

The Center for Countermeasures (CCM)

The Center for Countermeasures (the Center) is a joint activity that directs, coordinates, supports, and conducts independent countermeasure/counter-countermeasure (CM/CCM) T&E activities of U.S. and foreign weapons systems, subsystems, sensors, and related components. The Center accomplishes this work in support of DOT&E, the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation ((DASD(DT&E))), weapon systems developers, and the Services. The Center's testing and analyses directly support evaluations of the operational effectiveness and suitability of CM/CCM systems.

Specifically, the Center:

- Determines performance and limitations of missile warning and aircraft survivability equipment (ASE) used on rotary- and fixed-wing aircraft
- Determines effectiveness of precision guided weapon (PGW) systems and subsystems when operating in an environment degraded by CMs
- Develops and evaluates CM/CCM techniques and devices
- Operates unique test equipment that supports testing across the DOD
- Provides analyses and recommendations on CM/CCM effectiveness to Service Program Offices, DOT&E, DASD(DT&E), and the Services

- Supports Service member exercises, training, and pre-deployment activities

In FY17, the Center completed 34 T&E activities, summarized in the following sections. In the course of these activities, the Center analyzed more than 30 DOD systems or subsystems and reported the results. The Center placed special emphasis on rotary-wing survivability. The majority of its T&E efforts were focused on Joint Urgent Operational Needs Statements (JUONS) and Urgent Universal Needs Statements (UUNS) in support of ASE. Additionally, the Center:

- Supported other types of field testing for PGW and other systems
- Provided realistic Man-Portable Air Defense System (MANPADS) threat environments for Service member aircrew training
- Continued to improve its T&E capabilities and test methodologies
- Provided subject matter expert (SME) support to numerous working groups, task forces, and program offices

JUONS

Army: Formal AH-64E Advanced Threat Warner (ATW) JUONS Test

- Sponsor: Project Management Office Aircraft Survivability Equipment (PMO ASE)
- Activity: The Center provided one Multi-spectral Sea and Land Target Simulator (MSALTS) and one Joint Mobile Infrared Countermeasure (IRCM) Test System (JMITS) for simultaneous ultraviolet (UV) and infrared (IR) missile simulations and jam beam data collection. The Center provided simulators for single threat engagements against the integrated Department of the Navy (DON) Large Infrared Countermeasures (LAIRCM) Advanced Threat Warner (ATW)/Common Missile Warning System (CMWS) and Guardian Laser Turret Assembly (GLTA) as installed on the AH-64E. The PMO ASE conducted the test to collect data during dynamic clutter, degraded modes, sister/own ship flares, and sister/own ship guns and/or rockets testing for ATW Engineering Software Release 1.0. The PMO ASE conducted the test from October 1 – 19, 2016, at Test Area 1 (TA-1), Redstone Arsenal, Huntsville, Alabama.
- Benefit: Center participation in this test was in direct support of ongoing PMO ASE JUONS efforts. The Center collected data during this effort that allowed the PMO ASE

to assess the integrated ATW/CMWS system declaration and threat angle-of-arrival performance and Direct Infrared Countermeasure (DIRCM) slew and pointing accuracy. The data also allowed the PMO ASE to determine if sister/own ship guns and/or rockets and flares degraded the performance of the ATW and/or GLTA.

Army: Army Special Operations Aviation JUONS Phase 1a and 1b Flight Tests

- Sponsors: U.S. Army Technology Applications Program Office (TAPO) and the 160th Special Operations Aviation Regiment (SOAR) Systems Integration and Maintenance Office (SIMO)
- Activity: The Center provided one MSALTS and one JMITS; the Center test team used the systems to emit IR missile simulations and collect jam beam data. The Center also provided missile simulator and missile warning sensor (MWS) SME support and an independent assessment of the test results. The TAPO installed the ATW (with ATW Engineering Software Release 1.0) and GLTA on the MH-60M with an upturned exhaust system (UES) and the MH-47F aircraft. The TAPO used the tests to assess the ATW system declaration and angle-of-arrival performance and the GLTA pointing accuracy.

The TAPO conducted the tests from November 7 – 15, 2016, at TA-6, Redstone Arsenal (Phase 1a MH-60 and Phase 1b MH-47F).

- Benefit: Center participation in these tests was in direct support of ongoing TAPO JUONS efforts. The data collected assisted the TAPO in its evaluation of the GLTA ability to acquire, track, and provide energy on target. The Center provided an independent assessment and collected data during this effort that allowed TAPO to investigate the use of smart dispensing for IRCM flare sequences (i.e., dispense the best pattern based off threat angle-of-arrival).

Army: Army Special Operations Aviation JUONS Software 2.5 Test

- Sponsors: TAPO and the 160th SOAR SIMO
- Activity: The Center provided one MSALTS for IR missile simulations and jam beam data collection. The Center also provided missile simulator and MWS SME support and an independent assessment of the test results. The TAPO installed the ATW and GLTA on the MH-60M UES helicopter. The TAPO conducted the test to assess the performance of the ATW Engineering Software Release 2.5 in cluttered environments. The TAPO conducted the test from January 26 – 28, 2017, at Decatur, Alabama.
- Benefit: Center participation in this test was in direct support of ongoing TAPO JUONS efforts. The Center provided an independent assessment and collected data during this effort that allowed TAPO to investigate whether the ATW 2.5 software upgrades corrected deficiencies found in the ATW Engineering Software Release 1.0.

Army: Formal AH-64E ATW JUONS Software 2.5 Test

- Sponsor: PMO ASE
- Activity: The Center provided one MSALTS for simultaneous UV and IR missile simulations and jam beam data collection. The Center provided the simulator for single threat engagements against the integrated ATW (with Engineering Software Release 2.5)/CMWS and GLTA as installed on the AH-64E. The Center test team used the UV simulations to collect data for the CMWS, the IR simulations for the ATW, and the jam beam radiometers to evaluate ATW jam return. The PMO ASE conducted the test, to assess the performance of the ATW in cluttered environments. The PMO ASE conducted the test from January 26 to February 9, 2017, at Decatur, Alabama, and from February 16 – 17, 2017, at Nashville, Tennessee.
- Benefit: Center participation in this test was in direct support of ongoing PMO ASE JUONS efforts. The Center collected data during this effort that allowed PMO ASE to assess the integrated ATW/CMWS system declaration and threat angle-of-arrival performance and DIRCM slew and pointing accuracy. The data also allowed the PMO-ASE to determine whether the ATW 2.5 software upgrade provided improved performance over the ATW 1.0 software.

Army: Army Special Operations Aviation JUONS Phase 2 Clutter Flight Tests

- Sponsors: TAPO and the 160th SOAR SIMO
- Activity: The Center provided one MSALTS and one JMITS to emit IR missile simulations and collect jam beam data. The Center also provided missile simulator and MWS SME support and an independent assessment of the test results. The TAPO installed the ATW (with Engineering Software Release 3.0) and GLTA on the MH-60M UES and MH-47F aircraft. The TAPO conducted the tests to determine the capabilities of the ATW to detect and declare the MSALTS simulations in the presence of clutter. The TAPO conducted the tests from June 5 – 13, 2017, at Houston, Texas, and from June 26 – 30, 2017, at Decatur, Alabama.
- Benefit: Center participation in these tests was in direct support of ongoing TAPO JUONS efforts. The Center collected data during this effort that helped TAPO assess the capabilities of the ATW, as installed on the MH-60M and MH-47, to declare, track, and respond when presented with simulated missiles in a clutter environment.

Army: Formal CH-47F, UH-60M, and AH-64E ATW JUONS Software 2.5 Test

- Sponsor: PMO ASE
- Activity: The Center provided one MSALTS for simultaneous UV and IR missile simulations and jam beam data collection. The Center provided the simulator for single threat engagements against the integrated ATW (with Engineering Software Release 2.5)/CMWS and GLTA as installed on the aircraft. The Center test team used the UV simulations to collect data for the CMWS, the IR simulations for the ATW, and the jam beam radiometers to evaluate ATW jam return. The PMO ASE conducted the test to assess the performance of the ATW in benign and cluttered environments. The PMO ASE conducted the test from mid-July 2017 to mid-September 2017 at Redstone Arsenal and Decatur, Alabama.
- Benefit: Center participation in this test was in direct support of ongoing PMO ASE JUONS efforts. The Center collected data during this effort that allowed PMO ASE to assess the integrated ATW/CMWS system declaration and threat angle-of-arrival performance, DIRCM slew and pointing accuracy, and ATW performance in benign and cluttered environments.

Air Force: CV-22 Air Force Special Operations Command (AFSOC) JUONS ATW Sensor Flight Test

- Sponsor: 96th Test Wing Test Squadron
- Activity: The Center provided two MSALTS missile simulators and personnel to perform two-color, IR simulations to collect system response data and three lasers (rangerfinder, target designator, beamrider) to assess the ATW system as installed on the CV-22 platform. The 413th Test Squadron conducted the test in February 2017 at Hurlburt Field, Florida.

- Benefit: The Center collected the data that the 96th Test Wing Test Squadron required to assess the performance of the ATW system installed on the CV-22 aircraft.

Air Force: Medium Fixed-Wing (MFW) JUONS ATW Sensor Flight Test

- Sponsor: 645th Aerospace Systems Group (AESG)
- Activity: The Center provided one MSALTS missile simulator and personnel to perform two-color, IR simulations to collect system response data used to assess the ATW system as installed on the MFW platform. The 645th AESG tasked the U.S. Air Force 46th Test Wing Test Squadron, Defensive Systems and Mobility Directorate, Air Force Life Cycle Management Center to execute the test in April 2017 at Eglin AFB, Florida.
- Benefit: The Center collected the data that the 645th AESG required to assess the performance of the ATW system installed on the MFW platform.

Navy: DON Distributed Aperture Infrared Countermeasure (DAIRCM) JUONS HH-60G Risk Reduction Flight Test

- Sponsor: Program Executive Officer, Advanced Tactical Aircraft Protection Systems (PMA-272) on behalf of the Detachment 1 (Det 1), 413th Flight Test Squadron.
- Activity: The Center provided one MSALTS missile simulator and personnel to perform two-color, IR simulations to collect data during the risk reduction for DAIRCM missile warning algorithm development. PMA-272 did not enable the DAIRCM jammer response for this risk reduction test. The U.S. Air Force Det 1, 413th Flight Test Squadron executed the test in June 2017 at Nellis AFB, Nevada.
- Benefit: Center participation in this test was central in aiding the DAIRCM developers in their assessment of the missile warning capability at the current stage of the program. The Center collected data during this effort that PMA-272 intends to use to develop algorithms.

UUNS

Navy: DON LAIRCM ATW MV-22B UUNS IT2C Flight Testing

- Sponsor: PMA-272 and the Navy's Operational Test and Evaluation Force (OPTEVFOR)
- Activity: The Center provided one MSALTS to perform two-color, IR missile simulations, and consultation regarding test preparation, planning, and execution for the missile simulator and laser test events. The Navy conducted testing in December 2016 at the U.S. Army Yuma Proving Ground, Arizona. This test was an end-to-end, open-air T&E of the UUNS for integration of the DON LAIRCM ATW system onto the MV-22B.
- Benefit: The Center provided an independent assessment and collected data during this effort that helped PMA-272 evaluate the integration of the DON LAIRCM ATW system onto the MV-22B and test the new ATW software upgrades.

Navy: DON LAIRCM ATW CH-53E UUNS IT-D3 Flight Testing

- Sponsor: PMA-272 and OPTEVFOR
- Activity: The Center provided one MSALTS to perform two-color, IR missile simulations, and consultation regarding test preparation, planning, and execution for the missile simulator and laser test events. The Navy conducted testing in July 2017 at Ingalls Field, Hot Springs, Virginia. This test was an end-to-end, open-air T&E of the UUNS for integration of the DON LAIRCM ATW system onto the CH-53E.
- Benefit: The Center provided an independent assessment and collected data during this effort that helped PMA-272 evaluate the integration of the DON LAIRCM ATW system onto the CH-53E and test the new ATW software upgrades.

ASE ACTIVITIES

Army: Reduced Optical Signature Emissions Solution IRCM X Test

- Sponsor: TAPO and the 160th SOAR SIMO
- Activity: The Center provided SME support during the IRCM effectiveness test for the MH-60M UES and MH-47G aircraft. The Center also assisted with the operation of IR seekers in the Missile and Space Intelligence Center (MSIC) seeker test van (STV). These tests evaluated new flare CM sequences and variations of current flare CM sequences using improved flares, different flares, and/or flare timing within the sequences. The Center provided near real-time data reduction and analysis of flare sequences as well as on-site recommendations on flare sequence timing and/or pattern adjustments. As a result, the sponsor was able to make decisions on flare sequence performance during the course of the test. After the test, the

Center provided an independent assessment analysis report and a briefing of test results to TAPO leadership. The TAPO conducted the test in October and November 2016 at Redstone Arsenal.

- Benefit: The Center provided an independent assessment and collected data during this effort that allowed TAPO to determine a final IRCM flare solution for the MH-60M UES and MH-47G, thus providing better protection for those aircraft against MANPADS. This test also resulted in the modification and procurement of flares needed for the next phase of testing; these new flares should help enhance the protection of the MH-60M UES and MH-47G aircraft against MANPADS.

Army: Seeker Bowl XII IRCM Test

- Sponsor: Armament Research, Development and Engineering Center (ARDEC), Pyrotechnics Division, Countermeasure Flare Branch
- Activity: The Center provided SME support during the IRCM effectiveness test for the CH-47F Infrared Suppression System (IRSS), RC-12, Foxhound, Saturn Arch, and UH-60L Hover Infrared Suppression System (HIRSS) aircraft. The Center also assisted with the operation of IR seekers in the MSIC STV. These tests evaluated the fielded flare IRCM sequences and variations of the sequence with timing and/or pattern adjustments. The Center provided near real-time data reduction and analysis of flare sequences as well as on-site recommendations on flare sequence timing and/or pattern adjustments. As a result, the ARDEC was able to make decisions on flare sequence performance during the course of the test. After the test, the Center provided an independent assessment analysis report. The Army conducted the test in October and November 2016 at Redstone Arsenal.
- Benefit: Center involvement in this test helped ARDEC determine the most effective IRCM flare solution for each platform and prepare its post-test briefing for its higher headquarters, PMO ASE, and each platform's Program Office. The data collected during this effort resulted in a change to the fielded flare sequence for the CH-47F IRSS and UH-60L HIRSS, thus providing better protection for those aircraft against MANPADS.

Navy: P-8A Poseidon Multi-mission Maritime Aircraft (MMA) Flight Test Large Aircraft Infrared Countermeasures (LAIRCM) Next Generation Flight Test

- Sponsor: DON Air Test and Evaluation Squadron VX-20
- Activity: The Center provided MSALTS missile plume simulations as well as personnel to perform two-color, IR simulations to collect system response data to assess the LAIRCM system, as installed on the P-8A during two separately scheduled test events. VX-20 tasked the Air Force 46th Test Wing Test Squadron, Defensive Systems and Mobility Directorate, Air Force Life Cycle Management Center to execute the two test events in November 2016 and March 2017 at Eglin AFB.
- Benefit: The Center collected the critical data that the Navy required to assess the performance of the LAIRCM Next Generation system installed on the P-8A platform.

Army: Common Infrared Countermeasure (CIRCM) Program of Record Contractor Flight Test

- Sponsor: PMO ASE
- Activity: The Center provided one MSALTS for simultaneous UV and IR missile simulations and jam beam data collection. The Center provided the simulator for single threat

- engagements against the CMWS and CIRCM as installed on the UH-60M. The Army conducted this test to demonstrate production configuration CIRCM end-to-end functional performance on the aircraft per the Contractor System Performance Specification. This test evaluated CIRCM end-to-end functional performance while exposed to own ship motion, vibration, and electromagnetic environments specific to the aircraft. The Army conducted the test from August 28 to September 9, 2017, at TA-6, Redstone Arsenal.
- Benefit: The Center collected data during this effort that allowed the CIRCM contractor to assess the CIRCM capabilities to acquire, track, point, and emit laser energy in both benign and cluttered environments. The test allowed the CIRCM contractor to update hardware/software as needed prior to moving into formal government testing.

Army: AN/APR-39D(V)2 Follow On Test & Evaluation (FOT&E)

- Sponsor: Aviation Test Directorate (AVTD), U.S. Army Operational Test Command (USAOTC)
- Activity: The Center provided support equipment and operators for the Portable Range Threat Simulator (PRTS), GPS event recorder, and video recording in support of the AN/APR-39D(V)2 FOT&E. The PRTS was used to engage and stimulate two AH-64D Apache helicopters equipped with the AN/APR-39D(V)2 during both day and night operational test missions. The Center supported a total of 16 successful missions. The Navy conducted the test from July 15 – 29, 2017, at Electronic Combat Range (ECR), Naval Air Weapons Station (NAWS) China Lake, California.
- Benefit: The PRTS emitted different threats that registered on the AN/APR-39D(V)2. PRTS mobility allowed threat deployment throughout the test range and was a cost-effective way to provide threat stimulations to the AN/APR-39D(V)2.

Navy: Poseidon Multi-mission Maritime Aircraft (MMA) Flight Test LAIRCM Next Generation System Processor Replacements (LSPR) P-8A Flight Test

- Sponsor: DON Air Test and Evaluation Squadron VX-20
- Activity: The Center provided MSALTS missile plume simulations, and personnel to perform two-color, IR simulations to collect system response data to assess the LAIRCM LSPR, as installed on the P-8A test platform. VX-20 tasked the Air Force 46th Test Wing Test Squadron, Defensive Systems and Mobility Directorate, Air Force Life Cycle Management Center to conduct the test event in September 2017 at Eglin AFB.
- Benefit: The Center collected critical data that the Navy required to assess the performance of the LAIRCM Next Generation system installed on the P-8A platform.

TRAINING SUPPORT FOR SERVICE MEMBER EXERCISES

- Sponsors: The Center supported the six Service member exercises listed below:
 - Red Flag 17-1 (January 23 to February 10, 2017) Nellis AFB, Nevada
 - Emerald Warrior 17 (February 27 to March 10, 2017) Hurlburt Field, Florida
 - Northern Edge 17 (May 1 – 10, 2017) Eielson AFB, Alaska
 - Joint Strike Fighter/Close Air Support (May 31 to June 2, 2017) Yuma, Arizona
 - Joint Strike Fighter/Combat Search and Rescue (July 31 to August 4, 2017) NAWS China Lake, California
 - Red Flag 17-4 (August 14 – 25, 2017) Nellis AFB, Nevada
- Activity: The Center provided personnel and equipment to simulate a MANPADS threat environment, as well as SME support, to observe aircraft ASE systems and crew reactions to this environment. Specifically, the Center simulated MANPADS threat engagements for participating aircraft. Additionally, the Center provided MANPADS capabilities and limitations briefings to pilots and crews and conducted familiarization training at the end of the briefings. The Center provided camouflage, concealment, and deception equipment in support of Northern Edge.
- Benefit: Center participation in these exercises provided realism to the training threat environment and enhanced pilot and crew understanding and use of CM equipment, especially ASE. The data the Center collected and provided to the trainers helped the units develop/refine their tactics, techniques, and procedures to enhance survivability.

PGW CM ACTIVITIES

Army: Javelin Lightweight Command Launch Unit (CLU) Testing and Javelin SP3 Flight Matrix Sandbox

- Sponsor: U.S. Army Program Executive Office Missiles and Space, Close Combat Weapon Systems, Javelin
- Activity: The Center provided aerosol obscurant CM deployment SME support for the test planning stages and assisted in the acquisition of pyrotechnics. To help meet the obscurant requirements, the Center provided 50 GG24 smoke grenades. These tests were designed to evaluate system performance in CM environments. The Army conducted testing from August 7 – 11, 2017, at Redstone Arsenal.
- Benefit: The Center provided the projects with aerosol CM environments, which were helpful in data collection used to further improve system performance and increase its effectiveness.

Army: Anti-Tank-Guided Missile (ATGM) Obscurant Testing

- Sponsor: Aberdeen Proving Ground, U.S. Army Research, Development and Engineering Command, Edgewood Chemical Biological Center
- Activity: The Center provided an aerosol obscurant CM SME in support of static pyrotechnic firing to capture repeatable data for projects and the modeling and simulation (M&S) group. The Center further assisted in supplying, shipping, and deploying the GG24 smoke grenades, and in deploying CM aerosols with the M56 E1 smoke generators. The Army conducted ATGM Obscurant Testing from August 7 – 11, 2017, at TA-3, Redstone Arsenal.

- Benefit: The Center provided the projects with aerosol CM environments, which were helpful in data collection used to further improve system performance and increase its overall effectiveness.

Army: Joint Attack Munition System (JAMS), Joint Air-to-Ground Missile (JAGM) Live Drop Testing

- Sponsor: U.S. Army Aviation and Missile Research Development and Engineering Center
- Activity: The Center provided SME support for M239 smoke grenade launcher operations. The Army used the Center’s standard operating procedure CCM-053-12, “Detonating Ammunition, Explosives, and Pyrotechnics During Countermeasures Testing,” for deploying and training program personnel. Training included the remote M239 smoke grenade firing setup and deployment techniques to ensure that the timing sequences produced effective CMs to meet the test objectives. The Army conducted JAMS JAGM Live Drop Testing from August 14 – 25, 2017, at the U.S. Army Yuma Proving Ground Test Range, Arizona.
- Benefit: The Center provided aerosol CM deployments in different tactical maneuvers, which the Army used to increase target discrimination accuracy and in data collection to further improve the system’s performance and increase its overall effectiveness.

T&E TOOLS

The Center continues to develop tools for T&E of ASE. The Joint Standard Instrumentation Suite (JSIS) was funded by the USD(AT&L) Test Resource Management Center’s Central T&E Investment Program (CTEIP). Additional investment for the

remaining JSIS needs are being pursued via the T&E IR Threat Signatures M&S Roadmap activities of the Joint CM T&E Working Group, which DOT&E and DASD(DT&E) co-chair.

JSIS

JSIS is a transportable, fully integrated instrumentation suite that collects threat signatures; time, space, position information; and related threat missile and hostile fire munitions metadata. JSIS transportability is intended to allow it to be used both in the United States and abroad to reduce costs and expand the types of threat data available in the United States. The Missile and Space Intelligence Center will use the data to create threat models for use in M&S of ASE. The Navy (PMA-272), Army (PMO ASE), and Air Force (LAIRCM System Program Office) have endorsed JSIS, and it will be an integral part of each Program Office's aircraft self-protection capability development. Community SMEs formulated the JSIS' need as part of the IRCM Test Resources Roadmap activities. Near-term needs for operational testing with the Navy's ATW drove JSIS Initial Operational Capability (IOC), which was sponsored by the CTEIP Resource Enhancement Project (REP). A JSIS IOC graduation event in October 2016 exercised JSIS capabilities in an operationally realistic environment. The Center conducted the event at Dugway Proving Ground, Utah, completing over 20 free-flight live fires of MANPADS. In general, JSIS performed as expected, though the Center is addressing improvements in the Kineto Tracking Mount tracking performance in advance of FY18 free-flight live fire events in support of the PMO ASE and PMA-272.

While JSIS represents a significant step forward in fielding data collection capabilities, significant gaps and shortfalls remain. Some of these gaps and shortfalls may be mitigated by expanded missile attitude data collection and additional signature instrumentation to support emerging aircraft self-protection programs with associated M&S needs. The Center has been advocating for additional investment toward achieving the JSIS Full Operational Capability (FOC). The REP Working Group sponsorship will address the missile attitude need in FY17-20.

Threat Signature Generation

In support of the PMO ASE, the Center is generating over 12,000 threat signatures for the CIRCM program. The Center briefed its threat signature generation process to the program, Army Test and Evaluation Command, and Army Validation Working Group. The PMO ASE reviewed the Center's standard operating procedure. To date, 6,700 signatures have been generated. The PMO ASE will use these signatures in labs and open-air testing for evaluating CIRCM performance.

The Center also continually generates signatures that are used as the input signatures for JMITS and MSALTS in open-air missile simulator testing. Over 9,000 signatures have been generated for this purpose.

Additionally, the Center provides signatures to various programs upon request for use in signature model analysis and test activities not involving the Center. Over 700 signatures have been generated for this purpose.

The Center has been a key participant in an M&S Working Group that continually evaluates threat signature models with the goal of improving them and creating uniformity in model version use across the programs.

Remote Launch System Foxtrot (RLS-F) Turret Upgrade

RLS-F was designed to provide a transportable, fully instrumented remote launch capability for MANPADS and vehicle-launched surface-to-air missiles. The Center is currently evaluating bids to replace the current pedestal with a more robust version. IOC is expected during 4QFY18.

JOINT COUNTERMEASURES TEST AND EVALUATION WORKING GROUP

DOT&E and DASD(DT&E) co-chartered the Joint Countermeasures Test and Evaluation (JCMT&E) Working Group to measure, test, and assess the following:

- Aircraft self-protection, CMs, and supporting tactics
- Live fire threat weapons and open-air T&E
- System performance in operationally relevant aircraft installations and combat environments
- T&E methodologies, instrumentation, analysis, and reporting
- Overseas threat and air electronic warfare systems performance and effectiveness data collection in coalition warfare environments

DOT&E, DASD(DT&E), and all four of the U.S. Services participate in the JCMT&E Working Group. In addition, the JCMT&E Working Group works with Australia, Canada, New Zealand, the United Kingdom, and the 22-nation NATO Air Force Armaments Group, Sub-Group 2 to seek common T&E goals. The Working Group is tasked with seeking

mutually beneficial T&E opportunities to measure performance and suitability data, which are necessary to provide relevant operational information to deploying joint/coalition Service members and to U.S. acquisition decision-makers. Specific efforts include:

- The JCMT&E Working Group's discussions with the U.S. European Command's Office of Defense Cooperation resulted in a plan to conduct testing and data collection in Finland, Slovenia, Sweden, and the United Kingdom in operationally relevant environments important to the Combatant Command, Warfare Centers, and Programs of Record.
- The JCMT&E Working Group is cooperating with NATO partners and Partnership for Peace nations to provide opportunities to obtain and expand operationally relevant information in order to field new capabilities rapidly and reduce cost by coordinating the T&E efforts of the Center's

Alliance partners with the data needs of the Center's ASE programs.

- The JCMT&E Working Group is building on the Center's proven record of conducting successful ASE data collection by coordinating live firings of radio frequency/electro-optical/IR surface-to-air missiles, hostile fire indication, and anti-tank guided missile firings by active duty air-defense units and test organizations in Bulgaria, Finland, Slovenia, Sweden, and the United Kingdom. These efforts will provide data on the operational performance of actual, modern, multifunction radars and integrated air defense systems that pose threats to U.S. and allied forces.
- The JCMT&E Working Group chair is the U.S. Steering Committee Chairman for bilateral and multinational Cooperative T&E Project Arrangements with Australia,

- Canada, and the United Kingdom. The JCMT&E Working Group is currently developing similar agreements with Finland and Sweden. These efforts have already expanded the availability of electronic warfare system performance and suitability data to improve aircraft survivability. They have also identified opportunities at U.S. testing facilities to expand the data available for U.S. and allied survivability programs.
- The JCMT&E Working Group is working with U.S. European Command's Office of Defense Cooperation, U.S. Central Command's Military Assistance Program, and the State Department's Office of Weapons Removal and Abatement to expand the availability of threat weapons for use by T&E programs while reducing the number of weapons that pose a serious threat to international security.

