

Sandia National Laboratories

Proposed Activities & Work at the MATIC Facility



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Unmanned Aircraft System (UAS) Flight Operations

- Up to 55 lbs total weight (however, majority will be less than 20 lbs)
- Beyond visual line of sight (with multiple redundant tracking mechanisms)
- Day and night operations
- Up to 150 mph (Rarely. Most flights will be less than 50 mph)
- Power: electric (battery), gas, hydrogen fuel cell, and hybrid systems (most flights will be electric)
- Launch/land from multiple distant locations (to include the runway)
- Up to 10,000 ft AGL (Rarely. Usually below 1,200 AGL, and coordinated with FAA)
- Carry imagers and other payloads

UAS Flight Operations (continued):

- Drop a payload from an aircraft (at approved areas)
- Store aircraft and related flight equipment overnight
- Train additional UAS pilots
- Conduct UAS air-worthiness operations/testing
- Build and modify aircraft
- Fly swarms of aircraft
- Train UAS pilots
- Process flight data

Counter-Unmanned Aircraft Systems (CUAS) activities:

- Set up and operate equipment designed to sense, assess, identify, track, and neutralize/mitigate UAS
 - Sense/track: Imagers, passive RF receivers, active RF (radars), acoustic sensors, etc.
 - Mitigations: RF emitters, net/entanglement projectiles, directional acoustic emitters
 - Occasionally leave sensors turned on overnight / weekends
- Collect performance data
- Train operators
- Conduct workshops and tours of the equipment, aircraft, operations (escort US and foreign national visitors)

RF Emissions

- Power levels: Anywhere from milli-watts up to 100 watts per channel
- Bands: Typical radio control frequency bands
 - 433 MHz (Control)
 - 915 MHz (Control/telemetry)
 - 1,385 MHz (Video)
 - 2.4 GHz (Control/video/telemetry)
 - 5.8 GHz (Control/video/telemetry)
 - LTE/cellular communications
 - GPS/GNSS (very rare, coordinated months in advance with FAA)

Logistics Topics

- Security
 - Is there an alarm system? Can we add one? Procedure for responding?
 - Response options during off-hours
 - Remote Monitoring
 - Onsite Emergency Contacts
 - Contacting SNL Security for a Security Event on/off hours
 - Medical care/response?
 - Keys / Codes to access on-site buildings?
 - May we bring/operate our own hand/held radio system? Use yours?
 - Visitor Access (US and Foreign)
- Local approvals/restrictions for working on Site
 - Roads, boundaries, ground disturbance, digging/anchoring, lost equipment, etc?
- 24/7 access if testing has been scheduled and approved?
- Approval to use generators and store Fuel on site in approved structures and containers (to support remote launch/equipment operations)

Questions

