TACTIEN GROUP

USE CASE

COUNTER-UAS VALIDATION & PROGRAM DEVELOPMENT

Education. Side x Side Competitor Testing. Analysis. Commissioning.

Contents

Introduction

Executive Summary

As the threat of unauthorized UAS grows, organizations with sensitive assets face increasing pressure to deploy Counter-Unmanned Aircraft Systems (C-UAS). However, navigating the complex vendor landscape and identifying solutions that meet operational, technical, and organizational requirements remains a challenge.

What We Do

The Tactien Group, in partnership with a confidential international customer, conducted a rigorous, unbiased industry validation of multiple C-UAS vendors. Through a structured process—beginning with requirements gathering and culminating in live operational testing—Tactien delivered a quantitative, data-driven recommendation that empowered the customer to make an informed technology investment decision.

In today's rapidly evolving threat environment, the ability to proactively assess and validate C-UAS solutions is essential for infrastructure operators. The Tactien Group's approach emphasizes the importance of tailoring vendor evaluations to real-world scenarios, ensuring that recommended technologies deliver measurable results in the field. By leveraging a comprehensive evaluation framework, organizations can avoid costly missteps and confidently invest in tools that safeguard their most critical assets.

Furthermore, collaboration between technology providers, security teams, and operational leadership is vital to achieving seamless C-UAS integration. The Tactien Group facilitates communication across these stakeholders, bridging gaps between technical specifications and practical deployment requirements. This holistic strategy not only improves detection and response capabilities but also builds organizational resilience against emerging aerial threats.

This white paper highlights the methodology, results, and value proposition of this process. Additionally, it outlines how critical infrastructure stakeholders can apply the same approach to reduce risk and accelerate (the correct) C-UAS adoption for their needs.

01

The Challenge

Selecting the right CUAS vendor

The C-UAS marketplace is crowded, fragmented, and often characterized by aggressive marketing claims. For organizations seeking to protect critical assets, making the wrong choice can mean:

- Poor Detection or Tracking Performance – leaving assets vulnerable
- Integration Misalignment – with existing IT, security, or operational systems
- High Lifecycle Costs – due to inadequate vendor support or scalability
- Operational Risk – stemming from overpromised capabilities that underdeliver in the field

Our customer, a world leader in software services with highly sensitive facilities, required a trusted partner to provide independent validation, recommendation, and program stand up support which would ensure that the selected technologies were tested personally field-tested under customer-specific conditions.

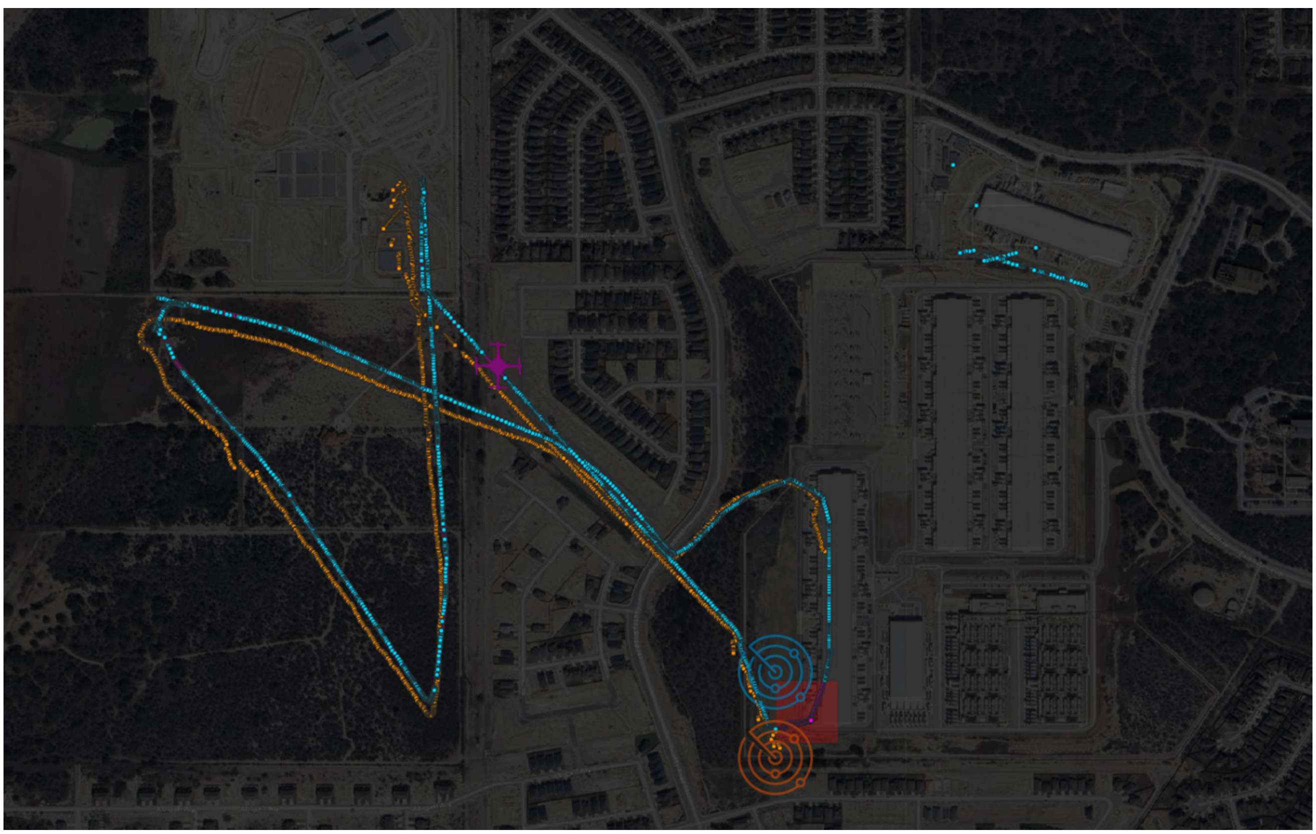

Figure 2 Overview of side-by-side CUAS validation (single flight of many).

02 Our Process

Assembling Objective Value

Our role in this project is to bring clarity, objectivity, and data-driven validation to customers navigating the CUAS marketplace. As strategic assemblers of value, Tactien has deployed a five-step methodology to ensure customers select the best solution(s) for their operational needs.

Step 1: Educate & Inform

To establish clear and realistic expectations, Tactien provides the customer with a clear view of the CUAS industry, its current capabilities, limitations, and regulatory context. This education establishes a foundation for decision-making and helps customer teams align expectations with what technology can deliver today vs. tomorrow.

Step 2: Define Requirements

Working alongside customer stakeholders, Tactien defined the goals of the customer's CUAS program and developed a comprehensive requirements list. This includes things such as:

- Operational performance criteria
- Data flow and system architecture considerations (i.e., integration with existing security systems)
- Vendor support expectations
- Management and sustainment models

Step 3: Market Survey & Vendor Shortlisting

From the broader industry landscape, Tactien identified and down-selected CUAS vendors that align with the customer's requirements. Only those vendors capable of meeting the operational and technical needs advanced to testing.

Step 4: Live Testing & Data Validation

On the customer-selected test site, Tactien led a side-by-side CUAS evaluation under operationally relevant conditions. The entire program was managed in support of the customer, which included:

- Program Management – coordination of vendors, schedules, and resources.
- Red-Teaming – using Tactien's UAS and operators to generate controlled incursions.
- Blind Testing – UAS flight operations in the vicinity of the CUAS vendors on site. Considerations included:
    - Multiple small UAS types flown (including "dark drone" aircraft).
    - Randomized timing, flight paths, and profiles – at Tactien's discretion, not the vendor.
    - Multi-day/night testing for realistic stress test conditions.
- Data Analysis – cross-referencing vendor telemetry with UAS flight logs.
    - 700,000+ lines of telemetry analyzed, totaling 17.7M data points
    - Vendor scorecards by KPI
    - Comparative strengths and weaknesses

Step 5: Final Report & Recommendation

Tactien compiled and analyzed all testing results, scoring vendors across multiple KPIs. The customer then received a data-backed recommendation identifying the best-fit vendor. Through this process, the customer:

1. Gained clarity on the CUAS vendor landscape
2. Received quantitative evidence to support procurement decisions.
3. Identified the best-fit CUAS vendor for their operational environment.
4. Avoided costly mistakes from marketing-driven decision making.

Most importantly, the customer had full confidence in their technology selection as it was based on real-world, independent testing on their assets rather than vendor claims.

Step 6: Program Integration

Beyond vendor selection, Tactien will also support the CUAS program's scaling and commissioning to reach full operational at scale.

Figure 3 UAS flight telemetry utilizing nine (9) different aircraft types for CUAS validation over a 1-week period.

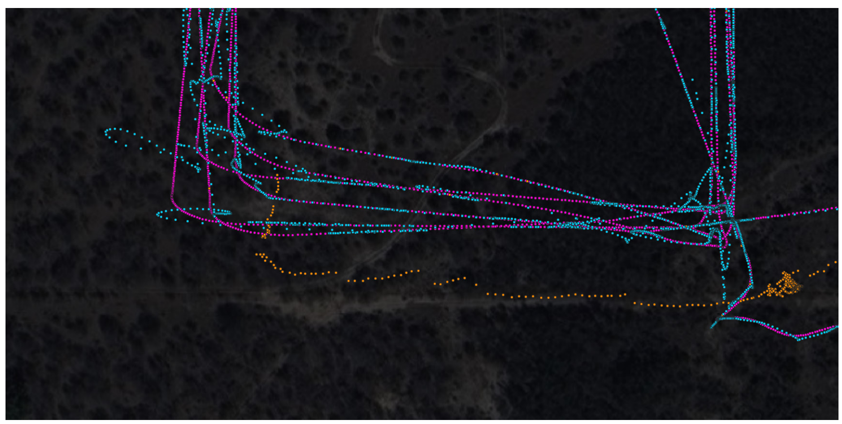

Figure 4 UAS vs. CUAS data analysis. Pink - UAS telemetry. Teal - CUAS vendor 1 tracking telemetry. Orange - CUAS 2 tracking telemetry….not all CUAS are equal.

Flight	[redacted]							
Flight Date		[redacted]						
Flight Start Time (UTC)	17:11	Flight Start Time (CST)	12:11 PM					
Flight End Time (UTC)	17:11	Flight End Time (CST)	12:11 PM					
Aircraft	[redacted]							
			Droneshield		DeDrone			
1. Detection Performance KPIs		Control	Score	Variance	Score	Variance	% Superior	Winner
Probability of Detection (Pd)		9,347	100%		100%		100%	Tie
Alerts?			Yes		Yes			
Accurate Alerts?			Yes		No			
False Positives?			No		No			
2. Tracking Performance KPIs		Control						
Track Continuity (%)		9,347	9,905	106.0%	9,467	101.29%	4.68%	CUAS Vendor 2
Track Loss Count			557.50		120			CUAS Vendor 2
Track Accuracy (Positional Error) - minimum		Feet offset	0.12	-	0.00	-	-	CUAS Vendor 1
Track Accuracy (Positional Error) - maximum		Feet offset	55.29	-	3.83	-	1442%	CUAS Vendor 1
Track Accuracy (Positional Error) - average		Feet offset	27.70	-	1.92	-	1446%	CUAS Vendor 1
3. Classification & Identification KPIs		Control						
Classification Accuracy		DJI M30T	No		Yes			CUAS Vendor 1
RID Detection			Yes		No			CUAS Vendor 2
Time to Classification		8/6/2025 17:11	2 Seconds		1 seconds		1 seconds	CUAS Vendor 1

Figure 5 Snapshot of single (of many) flight KPI analysis.

03 Why it Matters

> There are so many different CUAS technologies out there. What's right for one user may be wrong for another. Each have unique strengths and weaknesses.

Why it matters to critical infrastructure owners

Organizations responsible for energy, utilities, transportation, and other critical sectors face the same challenge: how to confidently select and implement CUAS technology.

Tactien's methodology ensures that stakeholders:

- Understand realistic CUAS capabilities
- Align vendor solutions with operational needs
- Provide unbiased, data-backed recommendations
- Reduce risk when investing in emerging security technologies

This tiered model gives customers flexibility—whether they need to educate leadership, validate vendors, or fully operationalize CUAS at scale, Tactien provides the expertise and structure to ensure success

LEVEL 1

- Capabilities and limitations of current CUAS technology
- Comprehensive overview of the CUAS industry landscape
- Regulatory and operational considerations
- Development of a baseline requirements framework
- Result: Stakeholders gain a realistic, informed perspective on CUAS and are prepared to take the next step toward vendor engagement.

LEVEL 2

- Level 1 plus:
- Tactien-managed red-teaming operations using sUAS incursions
- Side-by-side vendor testing at customer facilities
- Telemetry data analysis (cross-referenced against flight logs)
- Vendor scoring across defined KPIs
- Result: Customers receive actionable, data-backed insights on vendor performance, reducing the risk of selecting the wrong technology.

LEVEL 3

- Level 1 & 2 plus:
- Commissioning, calibration, and integration with customer systems
- End-to-end CUAS program management
- Scaling roadmap for multi-site or enterprise-wide CUAS adoption
- Coordination of vendor contracts and system delivery
- Training for operators and support staff
- Result: Customers receive actionable, data-backed insights on vendor performance, reducing the risk of selecting the wrong technology.

Figure 6 CUAS Program Implementation package options

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About Tactien

About The Tactien Group

The Tactien Group stands as a trusted partner for organizations seeking to adopt advanced aviation and unmanned systems technologies. Drawing on years of hands-on experience in complex aircraft operations, Tactien has supported critical infrastructure projects across energy, utilities, transportation, and other vital sectors. This extensive background enables the team to deliver actionable insights and practical solutions tailored to the unique challenges faced by clients operating in high-stakes environments.

At the heart of Tactien's success is a culture rooted in integrity, collaboration, and continuous learning. The organization prioritizes unbiased, data-driven recommendations, ensuring that clients receive guidance free of vendor influence or preconceived notions. Tactien values transparency and open communication, fostering strong partnerships with stakeholders at every stage of the aviation and unmanned systems adoption process. This approach builds confidence among clients, empowering them to make informed, defensible decisions for their aviation programs.

Conclusion

Our independent CUAS vendor validation service provides a repeatable, unbiased framework for technology selection. By combining deep industry knowledge, rigorous stress testing, and quantitative analysis, customers make confident, defensible decisions.

For organizations considering CUAS deployment at sensitive or critical infrastructure sites, this methodology offers a clear path to lower risk, better outcomes, and higher return on investment.

05

Frequently Asked Questions

Q1: What type of aircraft can Tactien bring to the red-teaming exercise?

Tactien has access to the following categories of UAS:

- Group 1 (sUAS) – any commercial-off-the-shelf (COTS) sUAS including multi-copter, VTOL, and fixed wing as well as custom built (i.e., FPV).
- Group 2 UAS – multi-copter, VTOL, and fixed-wing
- Group 3 UAS – VTOL and fixed-wing

Tactien also has access to a fleet of manned helicopters and fixed wing aircraft if required.

Q2: How long does the CUAS validation process take?

The duration depends on the specific scope of work, customer requirements, and number of down-selected vendors, but a typical engagement follows this timeline:

- Customer Requirements Definition, Vendor Shortlisting, and Test Preparation: 1-2 months
- Functional Testing - Live Testing & Data Collection: 1–2 weeks (on site)
- Data Analysis & Reporting: 1 month

In total, most projects are completed within 2.5-3.5 months, from kickoff to final report. Larger-scale, multi-site, or Level 3 implementations may require extended timelines.

Q3: Does Tactien provide managed services for CUAS systems once our program is implemented?

Tactien's primary focus is on enabling customers to operate and maintain their CUAS programs independently. As part of the program buildout, Tactien provides comprehensive training on integrated system operations, empowering customers to manage ongoing activities in-house.

While ongoing managed services are not included as a default offering, Tactien is open to discussing and structuring a managed services agreement at the customer's discretion, should additional support be desired.

Q4: How does Tactien ensure tests are unbiased?

All test flights are conducted as blind incursions. Vendors are not informed of flight timing, aircraft type, or path. The aircraft are however, validated by Tactien to meet the specifications in which the CUAS vendor claims to be detectable.

This prevents any vendor from tailoring responses to pre-known conditions. Additionally, Tactien independently cross-references vendor tracking telemetry with verified sUAS flight logs, ensuring conclusions are based purely on objective data.

Q5: Can Tactien scale the program across multiple sites?

Absolutely. Package 3 (Full System Rollout & Commissioning) includes a scaling roadmap to extend CUAS capabilities across multiple facilities or enterprise wide. If requested, this service could include a security threat assessment to identify asset(s) requiring CUAS protection in order of priority.

Tactien manages the logistics of scaling, vendor coordination, and ensures that every deployment site achieves consistent performance and compliance.

Q6: What type of KPI(s) does Tactien use to evaluate vendor performance?

Tactien applies a structured set of performance indicators, including (but not limited to):

- Detection range and accuracy
- Tracking continuity
- False positives and negatives
- Latency in detection/alerting
- Reliability of telemetry data
- Successful aircraft identification

These KPIs create a quantitative scoring framework, enabling objective side-by-side comparison of CUAS vendors, resulting in bespoke recommendations for vendor selection specifically based on customer needs.

Q7: What sectors benefit most from this service?

Tactien's services are particularly tailored to sectors where the reliability and security of critical infrastructure are non-negotiable. The team, comprised of former operators, subject matter experts, and segment specialists, brings deep expertise in safeguarding sensitive assets across a variety of domains.

Drawing on extensive experience in both security and regulatory frameworks in CUAS technology, Tactien's segment specialists address sector-specific challenges. When required, Tactien brings in additional experts from partnering organizations for additional security, policy, and technology needs as required for each customer.

As a result, industries such as energy utilities, oil & gas, transportation hubs, and government facilities derive significant benefit from Tactien's comprehensive approach, driven by an expandable team of partners when needed.

The Tactien Group

www.tactiengroup.com