SAND2020-1873C

CUAS

Counter Unmanned Aircraft Systems

CUAS PROGRAM BACKGROUND

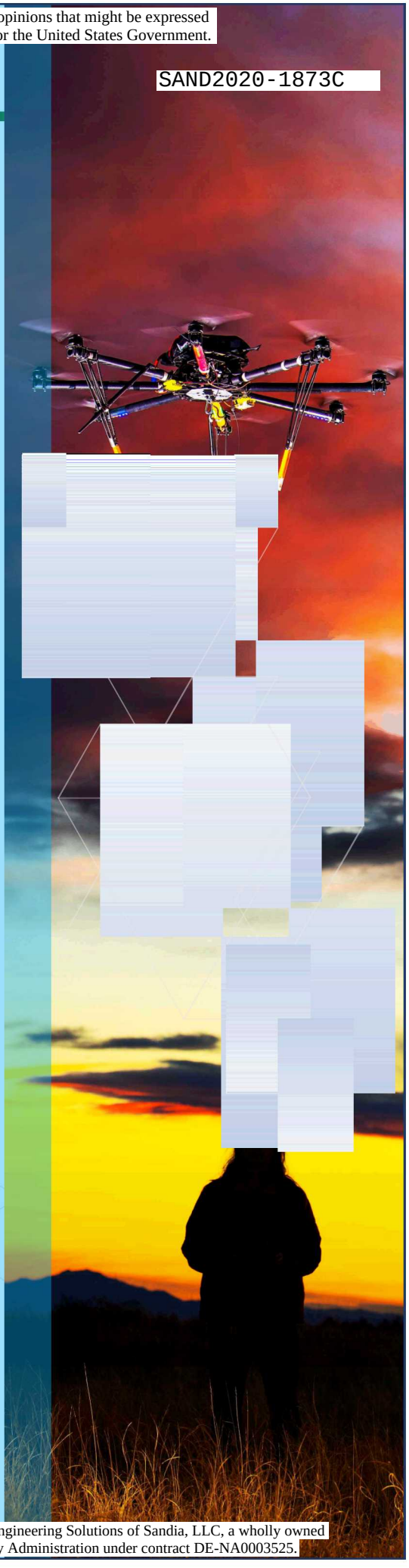
In recent years, commercial, industrial and recreational use of Unmanned Aircraft Systems (UAS), or drones, has grown significantly. The popularity and user-friendly nature of these systems has fueled rapid development and enhanced worldwide availability of UAS technology. While most UAS users are performing legitimate activities, or simply having fun, the misuse of UAS has also increased. Several significant incidents have occurred:

- Airport operations being disrupted or shut down
- Sightings near nuclear facilities
- Attempted attacks on government figures

Due to the security challenges posed by UAS, counter-UAS (CUAS) commercial technologies and solutions are being developed to sense, assess, track, and mitigate these threats. The UAS and CUAS program at the Office of International Nuclear Security (INS) works with foreign partners to provide technical exchanges, awareness, training, guidance, collaborative research and testing, and technical outreach. INS leverages decades of subject matter experience in security system research and development, testing and evaluation, design and deployment, site assessments, and robotics. INS is actively seeking partners and opportunities to share information within the UAS and CUAS domain, for the protection of nuclear facilities.

TECHNICAL EXCHANGES AND WORKSHOPS

The INS CUAS program is leveraging the capabilities of the US national laboratories to assist partner countries and foreign sites in addressing unmanned threats or incorporating drones into physical security. This includes outreach, awareness briefings and trainings, and technical exchange meetings to share ideas and approaches.



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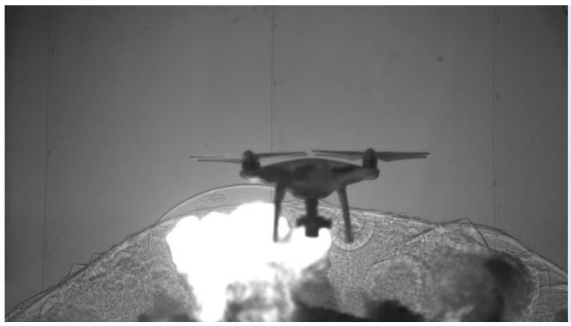
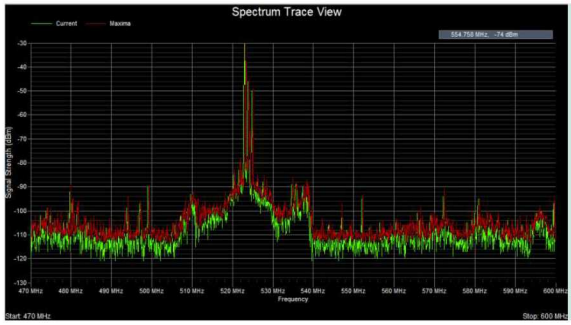


Research and Development

INS is leveraging the capabilities of the laboratories to solve emerging national security needs to strengthen commercial technology performance. We are actively developing novel detection, assessment, tracking, response, autonomy and integration solutions to fill gaps in currently available capabilities. We provide advanced, threat-informed solutions to real-world nuclear security problems through R&D.

Testing and Evaluation

NNSA developed a standardized CUAS test approach. Sandia National Laboratories is currently the test agent for NNSA, DOE and DHS. This experience enables INS to provide guidance on technology down-selection, test plans, and conduct testing to verify performance claims and inform acquisition decisions. INS is actively seeking partners for collaborative testing of CUAS technologies.

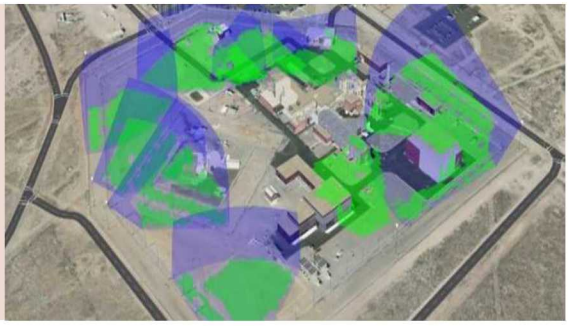


Collateral Damage Characterization

INS has the capability to characterize radio frequency transmissions that UAS and CUAS utilize for operation. This capability allows decision makers to better understand the Radio Frequency (RF) mitigation performance and spectral quality to inform deconfliction and collateral damage concerns.

Modeling and Simulation

INS has established a range of modeling and simulation capabilities to design and assess the effectiveness of CUAS technology. We are able to provide training, demonstrations, design, and assistance for CUAS scenario development, table top exercises, and deployment optimization. INS is seeking partners to continue to develop a modeling and simulation capabilities.



Deployment, Training, and Operational Experience

NNSA has substantial experience in the deployment, training, and operation of CUAS systems. This experience allows INS to deploy and train operators of CUAS systems quickly and efficiently, and to inform partners on strengths and weaknesses of various CUAS technologies.

U.S. DEPARTMENT OF ENERGY NNSA

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INS International Nuclear Security Reducing Risk of Nuclear Terrorism