



26th Annual NATIONAL TEST & EVALUATION CONFERENCE

Co-Sponsored by the NDIA
C4ISR & Systems Engineering
Divisions

“Defense Test & Evaluation in a Net-Centric World”



WHAT YOU DON'T WANT TO MISS AT THIS CONFERENCE:

- ▶ Hear Hon. Dr. David Chu, President, IDA and former Undersecretary of Defense
- ▶ Hear the senior T&E Commanders from all Military Services discuss T&E Policy and Issues
- ▶ Network with industry, government and academia leaders in Defense acquisition
- ▶ Share in Panels on C4ISR and Systems Engineering
- ▶ Hear Gen Paul Kern, USA (Ret), leader of Desert Storm's infamous “Left Hook”
- ▶ Celebrate the accomplishments of this year's Tester of the Year Awardees and the 2010 Walter W. Hollis Award presentation
- ▶ Listen to over 80 presenters on T&E Evaluation in a Network Centric Environment

HYATT REGENCY MISSION BAY ▶ SAN DIEGO, CA

CONFERENCE ANNOUNCEMENT

The 26th Annual National Test & Evaluation Conference is sponsored by the NDIA Test & Evaluation Division and supported by the Office of the Under Secretary of Defense (AT&L) and the Director, Operational Test & Evaluation (DOT&E). Co-sponsors include the C4ISR and Systems Engineering Divisions of NDIA.

Changing national defense priorities and rapidly developing technologies are fueling the trend toward interconnections between a broad array of defense and non defense networks. These networks involve not only real-time combat command and control but also logistics, intelligence, electronic data bases and a host of other nodes. The days of testing and evaluating individual weapon systems in a stand-alone mode without concurrently assessing them as integral parts of a much larger network of players are over.

This national conference will focus on this reality and address how test and evaluation can assure that those systems destined to function in such a net-centric highly interconnected combat environment will function as required. Recent policy initiatives to systematically apply Design of Experiments (DOE) methodology to Test and Evaluation activities of the DoD and DHS will also be presented and discussed.

Also, in light of the recommendations of recent defense acquisition panels and study groups regarding how to improve the T&E/defense acquisition process, the conference will address the implications of these recommendations as well as the recent actions by the Congress to address the growing need to strengthen early developmental testing.

Given the pace of changing tactics by our adversaries and the vital requirement to support our ongoing combat efforts in Afghanistan and elsewhere, this conference will also address how the greater DoD and DHS communities can improve and accelerate their responsiveness to the warfighter and first responder, as well as how lessons learned from the combat zone can best be implemented in the process of T&E.

Clearly, none of these issues can be addressed effectively without placing them in the context of the nation's growing fiscal issues, affordability concerns and escalating costs for repairing and maintaining not only the currently-fielded systems but also assuring that our national T&E infrastructure is maintained in support of these efforts.

*All speakers for the 26th Annual National Test & Evaluation Conference are confirmed.

NDIA T&E EXECUTIVE BOARD

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Mr. Martin Woznica, *Raytheon*

Mr. William Yeakel, *ORSA Corporation*

WALTER W. HOLLIS HONORS BANQUET

The Walter W. Hollis Award is presented annually in recognition of lifetime contributions and achievement in the area of defense Test & Evaluation. The award is presented in the name of Walter W. Hollis who is recognized for his dedicated and long-standing service in the field of Defense Test & Evaluation.

Previous Recipients of this award:

Dr. Ernest Seglie, *Science Advisor to the Director, Operational Test & Evaluation, OSD (2009)*

Dr. Paul H. Deitz, *Technical Director, AMSAA, APG, MD (2008)*

Mr. James F. O'Bryon, *Former DDOT&E / LFT (2007)*

RADM Charles "Bert" Johnston, *USN (Ret)*, *Wyle Laboratories (2006)*

Hon Thomas Christie, *DOT&E, OSD (2005)*

Dr. Marion Williams, *HQ AFOTEC (2004)*

Mr. James Fasig, *Aberdeen Test Center (2003)*

Mr. G. Thomas Castino, *Underwriters Laboratories, Inc. (2002)*

Hon Philip Coyle, III, *DOT&E, OSD (2001)*

Mr. Walter W. Hollis, *Department of the Army (2000)*

2009 TESTER OF THE YEAR AWARDS

These awards, presented to outstanding individuals in the field of Test & Evaluation, offer OSD and each Military Service Test & Evaluation Department the opportunity to select three award recipients for recognition as the Tester of the Year in specific categories. The three categories recognized are: Military, Civilian, and Contractor. Recipients will be recognized at the conference Awards Luncheon on Wednesday, March 3.

Lieutenant Colonel Steven R. Braddom, USA
2009
Army
Military Tester of the Year

Colonel Robin P. Vanderberry, USAF
2009
OSD
Military Tester of the Year

Lieutenant Colonel Alan W. Edwards, USAF
2009
USAF
Military Tester of the Year

Lieutenant Commander Matthew K. Schroeder, USN
2009
Navy
Military Tester of the Year

Major Rory M. Feely, USMC
2009
Marine Corps
Military Tester of the Year

Mr. Richard H. Reichelt
2009
Army
Civilian Tester of the Year

Mr. Dennis S. Lindell
2009
OSD
Civilian Tester of the Year

Mr. Timothy J. Critcher
2009
USAF
Civilian Tester of the Year

Mr. Mark D. Lower
2009
Navy
Civilian Tester of the Year

Mr. Raffaele N. Croce
2009
Marine Corps
Civilian Tester of the Year

Mr. Michael F. Carney
2009
Army
Contractor Tester of the Year

Dr. Vincent Lillard
2009
OSD
Contractor Tester of the Year

Mr. Gregory S. Barber
2009
USAF
Contractor Tester of the Year

Mr. Don L. Byrne
2009
Navy
Contractor Tester of the Year

Mr. James A. Harp
2009
Marine Corps
Contractor Tester of the Year

CONFERENCE ATTIRE

Conference attire is business for civilians and Class A uniform for military. In addition, your identification badge, received upon conference check-in, must be worn at all times.

MONDAY, MARCH 1, 2010

11:00 AM - 5:00 PM **CONFERENCE REGISTRATION OPEN - BAYVIEW FOYER**

1:00 PM - 4:45 PM **TUTORIAL SESSIONS**

Tutorial sessions are provided free of charge to all those registering for the conference. Your attendance at these valuable tutorials is encouraged. Those who are not registered for the Conference must pay a \$50 registration fee to attend the Tutorial Sessions.

TUTORIAL SESSIONS

	TUTORIAL A	TUTORIAL B	TUTORIAL C	TUTORIAL D
1:00 PM	<p>SESSION 1 MISSION-BASED CAPABILITY ASSESSMENT IN NET-CENTRIC SYSTEMS OF SYSTEMS (SOS)</p> <p>Presenters: Mr. Christopher M. Wilcox, <i>ATEC</i> Mr. Britt E. Bray, <i>DRC</i> Mr. Jack H. Sheehan, <i>ORSA Corporation</i> Dr. James N. Walbert, <i>SURVICE Engineering</i></p>	<p>SESSION 1 COMBINATORIAL TESTING WITH DESIGN OF EXPERIMENTS (DOE)</p> <p>Presenter: Dr. Mark J. Kiemele, <i>President and Co-founder, Air Academy Associates</i></p>	<p>SESSION 1 USING DESIGN OF EXPERIMENTS (DOE) TO TRANSFORM A TEST ORGANIZATION</p> <p>Presenters: Mr. Greg Hutto, <i>Wing Operations Analyst, 46 Test Wing, Eglin, AFB, Florida</i> Dr. Tom Donnelly, <i>SAS Institute</i></p>	<p>SESSION 1 SYSTEMS ENGINEERING AND TEST & EVALUATION - A UNIFIED PROCESS</p> <p>Presenters: Dr. W. David Bell, PhD, <i>The MITRE Corporation</i> Dr. C. David Brown, PhD, <i>Consultant to The MITRE Corporation</i></p>
2:45 PM	AFTERNOON BREAK	AFTERNOON BREAK	AFTERNOON BREAK	AFTERNOON BREAK
3:00 PM	<p>SESSION 2 MISSION-BASED CAPABILITY ASSESSMENT IN NET-CENTRIC SYSTEMS OF SYSTEMS (SOS)</p> <p>Presenters: Mr. Christopher M. Wilcox, <i>ATEC</i> Mr. Britt E. Bray, <i>DRC</i> Mr. Jack H. Sheehan, <i>ORSA Corporation</i> Dr. James N. Walbert, <i>SURVICE Engineering</i></p>	<p>SESSION 2 COMBINATORIAL TESTING WITH DESIGN OF EXPERIMENTS (DOE)</p> <p>Presenter: Dr. Mark J. Kiemele, <i>President and Co-founder, Air Academy Associates</i></p>	<p>SESSION 2 USING DESIGN OF EXPERIMENTS (DOE) TO TRANSFORM A TEST ORGANIZATION</p> <p>Presenters: Mr. Greg Hutto, <i>Wing Operations Analyst, 46 Test Wing, Eglin, AFB, Florida</i> Dr. Tom Donnelly, <i>SAS Institute</i></p>	<p>SESSION 2 SYSTEMS ENGINEERING AND TEST & EVALUATION - A UNIFIED PROCESS</p> <p>Presenters: Dr. W. David Bell, PhD, <i>The MITRE Corporation</i> Dr. C. David Brown, PhD, <i>Consultant to The MITRE Corporation</i></p>

TUTORIAL DESCRIPTIONS

TUTORIAL A - BAYVIEW I

Tutorial Chair: Dr. Paul H. Deitz, *USAMSAA*

MISSION-BASED CAPABILITY ASSESSMENT IN NET-CENTRIC SYSTEMS OF SYSTEMS (SOS)

This tutorial will review an assessment methodology that can be used throughout the end-to-end lifecycle in a Net-Centric Systems of Systems. Definitions (and types) of Capability, Systems of Systems, and Net-centricity will be presented. Emerging methodologies for mission-based representation and assessment will be compared and contrasted, including Army Mission-Based Test & Evaluation (MBT&E), Naval Mission-Level Engineering and Capability Area Assessment, Joint Test Evaluation Methodology (JTEM), the Missions and Means Framework (MMF). Based on these, a Mission-Based Capability Assessment (MBCA) will be presented for Net-centric SoS. Employment of MBCA will be traced through the DoD 5000 acquisition process from needs identification, to concept formulation, through systems engineering, through test & evaluation, to fielding, and through sustainment using a case study built on notional Net-Centric SoS. Interdisciplinary dependencies, cross-organization relationships, value-added will be discussed.

1) "An Update on Mission-Based Test and Evaluation (MBT&E)": Some 18 months ago, ATEC/AEC began a prototype program testing an MBT&E approach to OT. Today MBT&E is their standard methodology for prosecuting operational testing.

Presenter: Mr. Christopher M. Wilcox, *ATEC*

- 2) “An Update on Tools in Support of MBT&E and/or Missions and Means Framework (MMF), and Links to Service Efforts”: Presentation will include a review of potential and proven applicability of selected COTS and GOTS tools to support MBT&E and MMF analytical and assessment efforts.

Presenters: Mr. Britt E. Bray, *DRC*

Mr. Jack H. Sheehan, *ORSA Corporation*

- 3) “Overview of Fundamentals of Ground Combat System Ballistic Vulnerability/Lethality”: Presentation will include discussion of platform vulnerability assessment and the recent book by the same title applying the principles of the Missions and Means framework as well as highlighting some of the areas of particular importance to the Test & Evaluation community.

Presenter: Dr. James N. Walbert, *SURVICE Engineering*

TUTORIAL B - BAYVIEW II

Tutorial Chair: TBD

Presenter: Dr. Mark J. Kiemele, *President and Co-founder, Air Academy Associates*

COMBINATORIAL TESTING WITH DESIGN OF EXPERIMENTS (DOE)

Design of Experiments (DOE), also known as DOX or MVT (Multivariate Testing), means different things to different people. This tutorial will show how DOE is different from other combinatorial testing techniques and why it is one of the most powerful testing techniques available. Because of its information rich content, the data collected via DOE can help practitioners think more critically about their testing process as well as evaluate the test results more directly. Orthogonal or nearly orthogonal designs will be shown to be the key to evaluating the effects of test factors independently from each other. Thus, DOE provides the needed linkage to establishing true cause and effect relationships, which is no easy task. Furthermore, DOE provides a very effective means of generating transfer functions. Transfer functions are the gateway to some of the most powerful methods of systematic innovation. Systematic innovation is defined as the application of proven methods and techniques to repeatedly, reliably, and predictably deliver innovative results. Once a transfer function is obtained, a whole new world of innovation opens up via that transfer function. Monte Carlo Simulation techniques can then be used on that transfer function to perform parameter or robust design, tolerance allocation, and sensitivity analysis, all of which contribute to system optimization. This tutorial will also address the use of nearly orthogonal designs in very high dimensions, i.e, when large numbers of factors are to be tested. Validation and confirmation testing in high dimensions will also be covered.



TUTORIAL C - BAYVIEW III

Tutorial Chair: TBD

Presenters: Mr. Greg Hutto, *Wing Operations Analyst, 46 Test Wing, Eglin, AFB, Florida*

Dr. Tom Donnelly, *SAS Institute*

USING DESIGN OF EXPERIMENTS (DOE) TO TRANSFORM A TEST ORGANIZATION I

Over the past decade, numerous test organizations have begun using Design of Experiments (DOE) as their principle method of test. These organizations include ACC's 53d Wing, AFFTC, TPS, AEDC, the 46 Test Wing and AFOTEC. The presenters have nearly 50 years of DOE experience between them. We discuss DOE history and contribution to test, with specific attention to answering four fundamental questions faced in any test. A series of case studies is presented to demonstrate the value that DOE brings to the test process. The case studies describe how DOE has often reduced the cost of testing by 30-80% while increasing knowledge gained; conversely the course discusses several cases where tests had too few assets and should be augmented. We next address several misconceptions about problems that DOE "cannot solve." We will demonstrate how modern DOE tools can be used to create designs for virtually any real-world T&E problem. Attendees will learn the benefits of efficiently providing decision makers with a predictive modeling capability with which they can trade-off multiple performance measures. Participants will also see the myth-dispelling ease with which designs for complex test spaces can be created. Solutions shown will include sequential designs involving multiple types of factors (continuous, categorical, mixture, and blocking) with additional constraints on allowed combinations of factor settings. DOE methods for leveraging investment in modeling and simulation (M&S) will also be discussed.

The concluding portion of the course addresses barriers to change that leaders must overcome to successfully change the way an organization conducts tests.

Objectives: Personnel who complete this tutorial will:

- ▶ Understand the background of testing leading up to the DOE process
- ▶ Understand the potential of implementing DOE to "right size" each test
- ▶ Understand the critical role of leadership in deploying the DOE concept throughout an organization

This tutorial is of value for all personnel associated with T&E, particularly senior managers/leaders in test organizations. Attendees will be supplied with course slides, reference papers, an annotated bibliography, web links and a list of contacts for further information.



TUTORIAL D - MISSION III

Tutorial Chair: TBD

Presenters: Dr. W. David Bell, PhD, *The MITRE Corporation*

Dr. C. David Brown, PhD, *Consultant to The MITRE Corporation*

USING DESIGN OF EXPERIMENTS (DOE) TO BENEFIT THE T&E PRACTITIONER

Systems Engineering (SE) and Test and Evaluation (T&E) are often perceived as two processes and two communities. Nothing could be farther from the truth, and the leadership of Defense Acquisition is pushing the infusion of SE into development, acquisition, and T&E. This tutorial will not only help systems engineers, testers, and evaluators to understand one another, but will begin to educate this combined community on how these disciplines must integrate into a unified and rigorous technical process.

This tutorial will review and provide examples in each of the following subject areas:

- ▶ Definitions/discussions of SE and T&E and relationships between them.
- ▶ SE and T&E perspectives on specification and design criteria. Includes developing requirements that are testable, verifiable, stable, and designed to facilitate integration.
- ▶ T&E role in formal design reviews and other program reviews.
- ▶ T&E role in program planning to include event driven program planning.
- ▶ Verification by test, analysis, demonstration, and inspection. Criteria for selecting the verification type.
- ▶ Management of T&E, developing a Master Test Plan, developing a T&E friendly WBS.
- ▶ Developmental and technical tests (DT), operational tests and customer testing (OT), the various types, uses and responsibilities. Importance of operational testing to the commercial as well as military markets.
- ▶ Integrated DT / OT.
- ▶ Organizational considerations to facilitate T&E. Concurrent engineering and the use of Integrated Product Teams, including combined or integrated test teams, to improve technical, operational and cost/schedule performance.

5:00 PM - 6:00 PM **EVENING RECEPTION IN DISPLAY AREA - REGATTA PAVILION**

6:00 PM **CONFERENCE ADJOURNED FOR THE DAY & DISPLAY AREA CLOSED**



TUESDAY, MARCH 2, 2010

7:00 AM - 5:00 PM **CONFERENCE REGISTRATION OPEN - BAYVIEW FOYER**

7:00 AM - 8:00 AM **CONTINENTAL BREAKFAST IN DISPLAY AREA - REGATTA PAVILION**

8:00 AM **INTRODUCTION & OPENING REMARKS - BAYVIEW BALLROOM**

▶ Mr. Sam Campagna, *Assistant Vice President, Operations, NDIA*

8:05 AM **TRIBUTE TO OUR NATION AND WARFIGHTERS, NATIONAL ANTHEM**

SESSION A: CONFERENCE WELCOME & KEYNOTES

Session A Chair: Mr. James O'Bryon, *Chairman, NDIA T&E Division*

8:10 AM **WELCOME AND CONFERENCE INTRODUCTORY REMARKS**

▶ Mr. James O'Bryon, *Chairman, NDIA T&E Division; The O'Bryon Group*

8:20 AM **CONFERENCE KEYNOTE ADDRESS**

▶ Honorable Dr. David S. C. Chu, *President, Institute for Defense Analyses*

Honorable Dr. David S. C. Chu serves as the President of the Institute for Defense Analysis (IDA). Prior to this appointment, he served as the Under Secretary of Defense for Personnel and Readiness 2001-2009. As such, he was the Secretary's senior policy advisor on recruitment, career development, pay and benefits for 1.4 million active duty military personnel, 1.3 million Guard and Reserve personnel and 680,000 DoD civilians and was responsible for overseeing the state of military readiness. Dr. Chu earlier served in government as the Director and then Assistant Secretary of Defense (PA&E) from 1981 to 1993, advising the Secretary of Defense on the future size and structure of the armed forces, their equipment, and their preparation for crisis or conflict. From 1978 to 1981, Dr. Chu served as the Assistant Director for National Security and International Affairs, Congressional Budget Office, providing advice to the Congress on the full range of national security and international economic issues. Between Defense appointments, Dr. Chu served in several senior executive positions with RAND, including Director of the Arroyo Center and Director of RAND's Washington Office. Dr. Chu was commissioned by the Army in 1968 and became an instructor at the U.S. Army Logistics Management Center, Fort Lee VA and later served a tour of duty in the Republic of Vietnam.



9:00 AM **DOT&E LOOKING AHEAD**

▶ Honorable Dr. J. Michael Gilmore, *Director, Operational Test and Evaluation, OSD*

Honorable Dr. J. Michael Gilmore was sworn in as Director of Operational Test and Evaluation on September 23, 2009. A Presidential appointee confirmed by the United States Senate, he serves as the senior advisor to the Secretary of Defense on operational and live fire test and evaluation of Department of Defense weapon systems. Prior to his current appointment, Dr. Gilmore was the Assistant Director for National Security at the Congressional Budget Office (CBO), and was responsible for CBO's National Security Division. Dr. Gilmore is a former Deputy Director of General Purpose Programs within the Office of the Secretary of Defense, Program Analysis and Evaluation (OSD(PA&E)). Before serving as a Deputy Director, Dr. Gilmore served as the Division Director of Operations Analysis and Procurement Planning, within the Office of the Deputy Director, Resource Analysis and prior to that as an Analyst for Strategic Defensive and Space Programs Division, Office of the Deputy Director, Strategic and Space Programs. Dr. Gilmore's service with Program Analysis and Evaluation covered 11 years. Early in his career, Dr. Gilmore worked at the LLNL, Livermore, California performing research in their magnetic fusion energy program. He has also worked as an Analyst with the Falcon Associates, McLean, VA, and the McDonnell Douglas Washington Studies and Analysis Group, where he became Manager, Electronic Systems Company Analysis. Dr. Gilmore is a graduate of MIT where he earned a B.S. in Physics. He subsequently earned a M.S. and Ph.D. in Nuclear Engineering from the University of Wisconsin.



9:30 AM **15,000 NETWORKS, 5 MILLION USERS: T&E NET CENTRIC CHALLENGES**

- ▶ Mr. John Illgen, *Northrop Grumman Corporation; Chairman of the Board of Directors, NDIA*



10:00 AM **MORNING BREAK & NETWORKING IN DISPLAY AREA - REGATTA PAVILION**

SESSION B: OTA COMMANDERS' ROUNDTABLE

Session B Chair: Major General Steve Sargeant, *Commander, AFOTEC*

10:30 AM **ROUNDTABLE**

- ▶ Major General Roger Nadeau, *Commander, ATEC*
- ▶ Mr. Bill McCarthy, *Deputy, COTF (OOD)*
- ▶ Col David L. Reeves, *USMC, Commander, MCOTEA*

11:45 AM - 1:15 PM **LUNCHEON AND SPECIAL GUEST SPEAKER - REGATTA PAVILION
IMPROVING PROCESSES AND POLICIES FOR THE ACQUISITION AND TEST OF
INFORMATION TECHNOLOGIES IN DOD**

- ▶ Dr. H. Steven Kimmel, *Senior Vice President, Alion Science and Technology*

Dr. Steven Kimmel is the Alion Science and Technology Senior Vice President for Corporate Development. He is responsible for acquisition and business strategic planning, expanding and sustaining customer relationships and program opportunity process management. A summary of his combined 40 plus years of Federal Civilian Service and private sector careers follow. From 1966-1983 he held a variety of Army civilian positions at Army Materiel Command's Harry Diamond Laboratories and Electronics Research and Development Command before joining the Army Staff where he served the Chief Army Reserve and the Deputy Chief of Staff for Research, Development and Acquisition in the Office, Army Science and Technology. In 1993 he was selected as the DoD Fellow in the Department of Commerce Science and Technology Program and served as the Senior Science Technology Analyst in the Office Management and Budget, Executive Office of the President engaged in space technology, space access and space control matters. From 1984-1993 he held a variety of Senior Executive positions within the Office, Under Secretary of Defense (Acquisition, Technology and Logistics) to include Deputy Director Test and Evaluation (Weapons Systems Evaluation), Deputy Director Acquisition Policy and Program Integration, and Deputy Director Defense Research and Engineering (Plans and Resources). Since 1993 he has held numerous senior management positions at BDM, TRW and IITRI (a university owned not-for-profit) before joining Alion in 2002. In these positions he held several line management (profit-loss) and corporate staff (marketing and business development) positions. As the Advanced Technology Group Manager he was responsible for \$100 M line of business and as Sector Business Developer he led and won several professional engineering service contracts valued in excess of \$1B. Dr Kimmel and his wife Harriet met at High Point High School, Beltsville Md, have been married for 43 years and reside in Bethesda, Md. They are proud of their 2 married sons (Troy and Eric) their 2 daughter-in-laws (Felicia and Sarah) and most assuredly their 3 granddaughters (Isabella, age 8; Alexis, age 6; and Ella, 1) and grandson Caden, age 2.



SESSION C: PAST AND PRESENT T&E LESSONS LEARNED

Session C Chair: Mr. Jack Sheehan, *ORSA Corporation*

1:30 PM **THE DOD ACQUISITION/TEST PROCESS, WHAT WENT WRONG AND HOW TO FIX THE PROCESS; A REPORT ON THE DEFENSE SCIENCE BOARD (DSB) STUDY OF DT&E & A PERSPECTIVE ON THE REMEDIES NEEDED TO IMPROVE DOD ACQUISITION**

- ▶ Charles "Pete" Adolph, *former Director, T&E, OUSD(AT&L)*

2:00 PM **NETWORK INNOVATION AND EXPERIMENTATION: A SOCOM PROJECT REPORT**

- ▶ Dr. Forrest Crain, *Director, AMSAA*

2:30 PM **AFTERNOON BREAK & NETWORKING IN DISPLAY AREA - REGATTA PAVILION**

SESSIONS D-G

3:00 PM - 5:30 PM **CONCURRENT SESSIONS D (BAYVIEW I), E (BAYVIEW II), F (BAYVIEW III) AND G (PALM II)**

	<p>SESSION D</p> <p>NET-CENTRIC T&E</p> <p><i>Session Chair: Mr. Britt Bray, DRC Corporation</i></p>	<p>SESSION E</p> <p>T&E OF CHEMICAL / BIOLOGICAL SYSTEMS</p> <p><i>Session Chair: Dr. Karen McGrady, Joint Program Manager for Individual Protection</i></p>	<p>SESSION F</p> <p>APPLICATIONS OF DESIGN OF EXPERIMENTS (DOE) AND SIX SIGMA IN T&E</p> <p><i>Session Chair: Mr. William Yeakel, ORSA Corporation</i></p>	<p>SESSION G</p> <p>TEST & EVALUATION FOR LETHALITY AND SURVIVABILITY ASSESSMENT</p> <p><i>Session Chair: Mr. Charles Larson, SURVICE Engineering</i></p>
3:00 PM	<p>T&E for Agile Information Technologies</p> <p>Dr. Steven Hutchison, <i>DISA</i></p>	<p>Systematic Approach to Identifying and Testing Individual Respiratory Protection Against Toxic Industrial Chemicals</p> <p>Dr. Karen McGrady, <i>Joint Program Manager for Individual Protection</i></p>	<p>Incorporating DoE and Test-Execution Lessons-Learned to Increase T&E Credibility</p> <p>Ms. Nancy Dunn, <i>ATEC/AEC</i></p>	<p>Integrated Survivability Assessment (ISA): Bridging DT&E, LFT&E and OT&E</p> <p>Mr. David Hall, <i>SURVICE Engineering</i></p>
3:25 PM	<p>Closing the Test and Evaluation Gap in a Net-Centric Future</p> <p>Mr. Gary Downs, <i>Lockheed Martin</i></p>	<p>The Army Health Hazard Assessment Program's Medical Cost Avoidance Model</p> <p>Dr. Timothy A. Kluchinsky, <i>USAPHC (Provisionsal)</i></p>	<p>Optimal Verification Testing with Graphical Effects Analysis</p> <p>Mr. Mark Anderson, <i>Stat-Ease</i></p>	<p>Rocket Propelled Grenade Fuze Characterization in Development, Testing, and Evaluation of Emerging Counter-RPG Systems</p> <p>Mr. Colin Welch, <i>SURVICE Engineering</i></p>
3:50 PM	<p>Test and Validation Strategy for Net-Centric Solutions</p> <p>Mr. Keith Dillingham, <i>Life Cycle Engineering</i></p>	<p>Naval Research Laboratory Industrial Chemical Analysis</p> <p>Dr. Thomas Sutto, <i>NRL</i></p>	<p>Using Cost and Schedule Estimates Guided by Design of Experiments Process to Plan Schedule-Optimal or Cost-Optimal Test Designs for Integrated Development Testing and Operational Testing</p> <p>E. Andrew Long, <i>DOT&E</i></p>	<p>Mine Blast Analysis Tool for Rigid Body Response: A Quick, Reliable Predictive Methodology to Estimate Relative Acceleration Environments Experienced by Crewmembers in Specific Mine Scenarios</p> <p>Ms. Katie Hill, <i>SURVICE Engineering</i></p>
4:15 PM	<p>A Collaboration of IT and Engineering: Enabling Net-Centric System Test and Evaluation</p> <p>Dr. Christopher Runge, <i>Raytheon Missiles</i></p>	<p>Test Methodology Development for Individual Respiratory Protection Against VXMs.</p> <p>Chris Susman, <i>SURVICE Engineering</i></p>	<p>Use of Design of Experiments to Determine the Critical Technical Parameters and Evaluation Framework in a T&E Strategy</p> <p>Mr. Mick Quintrall, <i>Whitney, Bradley & Brown, Inc.</i></p>	<p>A Method to Assess Survivability, Lethality and Vulnerability in a System of Systems</p> <p>Dr. Jeffrey Smith, <i>ARL, WSMR</i></p>
4:40 PM	<p>A Tool for Making T&E Itself Net-Centric</p> <p>Mr. Alan Thomas, <i>Naval Surface Warfare Center (NSWC) Dahlgren</i></p>	<p>The Challenge of Fielding a System Across Services and PEOs</p> <p>Ms. Debbie Singleton, <i>JPM for Individual Protection</i></p>	<p>Comparison of Prediction Accuracy of Surrogate Models Developed Using Nested Latin Hypercube Designs – “How Many Simulation Experiments Do I Need to Run?”</p> <p>Dr. Tom Donnelly, <i>SAS Institute</i></p>	<p>A Process for Identifying Vulnerable Components Based on Impact to Mission Degradation</p> <p>Mr. Kevin Agan, <i>ARL, SLAD</i></p>
5:05 PM	<p>Testing & Evaluating the Net-Ready Key Performance Parameter (KPP)</p> <p>Ms. Danielle Koester, <i>JITC, Ft. Huachuca</i></p>			

5:30 PM **CONFERENCE ADJOURNED FOR THE DAY & DISPLAY AREA CLOSED**

6:00 PM **WALTER W. HOLLIS HONORS BANQUET - REGATTA PAVILION**
PRESENTATION OF THE 2010 WALTER W. HOLLIS AWARD FOR OUTSTANDING LIFETIME ACHIEVEMENT IN DEFENSE TEST & EVALUATION.

James J. Streilein received a Bachelor of Science degree from Carnegie Mellon University and a Doctor of Philosophy from the Pennsylvania State University, both in mathematics. He was certified as a test and evaluation member of the Army Acquisition Corps in December 1994, completed the Army Logistics and Acquisition Management Program in 1990, and attended the Federal Executive Institute in 1988.

For 23 years, Dr. Streilein was employed at the U. S. Army Materiel Systems Analysis Activity (AMSAA) in a variety of technical and managerial positions. Dr. Streilein became a member of the Senior Executive Service in 1991 upon selection as the AMSAA RAM Division Chief. In the 1996 reorganization of Army test and evaluation, he was selected as the first Director of the Evaluation Analysis Center (EAC) of OPTEC. In September 1999, the Army again reorganized test and evaluation and he was selected as the first Director of the newly formed Army Evaluation Center (AEC) of the Army Test and Evaluation Command (ATEC), which is the combination of OPTEC and TECOM. AEC is the Army's lead for its technical and operational evaluation mission. Dr. Streilein became the ATEC Technical Director/Deputy to the Commander in January 2007.

Dr. Streilein was the recipient of the 2005 Presidential Rank Award for Meritorious Executive. Under his leadership, AEC received two Army Superior Unit Awards for meritorious performance of a difficult and challenging mission in 2004 and 2000. He has received numerous civilian exceptional ratings and commendations. In 1989, he was awarded the Decoration for Meritorious Civilian Service. He was designated as a 1969 Distinguished Military Graduate in the Army Reserve Officers Training Corps at Carnegie Mellon University. In 1974 he was an Honor Graduate from the Signal Officers Basic Course at Fort Gordon, GA. He served in various officer positions in the Delaware State Army National Guard until 1979 when he was honorably discharged at the rank of Captain.

Dr. Streilein is a long time active member of the International Test and Evaluation Association (ITEA). He was Vice President of ITEA's Frances Scott Key Chapter in 1998-99 and President in 1999. Previously, he served on its Board of Directors and as its publication chair for the 1982 National Symposium held in Baltimore. He currently serves on the national ITEA Publications committee.

He is active as an adult leader in the Boy Scouts of America and earned the Eagle award as a youth.



James J. Streilein, PhD
Technical Director/
Deputy to the
Commander
US Army Test and
Evaluation Command

HONORS BANQUET GUEST SPEAKER

General Paul J. Kern, USA (Ret), *President, AM General*

During General Paul J. Kern's 38 year Army career, he held numerous critical positions. From October 2001 to November 2004 he served as Commanding General of the Army Materiel Command following four years as the Department of the Army Military Deputy for Research, Development and Acquisition. GEN Kern commanded operational units starting as a platoon leader and troop commander in the Blackhorse Regiment in Vietnam. In 1991 he led the 2d Brigade of the 24th Infantry Division in the infamous "Left Hook" attack into Iraq and in 1996-97 was the Commanding General of the 4th Infantry Division, Mechanized, where they developed the organization, tactics, techniques, and equipment implemented in today's networked force. In June 2004, the Secretary of Defense tapped GEN Kern to lead the military's internal investigation into the abuses at the Abu Ghraib prison in Iraq, a compelling assignment that he handled with integrity and resolve to improve U.S. detention and interrogation policies.



Currently, GEN Kern is the President and COO of AM General, LLC, which allows him to pursue his passion: soldiers, technology and manufacturing. He has had a unique career which blends technical expertise, combat operations, program management, policy development, and advisor to senior political leaders.

*The cost of the Honors Banquet is included in the registration fee. Guests of conference registrants are welcome for an additional fee of \$75. See NDIA registration desk for further information.

WEDNESDAY, MARCH 3, 2010

7:00 AM - 5:00 PM **CONFERENCE REGISTRATION OPEN - BAYVIEW FOYER**

7:00 AM - 8:00 AM **CONTINENTAL BREAKFAST IN DISPLAY AREA - REGATTA PAVILION**

8:00 AM **INTRODUCTION & OPENING REMARKS - BAYVIEW BALLROOM**

▶ Mr. Sam Campagna, *NDIA*

SESSION H: T&E POLICY & STUDIES

Session H Chair: Dr. James Streilein, *Technical Director and Deputy Commander, ATEC*

8:05 AM **WEAPON SYSTEMS ACQUISITION REFORM ACT AND DT&E WITHIN THE DEPARTMENT OF DEFENSE**

▶ Mr. Christopher DiPetto, *Acting Director, DT&E, ODDR&E*

8:30 AM **T&E AND ITS ROLE IN 5000.02: HOW T&E CAN BECOME A PROGRAM LIFECYCLE SKILL**

▶ Mr. Stephen Scukanec, *Northrop Grumman Corporation*

8:55 AM **ERASING THE LINE WITH TITLE 10: BEST PRACTICES IN INTEGRATED TESTING**

▶ Dr. Beth Wilson, *Raytheon Company*

9:35 AM **INTEGRATED TEST AND INDEPENDENT EVALUATION (IT&EI) USING DESIGN OF EXPERIMENTS (DOE) METHODOLOGIES: EARLY PLANNING FOR DT EXIT CRITERIA THAT MIRRORS OT ENTRANCE CRITERIA**

▶ Mr. Mick Quintrall, *Whitney, Bradley & Brown, Inc.*

10:00 AM **MORNING BREAK & NETWORKING IN DISPLAY AREA - REGATTA PAVILION**

SESSION I: T&E POLICY & STUDIES CONTINUED

Session I Chair: Dr. H. Steven Kimmel, *Senior Vice President, Alion Science and Technology*

10:30 AM - 12:00 NOON **IT SYSTEMS T&E PANEL: CHALLENGES TODAY AND IN THE FUTURE**

Panelists: Maj Gen Robert (Bob) Behler, USAF (Ret), *Senior Vice President, MITRE Corporation*

Mr. Randy Coonts, *USJFCOM, Joint Capability Test and Evaluation*

Mr. Gunnar Hellekson, *Lead Architect, Red Hat Government*

Dr. Steven Hutchison, *Test and Evaluation Executive, DISA*

Mr. Jeff Olinger, *Technical Advisor, AFOTEC*

PANEL FOCUS

The clarion call remains steadfast--to rapidly develop and deploy information technology as successful integrated solutions to enhance warfighting, business, intelligence, and the enterprise information environment.

PANEL TOPICS OF DISCUSSION

On 28 October 2009, the National Defense Authorization Act for FY2010 became Public Law 111-84. Section 804 directed "The Secretary of Defense shall develop and implement a new acquisition process for information technology systems." Several major studies have made recommendations for improved acquisition processes for information technologies in the DoD, including the Defense Science Board and the National Academies of Sciences. Numerous DoD actions have been and remain to be undertaken to implement the myriad of study recommendations while the goal (and cost to obtain the goal) continue to grow. Notwithstanding the pragmatic aspects of DOD 5000, the operational and test communities bear the burden of not only cost overruns but also the untimely achievement of needed capability that is effective, suitable, interoperable, and secure, and meets warfighter expectations. Meanwhile the onset of commercial Agile Software Engineering practices, rapidly emerging information applications, and real time network connectivity (not to mention warfighter cyber capability demands) have placed greater challenges upon the Defense Test and Evaluation Community. The Panel will address the challenges in the context of developmental and operational testing, as well as interoperability and information assurance certifications.

12:00 NOON ANNUAL TESTER OF THE YEAR AWARDS LUNCHEON - REGATTA PAVILION

This awards event is a highlight of our annual conference since it provides the opportunity to recognize outstanding achievement in test and evaluation by members of our armed forces, DoD civilians and DoD contractors. Furthermore, what makes these awards particularly noteworthy is that the selections are made by the organizations of those being recognized. Congratulations to all who are being recognized for their 2009 accomplishments.

SESSION J: PANEL DISCUSSION

Session J Chair: Mr. George Haley, *Director Systems Engineering, Northrop Grumman*

1:15 PM SYSTEMS ENGINEERING CONSIDERATIONS IN PRACTICING TEST AND EVALUATION

Panelists: Mr. Stephen Welby, *Director, Systems Engineering, DDR&E, OSD*
Mr. Oscar Arroyo, *Systems Test Director, Raytheon Missile Systems*
Col Shawn Shanley, *USAF, Chief Systems Engineer, Office of the Assistant Secretary of the Air Force for Acquisition, Science, Technology, and Engineering (SAF/AQR)*
Mr. Frank Serna, *Director, Systems Engineering, CS Draper Labs*

The defense RDT&E process requires a complex mix of technical disciplines and skill sets to achieve an effective result. This panel discussion will address how the Systems Engineering community views this ever-changing process and how best to make it work. Recent legislative and policy changes proposed by the Congress and Pentagon respectively in the area of SE and T&E will be addressed and questions submitted from the audience will also be addressed.

2:45 PM AFTERNOON BREAK & NETWORKING IN DISPLAY AREA - REGATTA PAVILION

SESSIONS K-N

3:15 PM - 6:15 PM CONCURRENT SESSIONS K (BAYVIEW I), L (BAYVIEW II), M (BAYVIEW III) AND N (PALM II)

Each Breakout Session will consist of both oral presentations and collaboration between presenters and audience to draft the recommendations and issues raised during each session for presentation to the plenary session Thursday morning. The Session Chair and presenters will be responsible for pulling these issues together for later presentation.

6:15 PM CONFERENCE ADJOURNED FOR THE DAY & DISPLAY AREA CLOSED



	SESSION K TEST AND EVALUATION ARCHITECTURE & FACILITIES <i>Session Chair: Mr. Dick Dickson, NSWC, China Lake</i>	SESSION L T&E OF SYSTEMS OF SYSTEMS <i>Session Chair: RADM Bert Johnston, USN (Ret), Wyle</i>	SESSION M ROLE OF MODELING AND SIMULATION IN T&E <i>Session Chair: Dr. Paul H. Deitz, Technical Director, USAMSAA</i>	SESSION N INTEGRATED TEST AND EVALUATION <i>Session Chair: Mr. Martin Woznica, Raytheon Missile Systems</i>
3:15 PM	<p>Accelerating Technology Maturity via Rapid Debug and Redeployment</p> <p>Mr. Redge Bartholomew, <i>Rockwell Collins</i></p>	<p>A Case Study of Successful T&E in a Complex System of Systems Environment</p> <p>Mr. Edwin McDermott, <i>Hanscom AFB</i></p>	<p>Validating M&S with T&E Data: Pitfalls, Problems and Potential Solutions</p> <p>Mr. David Hall, <i>SURVICE Engineering</i></p>	<p>Performance Engineering Initiatives for Early System Test of High Availability Systems</p> <p>Mr. Edward Beck, <i>Mission Solutions Engineering, LLC (MSE LLC)</i></p>
3:45 PM	<p>Whitfill Central Technical Support Facility (CTSF) Conducts System of System (SoS) Tests in a Net-Centric Environment Achieving Interoperability for the Army</p> <p>Ms. Madeline Wright, <i>CTSF Ft. Hood</i></p>	<p>Measuring System Contributions to System of Systems with Joint Mission Threads</p> <p>Mr. Mark Fiebrandt, <i>SRC</i></p>	<p>Defense Information Technology: An Integrated Model</p> <p>Dr. Robert Berger, <i>DDL Omni, Inc.</i></p>	<p>Integrated Testing Implementation Guidance</p> <p>Dr. Suzanne Beers, <i>The MITRE Corporation</i></p>
4:15 PM	<p>The Test and Training Enabling Architecture (TENA) and the Joint Mission Environment Test Capability (JMETC), Providing the Infrastructure to Support Joint Net-Centric Testing</p> <p>Mr. Gene Hudgins, <i>BAE Systems</i></p>	<p>Combat Effectiveness Testing of System of Systems in the Face of Cyber Threat</p> <p>Mr. Jonathon Payne, <i>JFCOM, IO Range</i></p>	<p>NDIA Software T&E Summit/Workshop Results</p> <p>Mr. Tom Wissink, <i>Lockheed Martin Corporation</i></p>	<p>Function Extraction Technology for Computing Software Behavior: a New Approach to Test and Evaluation</p> <p>Mr. Richard Linger, <i>Carnegie Mellon University</i></p>
4:45 PM	<p>Service-Oriented Architecture (SOA) Implications to Integrated End-to-End Testing</p> <p>Mr. Brian Eleazer, <i>SCRA</i></p>	<p>An Approach to Service Level System of Systems Assessment (CTSF)</p> <p>Mr. David McClung, <i>CTSF, Ft. Hood</i></p>	<p>The Application of Synthetic Natural Environments for Modeling and Simulation Support of Testing Net-Centric Federations</p> <p>Mr. Michael Leite, <i>SAIC</i></p>	<p>Early Development Testing for Rapid Acquisition</p> <p>Col Robert Mattes, USAF (Ret), <i>Foxhole Technology, Inc.</i></p>
5:15 PM	<p>Lessons Learned from Army Interoperability Certification Testing</p> <p>Mr. Robert Boerjan, <i>CTSF, Ft. Hood</i></p>	<p>C-RAM Conducts True System of Systems Testing and Evaluation</p> <p>Mr. James Bloodsworth, <i>US Army Aviation & Missile Research Development & Engineering Center</i></p>	<p>Change is Good!...and other mantras to live by! Making Process Improvement Work for You</p> <p>Ms. Coleen Crouch, <i>Central Technical Support Facility</i></p>	<p>Some Operational Research Issues in System Testing</p> <p>Dr. Donald Gaver, <i>Naval Postgraduate School</i></p>
5:45 PM	<p>The "Eglin IV": Metrics of a Well-Designed Experiment</p> <p>Gregory T. Hutto, <i>46 Test Wing, Eglin AFB</i></p>			

THURSDAY, MARCH 4, 2010

7:00 AM - 12:00 NOON **CONFERENCE REGISTRATION OPEN - BAYVIEW FOYER**

7:00 AM - 8:00 AM **CONTINENTAL BREAKFAST IN DISPLAY AREA - REGATTA PAVILION**

8:00 AM **INTRODUCTION & OPENING REMARKS - BAYVIEW BALLROOM**

▶ Mr. Sam Campagna, *NDIA*

SESSION O: NETWORKING CHALLENGES & OPPORTUNITIES

Session O Chair: Dr. Lowell Tonnessen, *IDA*

8:05 AM **CHALLENGES OF SYSTEMS OF SYSTEMS TESTING, A REALITY CHECK: THE FCS PROGRAM**

▶ LTG Joseph Yakovac, USA (Ret), *Professor, Naval Postgraduate School*

8:35 AM **WHEN ROBOTS TALK ON THE NET, WHAT WILL THEY SAY?**

▶ VADM Joe Dyer, USN (Ret), *President, iRobot Corporation; Chairman NDIA Robotics Division*

9:05 AM **NDIA ICOTE ANNUAL REPORT**

▶ Mr. Larry Graviss, *NDIA Industrial Committee on Operational Test & Evaluation (ICOTE)*

9:35 AM **JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC) LOWERING TECHNICAL RISK BY IMPROVING DISTRIBUTIVE TEST CAPABILITIES**

▶ Mr. Bruce Bailey, *JMETC*

10:05 AM **MORNING BREAK & NETWORKING IN DISPLAY AREA - REGATTA PAVILION**

10:35 AM **MISSION-BASED TEST AND EVALUATION STRATEGY: PROGRESS TOWARDS UNITING COMBAT DEVELOPER, MATERIEL DEVELOPER AND T&E**

▶ Mr. Christopher Wilcox, *Army AEC*

SESSION P: CONFERENCE SYNOPSIS FORUM

Session P Chair: LTG Joseph Yakovac, USA (Ret), *Naval Postgraduate School*

11:00 AM **SO, WHAT HAVE WE LEARNED? WHAT SPECIFIC ACTIONS SHOULD WE TAKE IN RESPONSE?**

Panelists: Dr. Alex Bordetsky, *Professor, Naval Postgraduate School*

Mr. Chris DiPetto, *Acting Director, DT&E, ODDR&E*

VADM Joe Dyer, USN (Ret), *President, iRobot*

Mr. John Illgen, *Vice President, Northrop Grumman Corporation*

Dr. H. Steven Kimmel, *Senior Vice President, Alion Science and Technology*

Dr. Ernest Seglie, *Science Advisor, DOT&E*

This Forum is vital to enabling this conference to have its greatest positive impact on defense policy and defense system performance. Out of the over 80 presentations and subsequent discussions over these past few days, the panelists will seek to focus our attention on specific issues that have emerged that need our attention and specific action as a T&E/defense acquisition community. After each panelist makes his/her presentation, we will entertain comments and written questions from the audience for our participants.

12:00 NOON **CLOSING REMARKS**

▶ Mr. James O'Bryon, *Chairman, NDIA T&E Division; The O'Bryon Group*

12:15 PM **CONFERENCE ADJOURNS**

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26TH ANNUAL NATIONAL TEST & EVALUATION CONFERENCE

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Lockheed Martin is headquartered in Bethesda, MD and is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Lockheed Martin is led by Robert J. Stevens, Chairman and Chief Executive Officer. The corporation reported 2008 sales of \$42.7 billion.

Customer Base:

As a global security and information technology company, the majority of Lockheed Martin's business is with the U.S. Department of Defense and the U.S. federal government agencies. In fact, Lockheed Martin is the largest provider of IT services, systems integration, and training to the U.S. Government. The remaining portion of Lockheed Martin's business is comprised of international government and some commercial sales of our products, services and platforms.

Organization:

Lockheed Martin's operating units are organized into broad business areas:

- Aeronautics, with approximately \$11.5 billion in 2008 sales, includes tactical aircraft, airlift, and aeronautical research and development lines of business.
- Electronic Systems, with approximately \$11.6 billion in 2008 sales, includes missiles and fire control, naval systems, platform integration, simulation and training and energy programs lines of business.
- Information Systems & Global Services (IS&GS), with approximately \$11.6 billion in 2008 sales, includes C4I, federal services, government and commercial IT solutions.
- Space Systems, with approximately \$8 billion in 2008 sales, includes space launch, commercial satellites, government satellites, and strategic missiles lines of business.

Vision:

Powered By Innovation, Guided By Integrity, We Help Our Customers Achieve Their Most Challenging Goals.

Values:

- Do What's Right
- Respect Others
- Perform With Excellence

THANK YOU FOR ATTENDING!
WE LOOK FORWARD TO
SEEING YOU NEXT YEAR
MARCH 14-17, 2011
TAMPA, FLORIDA