



## Technical Program



# Directed Energy Test and Evaluation Conference

Hosted by  
Directed Energy  
Professional Society  
and  
International Test and  
Evaluation Association

2-4 August 2011  
Albuquerque, New Mexico

## TUESDAY

### Short Courses

0700 Registration at Embassy Suites

0800 Morning Tutorials Begin

#### TUTORIAL I

Introduction to High Energy Laser (HEL) Systems

Instructor: *Denny Boesen*

#### TUTORIAL II

Introduction to High Power Microwave (HPM) Systems

(Limited Distribution C)

Instructors: *Bob Antinone*, Northrop Grumman and *Bob Richer-Sand*, SAIC

#### TUTORIAL III

The Credible Use of Modeling and Simulation in T&E

Instructors: *David Cook*, Stephen F Austin State University

1200 Break for Lunch

1300 Afternoon Tutorials Begin

#### TUTORIAL IV

Test and Evaluation of High Energy Laser (HEL) Systems

(Limited Distribution C)

Instructor: *Larry McKee*, Science Applications International Corporation

#### TUTORIAL V

Test and Evaluation of High Power Microwave (HPM) Systems

(Limited Distribution C)

Instructor: *Mark DelGrande*, TechFlow Scientific

*Thanks to Our Gold Sponsor:*

**Raytheon** Ktech

## WEDNESDAY MORNING

### Plenary Session (~~Open~~ Limited)

Embassy Suites

Full Breakfast is served for Embassy Suites Guests

0700 Registration Desk Opens

Exhibits Open

Continental Breakfast in the Exhibit Area

0800 Welcome and Introductions

Conference Co-Chairs:

*Patrick Cannon* and *Mike Bertin*

0815 DE T&E in Perspective

*Dr. Doug Beason*, Author of "The E-Bomb: How America's New Directed Energy Weapons Will Change the Way Future Wars Will Be Fought."

0900 10 Years of HEL Testing

*Mr. Mark Niece*, High Energy Laser Joint Technology Office

0945 Break in Exhibit Area

1015 10 Years of HPM Testing

*Mr. Tim Andreadis*, Naval Research Laboratory

1100 Tri-Service Study - 10 Years Later

*Mr. Mike Diekhoff*, US Air Force Operational Test and Evaluation Center and *Mr. Minh Young*, US Army Project Manager for Instrumentation, Targets and Threat Simulators

1145 Lunch in La Ventana Room

1300 DE T&E Modeling & Simulation

Demonstrations In the Exhibit Area:

Joint RF Effects Model (JREM) (Limited)

*Charles Davis*, AFRL/RDHEE

Laser Effects Weapon Analysis Tool (LEWAT) (Limited)

*Al Billings*, 46th Test Wing

## WEDNESDAY AFTERNOON

### SESSION 1: DE T&E Results for HPM & HEL (Limited)

Embassy Suites

Chair: *James Keith*, 46 Test Group/OL-AA

- 1300 **Recent Advances in Direct and Indirect On-Board HEL Measurements**  
*Jonathan Woolley*, AEGIS Technologies Group
- 1330 **Reflectance Measurements of Test Articles**  
*Travis Taylor*, US Space and Missile Defense Command
- 1400 **Break**
- 1430 **Design and Implementation of Navy Railgun Single-Shot Datamart**  
*Brett Huhman*, Naval Research Laboratory
- 1500 **AEDC Radome Testing Lessons Learned**  
*Paul Jalbert*, Arnold Engineering Development Center
- 1730 **Reception in the Exhibit Area**

## WEDNESDAY AFTERNOON

### SESSION 2: Test and Evaluation Lessons Learned: HEL and HPM (Limited/Open)

Embassy Suites

Chair: *Jeff Estep*, 46 Test Wing

#### Session is Limited

- 1500 **Integration and Test Status of the US Army High Energy Laser Technology Demonstrator**  
*Edward Montgomery*, US Army Space and Missile Defense Command /ARSTRAT
- 1530 **T&E of Disruptive Technologies and Introduction to Society (Limited)**  
*Peter Finlay*, Air Force Research Laboratory/RDHA
- 1600 **Lessons Learned in HEL T&E Program Planning (Limited)**  
*Charles Loftquest*, 46th Test Wing

#### Session is Now Open

- 1630 **High Power Microwave Narrowband Threat System Capability**  
*J. Mark DelGrande*, Directed Energy Test and Evaluation Capability
- 1730 **Reception in the Exhibit Area**

## WEDNESDAY AFTERNOON

### SESSION 3: Laser Test and Evaluation Safety I (Limited)

Embassy Suites

Chair: *Jim Wolongevicz*, Air Force Research Laboratory/RDS

- 1300 **Overview of Satellite Safety and Current Processes**  
*Heather Lehmann*, JFCC SPACE/J95
- 1330 **Directed Energy Test & Evaluation Lessons Learned for Satellite Safety Solutions**  
*Steven Gabriel*, SERCO, Inc.
- 1400 **Probabilistic Risk Analysis of Laser Reflection Hazards to Orbital Sensors**  
*Daniel Whalen*, Air Force Research Laboratory/RDTE - Satellite Assessment Center
- 1430 **Break**
- 1500 **Laser Test and Evaluation in Civilian Airspace**  
*Richard Roberts*, Federal Aviation Administration
- 1530 **Predictive Avoidance and Airspace Deconfliction for HEL Test and Evaluation: Current Procedures and the Necessity for Decentralization**  
*Clay Howerton*, Schafer Corporation
- 1730 **Reception in the Exhibit Area**

## WEDNESDAY AFTERNOON

### POSTER SESSION: Air Force Research Laboratory DE Scholars (Open)

Embassy Suites Exhibit Area

Chair: *Michele Sager*, Air Force Research Laboratory/RDO

1500 - 1630

- **Detector Optimization of the TMASS Temperature-Dependent Scatterometer**  
*Andrey Alenin*, AFRL/RDLE
- **High Power Microwave Generation using Nonlinear Transmission Lines**  
*Christopher (Jordan) Allen-Flowers*, AFRL/RDHP
- **Optimized Alignment of Specular Specimens for TMARS**  
*Lucas Chavez*, AFRL/RDT
- **Efficiency Improvements to the Transmittance, Reflectance, and Absorptance Measurements (TRAM) Laboratory**  
*Jake Coffey*, AFRL/RDLE
- **Validation of the ITRAL Thermal-Ablation Code with ABAQUS and Experiment**  
*Kevin Conner*, AFRL/RDLE
- **Multi-Dimensional Gain Diagnostic for Iodine Lasers**  
*Anthony Diaz*, AFRL/RDLC
- **Plasma Assisted Combustion in Scramjet Applications**  
*Jonathan DiClemente*, AFRL/RDHP
- **2D Simulations of Recirculating Planar Magnetrons**  
*Geoffrey Greening*, AFRL/RDHP
- **Automatic Testing of the ICEPIC Code**  
*Brian Macki-Mason*, AFRL/RDHEC
- **MAGIC and ICEPIC Simulations of the A6 Magnetron with Transparent Cathode as well as Strapped and Non-Strapped Functioning**  
*Cassandra Mendonca*, AFRL/RDHEC
- **ICEPIC Simulation of High Power Crossed Field Amplifier**  
*Raymond (Tyler) Rowe*, AFRL/RDHP
- **Ultrafast High Power Microwave Successive Peak Hold Detector for Directed Energy Applications**  
*Richard Hebel*, ITT - Information Systems

## THURSDAY MORNING

### Plenary Panels (Limited/Open)

Embassy Suites

**Full Breakfast is served for Embassy Suites Guests**

- 0700 **Registration Desk Opens**  
**Exhibits Open**  
**Continental Breakfast in the Exhibit Area**
- 0800 **Welcome and Introductions**  
Conference Co-Chairs:  
*Patrick Cannon and Mike Bertin*
- 0815 **Army DE T&E Perspective (Limited)**  
*Jerry Wilson, US Army PEO Missiles and Space*
- 0900 **Maritime Laser Demonstration, A Navy DE T&E Perspective (Open)**  
*Peter Morrison, Naval Research Laboratory*
- 0945 **Break**
- 1030 **Air Force DE Perspective (Open)**  
*Cindy Kaiser, US Air Force Research Laboratory Directed Energy Directorate*

### PLENARY PANEL (Open)

Chair: *Andy Keipert, 46 Test Wing*

- 1115 **What Needs to be Demonstrated in DE T&E Panel:**  
*Peter Morrison, Naval Research Laboratory*  
*Cindy Kaiser, Air Force Research Laboratory*  
*Jerry Wilson, US Army PEO Missiles and Space*
- 1200 **Lunch in La Ventana Room**
- 1245 **Buses Depart for Classified Session**
- 1300 **DE T&E Modeling & Simulation Demonstrations In the Exhibit Area:**  
**Joint RF Effects Model (JREM) (Limited)**  
*Charles Davis, AFRL/RDHEE*  
**Laser Effects Weapon Analysis Tool (LEWAT) (Limited)**  
*Al Billings, 46th Test Wing*

## THURSDAY AFTERNOON

### SESSION 4: Capabilities and Infrastructure (Open)

Embassy Suites

- Chair: *Jim Cutler, White Sands Missile Range*
- 1300 **Directed Energy Test & Evaluation Capability Tri-Service Study 2011: Identifying DE T&E Infrastructure Shortfalls**  
*Minh Vuong, PM ITTS*
- 1330 **BITS, Beam Irradiance on Target System**  
*David Ward, SemQuest Inc.*
- 1400 **Model-Based Engineering for Laser Weapons Systems: The Path Forward**  
*Steve Coy, MZA Associates*
- 1430 **EM&P Field Sensors for HPM Applications**  
*Wen Wang, IPITEK*
- 1500 **Break**
- 1530 **Directed Energy Test Science and Technology (DET S&T) Sensor Program**  
*Daniel Treibel, DETEC*
- 1600 **Directed Energy Test and Evaluation Modeling and Simulation**  
*Jeff Estep, 46 Test Wing*
- 1630 **Ultrafast High Power Microwave Successive Peak Hold Detector**  
*Gary DeMuth, ITT*
- 1700 **Conference Adjourns**

## THURSDAY AFTERNOON

### SESSION 5: Laser Test and Evaluation Safety II (Limited)

Embassy Suites

- Chairs: *Miles Buckman*, Air Force Research Laboratory/RDS and *Justin Zohner*, 711th Human Performance Wing
- 1300 **Laser Safety During Space Situational Awareness Activities**  
*Miles Buckman*, Air Force Research Laboratory/RDS
- 1330 **Maritime Laser Demonstration Range Safety**  
*Eric Wenschlag*, NAVAIR
- 1400 **Mobile Active Targeting Resource for Integrated Experiments (MATRIX) Safety During Maritime Engagements**  
*Brian Kroeger*, Air Force Research Laboratory/RDS - Starfire Optical Range
- 1430 **Break**
- 1500 **High-Energy Laser Ignition of Fuels on Aircraft Systems**  
*N. Albert Moussa*, BlazeTech
- 1530 **Corporation Airborne Laser Test Bed Demonstration Safety**  
*Jeffery Dennison*, 771 TW/EWAS
- 1700 **Conference Adjourns**

## THURSDAY AFTERNOON

### SESSION 6: Directed Energy Test Results (SECRET)

Chair: *James Keith*, 46 Test Group/OL-AA

- 1330 **HEL Tactical Effects on Ground Targets**
- 1400 **CHAMP Pointing Demonstration -- Planning, Execution, Results, and Path**
- 1430 **LaWS Test Activities**
- 1500 **Break**
- 1530 **Counter-ISR Vulnerability Measurements**
- 1600 **MAX POWER Effects Testing and Results**
- 1645 **Buses Return from Classified Sessions**
- 1700 **Conference Adjourns**

### Starfire Optical Range Tour

We will be offering a tour of the Air Force Research Laboratory's Starfire Optical Range (SOR) on Friday, 5 August. This world-class optical research facility and center for Air Force strategic optical exploration is located on a hilltop site (6,240 feet above sea level) on Kirtland Air Force Base, New Mexico. Buses will leave the hotel at 0900 and return no later than 1130. All tour attendees must be US Citizen and provide an unclassified visit request per instructions to be provided upon sign-up. Visit the registration desk to sign-up.

## Thanks to Our Exhibitors:

AEgis Technologies Group, Inc.

Air Force Research Laboratory

CALCULEX, Inc.

DETEC

HEL Joint Technology Office

ITEA

NAVAIR

Northrop Grumman

Pho-Sonics, Inc.

Raytheon Ktech Corporation

## Conference Organizers

Conference Co-Chairs

*Mr. Patrick Cannon*

*Mr. Mike Bertin*

Technical Program Co-Chairs

*Mr. Jeff Estep*

*Mr. Andy Keipert*

Exhibits Chair

*Mr. Bill Dallas*

Conference Coordinator

*Cynnamon Spain*

Registration and Short Courses

*Donna Storment*

Payments and Receipts

*Tiffany Bjelke*

