RESEARCH, DEVELOPMENT, TEST AND EVALUATION PROGRAM

Acquisition Directorate

The RDC conducted an operational test and evaluation of the less-than-lethal impact munition pepperball launcher system as a non-compliant vessel use of force tactic.

RDT&E CAPABILITIES

- The Modeling and Simulation Center of Expertise, housed at the RDC, provides the Coast Guard timely, cost-effective access to powerful modeling and simulation capabilities and analysis to aid decision-making.
- The Innovation Program supports the commandant's mandate to create a service culture of continuous innovation and learning. The program uses an open innovation model to develop solutions to enterprise strategic challenges.
- The Science and Technology Innovation Center, which uses innovation, prototyping and rapid integration to find high-technology solutions to operational challenges within the Coast Guard and DHS, is located at the RDC.
- The RDC houses the Automatic Identification System (AIS) Laboratory, which provides a platform to evaluate AIS data feeds from a variety of sources and test capabilities before implementing operationally.
- The RDC is home to the Coast Guard's Photometric Laboratory, which supports test and evaluation of aids to navigation to improve performance, lower costs and extend maintenance intervals.
- The RDC operates the Joint Maritime Test Facility in Mobile, Alabama, the only facility in the nation conducting full-scale in-situ burn testing.

For updates on many RDT&E programs, visit the RDC website at https://www.uscg.mil/acquisition/rdc/ or use this QR code:

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www.uscg.mil/acquisition

PROGRAM DESCRIPTION

The Coast Guard Research, Development, Test and Evaluation (RDT&E) program enhances acquisition and mission execution by helping transition new technologies into the service's operational forces. The program is comprised of the Office of RDT&E (CG-926) at Coast Guard headquarters in Washington, D.C.; Coast Guard Innovation; and the Research and Development Center (RDC) in New London, Connecticut. The RDT&E program is the Coast Guard's sole office conducting applied RDT&E experimentations and demonstrations. The program is continuously innovating and incorporating the best ideas from across the Coast Guard.

At any given time, the RDT&E program is working on more than 70 research and innovation projects that support Coast Guard requirements across all mission areas. It also provides Coast Guard leadership with knowledge necessary for making strategic decisions and leverages partnerships with academia and other government agencies. The RDC also leverages Cooperative Research and Development Agreements under the Technology Transfer Act to work with private industry to anticipate and research solutions to current and future technological challenges. Examples of partners include the Department of Homeland Security Science & Technology Directorate's Office of University Programs and the Bureau of Safety and Environmental Enforcement.

Individuals and organizations interested in partnering with the RDT&E Program for future program work should contact Dr. Joseph DiRenzo, RDT&E partnership director, by email at Joseph.DiRenzo@uscg.mil.

PROGRAM AREAS

The RDT&E program brings value to the organization by investing in new ideas and technologies to help the Coast Guard better perform its missions in the future. Projects typically fall into five main program areas:

Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR)

The C4ISR Branch supports maritime domain awareness, command and control, tactical communications and cybertechnology programs.

Environment and Waterways (E&W)

The E&W Branch supports aids to navigation, pollution and non-indigenous species prevention and response, and AIS programs.

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PROGRAM AREAS CONT'D

Modeling and Simulation Center of Expertise (MSCOE)

The MSCOE provides decision-makers with responsive, low-cost, low-risk modeling support for Coast Guard and external customers. It produces tools that support fleet mix analysis, tactical mission engagement scenarios, sensor optimization, resource allocation, game theory-based scheduling tools, and systemwide trade-off studies to support strategic capability and acquisition decision-making.

Surface

The Surface Branch provides program support to Arctic missions as well as programs to enhance vessel technology, port security, law enforcement, alternative energy, and weapons of mass destruction identification and prevention capabilities.

Systems and Unmanned Technology

The Systems and Unmanned Technology Branch provides investigations of sensor and airborne platform technologies, mission-relevant test and evaluation, performance measurement and analysis, and performance model validation programs. This branch also produces analysis products that address specific questions for decision-makers, including requirements and alternatives analysis, mission analysis, risk analysis and life cycle cost analysis.

Polar Icebreaker Acquisition Support

Operational Testing of Electro-Optical/ Infrared Sensor System

Coast Guard Maritime Operational Effectiveness Simulation Application

Arctic Communications

Detection and Mitigation of Oil Within the Water Column

Nonlethal Impact Munitions

RECENT AND ONGOING RDT&E PROJECTS

Polar Icebreaker Acquisition Support

The RDC is supporting development of an operational requirements document and is conducting an alternatives assessment to help decision-makers with the acquisition of a new polar icebreaking capability to ensure the Coast Guard can continue fulfilling its statutory icebreaking mission in the Polar Regions.

Operational Testing of Electro-Optical/Infrared Sensor System (ESS)

This project validated the effectiveness of ESS operations and provided recommendations to improve current ESS settings, configurations and employment techniques on the MH-60T and MH-65C/D helicopters to ultimately increase search and rescue and maritime domain awareness mission effectiveness.

Coast Guard Maritime Operational Effectiveness Simulation Application

This project addresses the need for a streamlined capability for routine Coast Guard-wide asset allocation/ force structure support initiatives, operational effectiveness assessments and systemwide trade-off studies to support strategic capability and acquisition decision-making.

Arctic Communications

During Arctic Chinook 2016, the RDC evaluated the use of the Next Generation Incident Command System (NICS), a newly developed incident management tool, to help coordinate response to a simulated incident taking place in a remote region. C4ISR deployed various communications technologies to extend an internet access point over 100 miles to the incident response area. This connection supported the use of NICS and full-motion video in a cellular-denied area with no telecommunications infrastructure.

Detection and Mitigation of Oil Within the Water Column

This project focused on the development of a detection system to identify and track subsurface oil spills within the water column. The first phase developed design concepts, and the second phase concentrated on prototype development and testing to ensure the Coast Guard's response capability to environmental disasters beneath the water's surface.

Nonlethal Impact Munitions

This project assessed six different nonlethal impact munitions to expand the Coast Guard's vessel-to-vessel, high-speed pursuit capabilities. It identified an oleoresin capsaicin powder-filled pepperball round and gun system that will give Coast Guard boarding parties the greatest ability to compel compliance from noncompliant vessels without deadly force.