

International Test and Evaluation Program (ITEP)



The International Test and Evaluation Program (ITEP) permits establishment of bilateral and multilateral agreements between the United States and international partners. Such agreements are enablers for expediting the development and fielding of advanced warfighting technologies and supporting T&E infrastructure and capabilities. These agreements facilitate the planning and execution of cooperative T&E projects, transfer of necessary test equipment and materials, exchange of T&E relevant information through working groups, and reciprocal use of test facilities.

The United States holds 11 bilateral agreements with international partners. During FY22,

discussions continued with additional prospective international partners pursuant to negotiating more bilateral agreements. Additionally, two multilateral agreements are in place. They are the Multinational Test and Evaluation Program (MTEP) Memorandum of Understanding (MOU) with Australia, Canada, New Zealand, and the United Kingdom, and the Transatlantic MTEP MOU with France, Germany, Italy, and the United Kingdom. The addition of other NATO partners to the Transatlantic MTEP MOU is under consideration.

Table 1 below lists the current agreements in effect prior to FY22.

Table 1. IT&E Ongoing Project Agreements in Effect

No.	IT&E Projects	Partner(s)	Test Activity Locations	Expiration
1	Advanced Distributed Modular Acquisition System (ADMAS) Instrumentation Equipment and Material Transfer Arrangement	Germany	Koblenz, Germany	October 25, 2024
2	Sky Sabre System (SkS) Reciprocal Use of Test Facilities (RUTF) Project Arrangement (PA)	United Kingdom	White Sands Missile Range, New Mexico	November 9, 2025
3	Flight Test Working Group (WG) Terms of Reference (TOR)	Australia, Canada, New Zealand, United Kingdom	Not Applicable	December 31, 2023
4	Heterogeneous Multiphase Reactive Blast (HMRB) Cooperative T&E (CTE) PA	Canada	Suffield Research Centre, Ralston, Alberta, Canada	December 3, 2023
5	T&E of the United Kingdom 28 Engineer Regiment, Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Defense Tactics, Techniques, and Procedures (TTPs) RUTF PA	United Kingdom	Dugway Proving Grounds, Utah	January 13, 2031
6	Flight Test Aegis Weapon Systems-31 (FTM-31) RUTF PA	Australia	Pacific Missile Range Facility, Hawaii	March 28, 2023
7	Electronic Warfare Operational Test 2016 RUTF PA	Canada	Naval Research Laboratory, Hawaiian Operating Areas, Marine Corps Air Station, Kaneohe Bay, Hawaii	May 19, 2024
8	CF-18 Software Upgrade T&E RUTF PA	Canada	Naval Air Warfare Center, China Lake, California	June 14, 2024
9	T&E of the German Bundeswehr CBRNE Defense TTPs RUTF PA and Annex A	Germany	Dugway Proving Ground, Utah	June 15, 2026
10	Aircraft Electronic Warfare CTE PA	Australia, Canada, United Kingdom	Various partner test locations	August 5, 2026
11	Amendment Six to the Integrated Air and Missile Defense (IAMD) RUTF PA (Formidable Shield)	United Kingdom	Hebrides Test Range, United Kingdom	November 19, 2022
12	T&E of Protective Ensembles Using the Porton Man Test Fixture CTE PA	United Kingdom	Porton Down, United Kingdom	May 11, 2025
13	SIMULATION DISPLAY (SIMDIS™) Sustainment for Sensors, Weapons, Analysis and Tactical Display Developments RUTF PA	Canada	Naval Research Laboratory, Washington, D.C.	October 29, 2025
14	Project Raider Data Evaluation RUTF PA	Canada	Naval Research Laboratory, Washington, D.C.	March 10, 2023
15	Tactical Armored Patrol Vehicle Testing RUTF PA	Canada	Aberdeen Test Center, Aberdeen Proving Ground, Maryland	December 31, 2023
16	CH-146 Radar Warning Receiver (RWR) Validation and Operational Readiness Assessment RUTF PA	Canada	Naval Air Warfare Center (Weapons Division), China Lake, California	February 2, 2023
17	Land Platforms Autonomy and Robotics WG Terms of Reference (TOR)	Italy	Not Applicable	January 21, 2030

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No.	IT&E Projects	Partner(s)	Test Activity Locations	Expiration
18	Joint-Improvised-Threat Defeat Organization Electronic Counter Measures RUTF PA	Australia	Naval Air Warfare Center (Weapons Division), China Lake, California	December 5, 2023
19	Partnership for Autonomous Robotic Test Instrumentation WG TOR	Germany	Not Applicable	April 11, 2028
20	Low Frequency Acoustic Characteristics RUTF PA	United Kingdom	Naval Research Laboratory, Acoustic Measurement Facility, Washington, D.C.	January 19, 2023
21	Combat Archer II Omnibus RUTF PA	Canada	Tyndall Air Force Base, Florida	December 21, 2025
22	Combat Hammer Omnibus RUTF PA	Canada	Various U.S. Air Force Bases	November 23, 2026
23	T&E of Shipboard Jammer and Off-Board Decoy Electronic Countermeasure-Electronic Attack Techniques RUTF PA	Canada	Naval Research Laboratory, Washington D.C.	September 29, 2022
24	TOR for Live Fire WG	United Kingdom	Not Applicable	December 20, 2025

1. Advanced Distributed Modular Acquisition System (ADMAS) Instrumentation Equipment and Material Transfer Arrangement

This agreement between the United States and Germany enables the U.S. Army’s T&E Command to transfer the ADMAS instrumentation and software tools to the Bundeswehr Head of Robotics Research and Development at Koblenz. The transfer is valid for three years, and allows Germany to standardize test procedures, data analysis techniques, and T&E methodology for the testing of autonomous robotic vehicles and associated technology. In FY21, the Army was unable to transfer the equipment as planned due to the coronavirus pandemic.

2. Sky Sabre System RUTF Project Arrangement

This testing was executed in 2021 and the agreement allowed the United Kingdom’s Ministry of Defence to leverage U.S. Army personnel and facilities at White Sands Missile Range to test the vertically-launched Sky Sabre integrated Ground Based Air Defence system prior to declaring its Initial Operating Capability. Through this agreement, the United Kingdom Ministry of Defence received data on threat detection, threat prioritization, weapon allocation,

and threat engagement, as well as post-launch analytical support to evaluate the system’s capability.

3. Flight Test Working Group (WG) Terms of Reference

This WG was established to identify and study future collaborative efforts to improve the effectiveness of joint weapons systems T&E through the harmonization of T&E requirements, investment strategies, and evaluation of test matters of mutual interest. Specifically, the Flight Test Working Group focuses on adoption and establishment of interoperable flight test instrumentation architecture to allow contributing participants to collaborate on flight test programs.

4. Heterogeneous Multiphase Reactive Blast (HMRB) Cooperative T&E (CTE) Project Arrangement

This agreement between the United States and Canada supports a series of tests over a three-year period at the Suffield Research Center, Alberta, Canada. The purpose of this agreement is to develop, test, and deploy diagnostics developed to address an HMRB based on a series of explosive charges.

5. T&E of the United Kingdom 28 Engineer Regiment, CBRNE Defense TTPs RUTF Project Arrangement

This agreement with the United Kingdom has enabled the development and testing of partner defense TTPs against CBRNE threats. The U.S. Army Dugway Proving Ground, Utah hosted the tests, providing threat-representative scenarios to support evaluation of the operational effectiveness of new detectors, personal protective equipment (PPE), and decontamination equipment in an operationally representative environment. Tests also included the firing of various weapons by soldiers in protective clothing to evaluate potential impact on mission effectiveness.

6. Flight Test Aegis Weapon Systems-31 (FTM-31) RUTF Project Arrangement

This agreement with Australia permitted the use of a High-Power Phased Array Radar located at the Pacific Missile Range Facility to track a target test vehicle in the Missile Defense Agency's FTM-31 flight test. The radar successfully tracked the target vehicle. Resultant data will support and improve threat characterization. This test was conducted in 2021

7. Electronic Warfare Operational Test 2016 RUTF Project Arrangement

This agreement enables the United States and Canada to continue the at-sea T&E of the electronic warfare suites fitted in Canadian Navy ships. This testing was postponed due to the coronavirus pandemic. It is expected to be conducted in Hawaii, where the United States will simulate anti-ship missile attacks to validate the Canadian Softkill System.

8. CF-18 Software Upgrade T&E RUTF Project Arrangement

This agreement enabled Canada to test upgrades for the CF-18 Hornet at the U.S. Naval Warfare Center, China Lake, California in July and August 2021. This testing validated and verified the upgraded software of the CF-18 and the aircraft's ability to intercept radar signals, identify signal sources, prioritize emitters, and take defensive action against threat weapon systems. Testing was conducted July – August 2021.

9. T&E of the German Bundeswehr CBRNE Defense TTPs RUTF Project Arrangement and Annex A

This agreement enabled the German Bundeswehr to develop and test its defense TTPs against CBRNE threats. The U.S. Army Dugway Proving Ground, Utah hosted the tests, providing threat representative scenarios to support the evaluation of the operational effectiveness of new detectors, to include mass spectrometers, multi-gas measuring devices, radiation detection devices, PPE, and decontamination equipment in an operationally representative environment. Tests also included the firing of weapons by soldiers in protective clothing to evaluate impacts on mission effectiveness. Additionally, tests assessed post attack reconnaissance after an Improvised Explosive Device attack. Also tested were new radios and other communications equipment. Testing was conducted October – November 2019.

10. Aircraft Electronic Warfare Cooperative T&E Project Arrangement

This agreement was established under the MTEP MOU in 2016 and is an important ongoing multinational effort. It is expected to continue through at least 2026. Activities and plans for the coming years under this agreement are described in detail in the Center for Countermeasures section of this annual report.

11. Amendment Six to the IAMD RUTF Project Arrangement (Formidable Shield)

This agreement with the United Kingdom has permitted large scale missile defense tests every two years, including the latest in the series, Formidable Shield 21. Formidable Shield 21 was conducted at the United Kingdom's Hebrides Test Range and included 11 nations and 16 ships. This event involved use of ground-launched supersonic low altitude targets and ballistic missiles as targets. Formidable Shield 21 witnessed the first ever use of a Pathfinder Zombie short range ballistic missile target, provided by the Missile Defense Agency. Additionally, there were two U.S. Medium Range Ballistic Missile Target presentations. These tests demonstrated the potential for launch on remote engagements wherein target data are passed from one ship to another. The Formidable Shield

exercise series provides the most comprehensive opportunity to evaluate IAMD capability in the Atlantic area of operations. The next event will continue to increase in complexity. A key feature of this test series is the demonstration of combat systems interoperability among the participating nations.

12. T&E of Protective Ensembles Using the Porton Man Test Fixture CTE Project Arrangement

This agreement with the United Kingdom has enabled extensive use of a mannequin named Porton Man to test chemical protective clothing for military personnel. Currently, the Porton Man tests are developing test methods and conducting performance testing of chemical protective ensembles (suits) against actual chemical warfare agents. Porton Man is an articulated, life-size, moving mannequin with a combination of cumulative and real-time sensors that can quantify the permeation and penetration of various threat agents through Chemical Biological PPE. The Porton Man CTE PA supports U.S. DOD requirements to protect personnel from Chemical Biological threats. Figure 1 displays the Porton Man protective equipment uniform used during testing.

13. SIMULATION DISPLAY (SIMDIS™) Sustainment for Sensors, Weapons, Analysis and Tactical Display Developments RUTF Project Arrangement

This agreement provides T&E support to the Canadian Department of National Defence's SIMDIS™ Integration Laboratory and technical staff for the

sustainment, testing and validation of the SIMDIS™ display software development. SIMDIS™ data from various sensors, weapons, and simulations will be evaluated for use in operational analyses for tactical development and platform procurement programs.

14. Project Raider Data Evaluation RUTF Project Arrangement

This agreement supports testing and validating Canadian ships' ability to generate Maritime Domain Awareness data for the RAIDER-M and the Sealink Advanced Analysis (S2A) or similar system. This project assesses the ship's ability to detect, precision track, and report low altitude aerial vehicles and surface targets. Test results will be collected and validated using Naval Research Laboratory, Washington, D.C. equipment and facilities.

15. Tactical Armored Patrol Vehicle Testing RUTF Project Arrangement

This agreement permits the U.S. DOD to provide T&E support to a Canadian Department of National Defence acquisition program. The testing and validation of the tactical armored patrol vehicle will consist of, but

not be limited to, Tilt Table Test (one and two axles), Circular Test in both dry/wet conditions to determine understeer and oversteer conditions, double-lane change test, J-turn test, Sine and Dwell Test, On-Center Steer Test and potentially a Step Steering test, suspension vibration, and tire characterization.

16. CH-146 Radar Warning Receiver (RWR) Validation and Operational Readiness Assessment RUTF Project Arrangement



Figure 1. Porton Man Testing of Uniform Integrated Protective Equipment

This agreement allows the U.S. DOD to evaluate the performance and effectiveness of the APR-39 Version-C RWR and assess the capability of Canadian tactical aviation personnel to conduct realistic mission sets in an electronic warfare threat environment.

17. Land Platforms Autonomy and Robotics Working Group TOR

This Working Group, led by the U.S. Army, exchanges data on Test Operating Procedures and Standard Operating Procedures relevant to testing unmanned vehicle maneuverability and weaponized autonomous platforms with Italy. The group is also sharing technology development updates on data acquisition, precision tracking and system surveillance, and other measurement techniques concerning T&E of autonomous vehicle systems. This WG effort will facilitate demonstration of test capabilities at key facilities responsible for testing mobility and weapon systems performance for autonomous systems.

18. Joint Improvised-Threat Defeat Organization Electronic Counter Measures RUTF Project Arrangement

This agreement covers testing of the Australian Department of Defence electronic countermeasures (ECM) systems. The U.S. DOD, through the Naval Air Warfare Center Weapons Division (NAWC-WD) China Lake Facility, provided T&E support to the Australian Department of Defence (test facilities, simulators, and technical staff) for testing and validation of ECM equipment. Such testing included electromagnetic interference and electromagnetic compatibility issues as well as system reaction and processing limitations in the electromagnetic environment.

19. Partnership for Autonomous Robotic Test Instrumentation Working Group TOR

This Working Group, led by the U.S. Army, was established to harmonize T&E instrumentation and autonomous/robotic requirements, study feasibility of future cooperative Test and Evaluation Program (TEP) Activities, and exchange data reports on specific T&E issues of mutual interest with Germany.

20. Low Frequency Acoustic Characteristics RUTF Project Arrangement

This agreement concerns testing objects of interest to acquire high fidelity low frequency acoustic scattering data. The test will determine the low frequency acoustic characteristics of a set of test objects suitable for characterization. The consistency of acoustic measurements produced by the acoustic measurement facility will be evaluated.

21. Combat Archer II Omnibus RUTF Project Arrangement

This agreement addresses operational effectiveness and suitability testing of the Canadian Air Force's CF-18 air-to-air weapon systems using a total system approach that includes man, munitions, and machines.

22. Combat Hammer Omnibus RUTF Project Arrangement

This agreement addresses operational effectiveness and suitability testing of all aspects of the CF-18 air-to-ground weapons system.

23. T&E of Shipboard Jammer and Off-Board Electronic Countermeasure-Electronic Attack Techniques RUTF Project Arrangement

This agreement concerns performance of Canada's shipboard jammer and off-board decoy ECM techniques and tactics via laboratory testing at the Central Target Simulator facility at the Naval Research Laboratory, Washington, DC.

24. TOR for Live Fire Working Group

This Working Group, led by DOT&E, was established to identify potential collaborative efforts in LFT&E, to include ground combat vehicles and PPE with the United Kingdom.

In FY22, in support of the ITEP mission, DOT&E reviewed and approved nine agreements. Table 2 lists all of the agreements and location of testing.

Table 2. IT&E Documents Signed into Effect in FY22

No.	IT&E Projects	Entry into Effect Date	Partner	Test Activity Locations
1	High Intensity Radiated Field (HIRF) Testing on the CC-295 Kingfisher RUTF PA*	September 20, 2021	Canada	Naval Air Warfare Center (Aircraft Division), Patuxent River, Maryland
2	T&E of the Australian SOER CBRN Defense and EOD TTPs RUTF PA and Annex A*	September 21, 2021	Australia	Dugway Proving Ground, Utah
3	Amendment One to Tactical Armored Patrol Vehicle Stability Characterization Testing RUTF PA	February 11, 2022	Canada	Aberdeen Test Center, Aberdeen Proving Ground, Maryland and the Ground Vehicle Systems Center, Warren, Michigan
4	Her Majesty's Canadian Ship (HMCS) Windsor Testing RUTF PA	April 28, 2022	Canada	Andros Island, Commonwealth of the Bahamas
5	Laboratory and Field T&E of Australian Defence Science and Technology Group (DSTG) Chemical and Biological Defensive Material RUTF PA*	April 28, 2022	Australia	Dugway Proving Ground, Utah
6	Amendment Two to the T&E of Shipboard Jammer and Off-Board Decoy Electronic Countermeasure-Electronic Attack Techniques RUTF PA	June 23, 2022	Canada	Naval Research Laboratory, Washington, D.C.
7	Annex B to the T&E of the German Bundeswehr CBRNE Defense TTPs RUTF Project Arrangement	August 18, 2022	Germany	Dugway Proving Ground, Utah
8	Annex B to the T&E of the Australian Special Operations Engineer Regiment (SOER) Chemical, Biological, Radiological, and Nuclear (CBRN) Defense and Explosive Ordnance Disposal (EOD) Tactics, Techniques, and Procedures (TTPs) RUTF PA	September 12, 2022	Australia	Dugway Proving Ground, Utah
9	Amendment Seven to the Integrated Air and Missile Defense (IAMD) Testing Reciprocal Use of Test Facilities (RUTF) Project Arrangement (PA)	September 21, 2022	United Kingdom	Hebrides Test Range, United Kingdom

1. High Intensity Radiated Field (HIRF) Testing on the CC-295 Kingfisher RUTF Project Arrangement

Under this agreement, the Naval Air Warfare Center provided HIRF T&E support to Canada’s testing of the newly acquired CC-295 Kingfisher Fixed Wing Search and Rescue aircraft. This included use of test facilities, set up and operation of test equipment, and data collection including equipment

readings, still photography, and video. Testing was conducted September 30 –November 5, 2021.

2. T&E of the Australian SOER CBRN Defense and Explosive Ordnance Disposal (EOD) TTPs RUTF Project Arrangement and Annex A

This agreement with accompanying Annex A allowed the Australian SOER to conduct a full range of evaluated CBRN mission requirements at

multiple Dugway Proving Ground, Utah locations. Execution of TTPs addressed Australian DOD SOER tactical operational needs and management of situations involving CBRN threats and homemade explosives. The objective was to improve current TTPs, as well as develop additional TTPs to address operational gaps identified during testing. Testing was conducted September 27 - October 15, 2021.

3. Amendment One to the Tactical Armored Patrol Vehicle Stability Characterization Testing RUTF Project Arrangement

Refer to Table 1, entry 15 and its accompanying narrative for information on this agreement.

4. Her Majesty's Canadian Ship Windsor Testing RUTF Project Arrangement

This agreement covers testing of the MK 48 Mod 7 Advanced Technology Torpedo as well as the combat systems of the Her Majesty's Canadian Ship Windsor.

5. Laboratory and Field T&E of Australian Defence Science and Technology Group (DSTG) Chemical and Biological Defensive Material RUTF Project Arrangement

This agreement with the Australian Defence Science and Technology Group covers testing of the Australian Defence Force's CBRN defensive capabilities for

the protection of personnel from the strategic, tactical, and physiological effects of exposure to toxic chemicals, materials, and CBRN weapons. Testing was conducted June 6 – 30, 2022. Figure 2 shows the chemical detection process in progress.

6. Amendment Two to the T&E of Shipboard Jammer and Off-Board Decoy Electronic Countermeasure-Electronic Attack Techniques RUTF Project Arrangement

Amendment two of this agreement permits additional testing of the type addressed in Table 1, entry 23 and its accompanying narrative providing information on this agreement.

7. Annex B to the T&E of the German Bundeswehr CBRNE Defense TTPs RUTF Project Arrangement

Refer to Table 1, entry 9 and its accompanying narrative for a full description of this agreement.

8. Annex B to the T&E of the Australian Special Operations Engineer Regiment (SOER) Chemical, Biological, Radiological, and Nuclear (CBRN) Defense and Explosive Ordnance Disposal (EOD) Tactics, Techniques, and Procedures (TTPs) RUTF Project Arrangement

Annex B of the agreement allowed the Australian SOER to continue Counter CBRN (C-CBRN)

testing in increasingly realistic environments against updated threat representative scenarios in an operationally realistic environment. The goal is to enhance and improve current TTPs and to develop additional TTPs for operational gaps identified during this test event. Refer to Table 2, entry 2 and its accompanying narrative for further detail. Testing was conducted at Dugway Proving Ground, Utah September 26 – October 14, 2022. Figure 3 shows the tunnel where testing was conducted.



Figure 2. Conducting Chemical Detection at Dugway Proving Ground

9. Amendment Seven to the Integrated Air and Missile Defense (IAMD) Testing RUTF Project Arrangement

This Amendment to the agreement allows for the planning and execution of the interoperable testing that will be conducted during the Formidable Shield 2023 event in May 2023. During the Formidable Shield 23, the U.S. Navy will test its maritime IAMD system at the United Kingdom’s Hebrides Test Range with 11 other partner nations. This testing will include employment of ground-launched supersonic low altitude targets.

Table 3 below lists potential future test agreements and IT&E projects.



Figure 3, Tunnel Chemical Target at Dugway Proving Ground

Table 3. Future Test Agreements

No.	IT&E Projects	Objective
1	NATO Defence Innovation Accelerator for the North Atlantic	Develop a TEP MOU
2	U.S.-Japan Test and Evaluation Program (TEP) Memorandum of Understanding (MOU)	Develop a TEP MOU
3	U.S.-Czech Republic TEP Memorandum of Agreement (MOA)	Develop a TEP MOA
4	U.S.-Netherlands TEP II MOU	Develop an updated TEP MOU
5	U.S.-Republic of Korea TEP MOU	Develop a TEP MOU

1. NATO Defence Innovation Accelerator for the North Atlantic (DIANA) TEP MOU

At the June 2021 NATO Summit, allied heads of state endorsed the NATO 2030 agenda, which includes the DIANA initiative to promote technologies. DIANA accelerates technology fielding by leveraging NATO member private sector, academia, government, and military organizations and science and technology communities. The ITEP will support the DIANA initiative through development of an appropriate agreement.

2. U.S.-Japan TEP MOU

The United States will negotiate a TEP MOU with Japan. Significant test opportunities have been identified.

3. U.S.-Czech Republic TEP MOA

The United States will open technical discussions with the Czech Republic pursuant to developing a TEP agreement. Test opportunities have been identified.

4. U.S.-Netherlands TEP II MOU

The United States will open negotiations with the Netherlands to update the current TEP MOU in order to incorporate new international agreement policy provisions. Test opportunities have been identified.

5. U.S.-Republic of Korea TEP MOU

Upon completion of an umbrella agreement with the Republic of Korea, the United States will negotiate a TEP agreement. The umbrella agreement will allow negotiations to begin on the MOU.