Multi-Spectral Sea and Land Target Simulator

Company Overview

Founded in 1944, Parsons is an engineering, construction, technical, and professional services firm with revenues of $2.7 billion in 2011.

Parsons is a leader in many diversified markets with a focus on defense/security, environmental/infrastructure, and transportation. Parsons delivers design/design-build, program/construction management, and other professional services packaged in innovative alternative delivery methods to federal, regional, and local government agencies, as well as to private industrial customers worldwide.

We conquer the toughest logistical and technical challenges and deliver landmark projects across the globe. Today, more than 11,500 employees are engaged in executing more than 2,200 projects in 25 countries around the world. For more about Parsons, please visit www.parsons.com.

Overview

Parsons combined its expertise in threat weapons systems analysis with its integration capabilities to develop the Multi-Spectral Sea and Land Target Simulator (MSALTS) system. The MSALTS mission is to provide validated threat emissions of foreign man-portable air-defense systems (MANPADS) suitable for operational test support (land- and sea-based) of the newest U.S. infrared countermeasure (IRCM) system, the Joint Allied Threat Awareness System (JATAS). MSALTS generates realistic missile plume fly-out signatures of sufficient amplitude to simulate actual levels to within the last second of simulated missile approach in multiple independently controlled bands (IR and broadband UV). The intensity profiles are based on Defense Intelligence Agency Missile and Space Intelligence Center’s (MSIC) missile fly-out models and enhanced missile signature (E-MSIG) missile plume signature models.

The Parsons Solution

MANPADS employing infrared seekers are the single biggest threat facing slow-moving, low-flying rotary wing platforms. To counter the prevalent MANPADS threat, the services are developing autonomous IRCM systems for installation on CH-53, CH-46, MH-60, and MV-22 Navy assault platforms; UH-60 and CH-47 Army helicopters; C-130 and C-17 Air Force large aircraft; and other platforms. The JATAS combines a missile warning sensor (MWS) with hostile fire indication and laser detection. The countermeasures supporting the MWS are either standard flares or a directed infrared countermeasure (DIRCM) system, which incorporates a fine tracking sensor and a laser jammer in a turret assembly on rotary wing platforms. MSALTS uses onboard multiband radiometers to detect jamming and provide reaction capability to the jamming.
MSALTS Architecture

The MSALTS platform is self contained, uses onboard power, and can perform its mission while moving. Its aerodynamic pedestal allows it to operate at speeds of up to 75 mph.

The system allows communication to aircraft and range control and has a network capability to remotely control the system and view data and video in real time. Calibration is performed at the start of the test, and atmospherics are updated periodically during the test.

Once calibrated, MSALTS is designed to be run by a single operator and a driver. Visible and IR cameras with a Ka band, range-only radar provide the ability to automatically track targets in day and night conditions. The operator uses an Xbox-like controller to manage the cameras and pedestal.

The system can be transferred from the truck to a ship deck for at-sea testing. Components of the operator's station located in the passenger area of the truck can also be transferred to the ship for control.