

# Counter-Unmanned Aircraft Systems (C-UAS) Technical Support



Homeland Security

Science and Technology

## COUNTERING THREATS FROM UNMANNED AIRCRAFT SYSTEMS

The [National Urban Security Technology Laboratory \(NUSTL\)](#) executes test and evaluation (T&E) activities and technical advisory support for the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) with a special focus on the assessment of counter-unmanned aircraft systems (C-UAS) technologies. The increasing availability of commercial unmanned aircraft systems (UAS) and rapid advancements in the systems' capabilities have led to more opportunities for both legitimate and nefarious UAS applications. NUSTL's T&E efforts provide direct support to S&T's C-UAS and Air Domain Awareness (ADA) programs.



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UAS pose significant challenges to air traffic safety and homeland security, as well as potential threats to border security, critical infrastructure and the general public. These challenges have driven NUSTL's efforts in the C-UAS technology area, including T&E execution in support of DHS components and the Homeland Security Enterprise (HSE). In order to detect, track and identify UAS and effectively respond to these threats in a timely manner, law enforcement entities require specialized equipment based on their operating environment and operational missions.

## OPERATIONAL TEST AND EVALUATION

C-UAS is still an emerging technology area, which translates into substantial acquisition risk: the purchased system may not meet operational requirements or may become obsolete in a short period of time. NUSTL's T&E of C-UAS technologies provides a baseline of performance by which systems can be judged against both the claims of the manufacturer and in comparison to other systems.

Starting in 2016, NUSTL has been assessing the performance and suitability of C-UAS technologies across a variety of operational settings and end-user applications. Past, present and future C-UAS efforts include:

- Planning and executing S&T's Technical Assessment of Counter Unmanned Aerial Systems Technologies in Cities (TACTIC) program: evaluating capabilities of commercial C-UAS products with varying types of sensors for detecting, tracking and identifying small UAS in an urban setting.
- Supporting operational assessments of C-UAS technologies to enhance the safety and security of DHS facilities and covered assets: evaluating select products for their ability to detect, track, identify and mitigate various UAS threats.
- Supporting the execution of S&T's ADA demonstrations in diverse environments and terrains near the northern border: testing to determine how effectively the technologies provide detection, tracking and identification capabilities for both unmanned and manned aircraft flying at low altitudes.

## TECHNICAL ADVISORY SERVICES & TOOLS

Data collection is paramount for any T&E effort, which is why NUSTL is developing a *Test and Evaluation Analysis (TEA)* application that calculates performance metrics from raw test data. NUSTL will use the application to increase data processing efficiencies at future C-UAS test events.

Beyond testing and evaluating C-UAS, NUSTL provides technical expertise to HSE partners on available technologies useful for countering malicious UAS. To this end, NUSTL has produced several knowledge products including:

- [C-UAS Technology Guide](#) and
- [Questions to Ask When Researching C-UAS](#)

NUSTL also served as a co-chair of the White House National Science and Technology Council's sub-working group that was tasked with developing *Standard Guidelines for Test and Evaluation of C-UAS Technologies*. The guidelines provide a common understanding of test methods to reduce the need for multiple agencies to evaluate the same system, thus decreasing time and costs associated with T&E activities.

