

## **GSAW 2014 Tutorial H:**

Test Like You Fly / Operate Process

**Length:** Half day

### **Overview:**

Test Like You Fly (TLYF) is a term that has progressed from undefined jargon to a comprehensive assessment and implementation process within the systems engineering context. It is most widely encountered under the domain of space system testing. It began to take form as a process in an effort to address lessons learned from mission failure post-mortems. As it was codified to address failures it became evident that the process needed to go beyond the test domain and include systems engineering disciplines as well. It has developed further by performing program assessments and workshops with government and industry communities of practice. The fundamental emphasis of this systems engineering approach is broader than “test” and starts with “Like You Fly” (LYF). Hard and expensive lessons have driven the development of the TLYF Process. These lessons have helped form the steps described in this course. The intent of implementing the TLYF Process is to minimize the likelihood of “mission” failures. The Process can take advantage of related systems engineering and test artifacts and methods and help focus those efforts to more robust ends. This process allows a program to tailor the scope of mission oriented testing from a risk management perspective. An understanding of what can go seriously wrong when attempting to execute mission activities will help set priorities for “like you fly” tests. This tutorial will cover all aspects of the current implementation approach with an emphasis on ground systems and enterprises. This tutorial has been significantly revised since it was presented at GSAW in 2010. Course Outline:: Characterizing the Mission; Performing Mission Critical Fault Analysis; Mapping LYF Tests to Mission; Architecting LYF Tests; Designing LYF Tests; Executing and Evaluating LYF Tests; and Doing Mission Critical Fault Analysis.

**Instructors:** Julie White, Lindsay Tilney, The Aerospace Corporation

### **Biographies:**

**Julie White** is currently a Senior Project Engineer in the Corporate Chief Engineering Office for The Aerospace Corporation. One facet of her work is focused on establishing an industry standard process for “test like you fly” assessments and implementation for use as a Mission Assurance / Mission Success technique. She established an aerospace internal Community of Practice for TLYF, a government – industry TLYF CoP, and has co-chaired TLYF sessions at several industry conferences. Ms. White has been with The Aerospace Corporation for 37 years, 18 of which were spent in the Space Test Program Office helping develop six R&D spacecraft. She holds a Dual Bachelors Degree in Physics and Astronomy from the University of Maryland and a Masters in Astronomy from the University of Massachusetts.

**Lindsay Tilney** is currently a Senior Project Leader in the Software Systems Assurance Department for The Aerospace Corporation. She has more than 25 years of experience in the aerospace industry, including satellite software design and analysis, flight planning and mission operations for payloads that fly on the Space Shuttle, ground system design, satellite on-orbit testing, and system software modeling and simulation. She holds a Bachelor of Science degree in Mathematics and Computer Science from the University of California at Los Angeles. In support of the Corporate Enterprise Mission Assurance, she has been working with Ms. White in defining, codifying, and sharing the TLYF process and implementation details, allowing the process to be repeatable and effective within the US space community.

### **Description of Intended Students and Prerequisites:**

This course is intended for space and ground systems engineers and those with responsibilities for system or ground segment validation / testing. No prerequisites.

**What can Attendees Expect to Learn:**

They will learn that a process has been developed to take the concepts behind the phrase “Test Like You Fly (TLYF)” into an executable systems engineering process that establishes a basis for mission driven ground system testing.