Image

In FY18, Norway used a RUTF PA to test the Joint Strike Missile (JSM) to qualify the JSM for integration with the F-35 Joint Strike Fighter. The Air Force conducted the testing for the Norwegian government at the Utah Test and Training Range using an F-16 aircraft.

Figure 2 – A JSM Launched From an F-16 Scores a Direct Hit on Its Target

In FY18, Australia used a RUTF PA to conduct testing of the U.S. Assault Breacher Vehicle (ABV), the Joint Assault Bridge (JAB), and new vehicle subsystems. The testing occurred in representative operational conditions at Aberdeen Proving Ground, Maryland. This testing supported decisions to field the ABV and JAB and to acquire additional vehicle capabilities.

Figure 3 – Assault Breacher Vehicle Risk Reduction Testing

For recurring test events, DOT&E established an Omnibus concept as an efficient and timesaving approach to managing PAs. The Omnibus concept establishes an overarching project arrangement for recurring testing over an extended period or for similar testing to be conducted on various platforms. Each repetition is detailed in an Annex to the Omnibus PA instead of creating a new PA. The security sections, legal aspects, and financial provisions of the project are only negotiated once. This streamlines administrative processing. Omnibus RUTF PAs are currently used for the long-standing Combat Archer and Combat Hammer testing of Canadian aircraft and missiles as well as collaboration between the United States and Canada to add IED protection to Tactical Armored Patrol Vehicles.

A recent and revealing example of a recurring test was the U.S. – United Kingdom IAMD testing conducted at the Hebrides Test Range in the United Kingdom in the fall of 2017. While the testing was clearly successful, the IAMD example showcased an important limitation of bilateral agreements. This testing was conducted during the multinational exercise "Formidable Shield" involving assets of nine nations. But, under the bilateral agreement, information and results could only be shared between the U.S. and the United Kingdom. Multinational data sharing with the other participating nations was administratively difficult and would require multiple, unrelated bilateral international agreements. In response to the 2017 IAMD test events, the United Kingdom executed bilateral

Figure 4 – *USS Donald Cook* (DDG 75) Fires an SM-3 Block IB

PAs with the other participating nations. The Trans-Atlantic MTEP, currently in the early stages of technical discussions, would establish an agreement simplifying the administration of future multinational IAMD tests.

The above PAs are examples of how IT&E enabled partner nations to conduct effective and efficient testing in representative environments. Other bilateral and multinational IT&E projects initiated or conducted in FY18 are listed in Table 2 below.

TABLE 2. IT&E PROJECT ARRANGEMENTS IN EFFECT IN FY18

INTERNATIONAL TEST AND EVALUATION PROJECTS	U.S. AGREEMENT DATE	TEST ACTIVITY DATES
Special Operations Engineer Regiment Chemical and Biological Defence Tactics, Techniques, and Procedures RUTF PA (Australia)	September 26, 2018	September 24 to October 26, 2018, and FY19, 20, 21, 22
Performance Characterization of Aerosol Referee Equipment RUTF PA (Norway)	September 24, 2018	October 2018 to March 2019
LOGAN Virtual Simulation System Validation RUTF PA (Canada)	September 27, 2018	September 17 - 28, 2018
International Novel Threat Agent Characterization Trials CTE PA Amendment 1 (Australia, Canada, and the United Kingdom)	August 29, 2018	September 2017
T&E of Shipboard Jammer and Off-Board Decoy Electronic Countermeasure - Electronic Attack Techniques RUTF PA Amendment 1 (Canada)	August 16, 2018	October 2015 to September 2022
CH-147F Radar Warning Receiver Assessment and Characterization Trial RUTF PA (Canada)	August 10, 2018	Fall 2018 over a 2-week period
OT&E Rifle and Night Vision Goggles (NVG) in Desert Conditions RUTF PA (Germany)	June 19, 2018	July 17 - 23, 2018
OT&E Rifle and NVG in Tropical Conditions RUTF PA (Germany)	June 19, 2018	August 1 - 9, 2018
Hypervelocity Gun Weapons System Sub-Sonic Cruise Missile Surrogate Intercept RUTF PA (Australia)	June 13, 2018	July 23 to August 2, 2018
Global Biosurveillance Technology Initiative/Targeted Acquisition of Reference Materials Augmenting Capabilities RUTF PA (Australia)	April 30, 2018	October 2018 to June 2021 (est.)
Sophos/Kydoimos Challenge IV RUTF PA (Australia)	April 30, 2018	May 7 - 18, 2018
Sophos/Kydoimos Challenge IV RUTF PA (Canada)	April 11, 2018	May 7 - 18, 2018
Combat Hammer Omnibus RUTF PA (Canada)	April 4, 2018	April 27 to May 4, 2018
Simulation Testing of Energy Attenuating Crew Seats RUTF PA (United Kingdom)	January 31, 2018	March to May 2018 & May to July 2018
Low Frequency Acoustic Characteristics RUTF PA (United Kingdom)	December 20, 2017	Various test periods between 2018 and 2022
OT&E NVG in Tropical Conditions RUTF PA (Germany)	December 15, 2017	Jan 14 - 19, 2018
Assault Breacher Vehicle Risk Reduction Activity RUTF PA (Australia)	November 30, 2017	April 28 to August 13, 2018 (est.)
T&E Joint Air Delivery Unit Parachute Test Team Exercise Winter Rider - High Altitude Parachute T&E from a C-130 Aircraft RUTF PA (United Kingdom)	October 25, 2017	November 14 to March 1, 2018 (est.)
Tropical Performance of the Joint Effects Targeting System RUTF PA (Australia)	October 20, 2017	October 16 to November 10, 2017 (est.)

Finally, there was activity within three working groups in FY18. The Partnership for Autonomous Robotic Test Instrumentation Working Group with Germany was signed on March 18, 2018. In February 2018, stakeholders for the KC-46A Tanker Aircraft Refueling Interoperability Working Group with France met to discuss potential aerial refueling certification with multirole French fighter aircraft, the Mirage 2000 and the Rafale. Later in August 2018, the Flight Test Working Group with Canada convened for discussions on topics for future PAs.