

S.P.A.S.

UAS Training Manual

The Salinas Police Department UAS Team Training Objectives:

(Derived From NIST: National Institute of Standards and Training)

1. The SPD UAS Team will utilize training to inform on Pilot and UAS system capabilities, including technical and physical limitations, while ensuring operational readiness by hardening of systems through repeated testing
2. The training will utilize quantitative measures of operational proficiency, enabling operators to make skill level comparisons to past performances and other pilots
3. The training will continually seek to inspire innovation and advancement of skillsets while measuring progress in integration of UAS technology into public safety operations

The Salinas UAS Team Training consists of multiple and ongoing UAS flight skillsets with specific testing methods that provide quantitative measurements of each skill level. All pilots will complete the basic skillsets identified and tested by NIST to include:

Maneuvering:

- **Orbit a Point:** Training and test methods will evaluate pilot capability to move and rotate around a point, consisting of basic maneuvers using FPV to locate and align on targets from a defined radius and altitude.
- **Avoid Obstacles:** Training and testing will evaluate pilot capability to maneuver around vertical obstacles and horizontal obstacles.
- **Fly Straight and Level:** Training and testing will evaluate pilot capability to fly straight and level using a visual target as a guide.
- **Land Accurately:** Training and testing will evaluate pilot capability to land accurately from vertical and downward 45 degree descending approaches. Landings will be performed on platforms from a defined range, altitude and from four different approach directions.

Camera Operations:

- **Point and Zoom Cameras:** Training and testing will evaluate the pilot capability to point and zoom cameras at near-field and far-field visual acuity targets from a specified hover position.
- **Inspect Objects:** Training and testing will evaluate the pilot capability to move and rotate around an object of interest to identify key details
- **Sensing Features:** Training and testing will evaluate the pilot capability related to:

- Visual Image Acuity
- Visual Dynamic Range
- Visual Color Acuity
- Audio Speech Acuity
- Thermal Image Acuity
- Thermal Dynamic Range
- Latency of Video, Audio, Control

Energy/Power:

- Training and testing will evaluate the pilot capability related to evaluate UAS flight endurance range and duration, and dwell time
- Training and testing will evaluate the pilot capability related to evaluate battery health prior to and during flight operations

Radio Communications:

- Training and testing will evaluate the pilot capability related to radio communications during VLOS flight operations as well as emergency landing operations

Safety and Emergency Operations:

- Training and testing will evaluate the pilot capability related emergencies such as:
 - Airspace incursion
 - Loss of power (or imminent loss)
 - Loss of VLOS
 - Loss of Radio Comms
 - Loss of RC Comms
 - Ability to fly in ATTI Mode
 - Loss of GPS

Teleoperations Procedures:

- Training and testing will evaluate the TO capability related teleoperation skillsets such as:
 - Maneuvering
 - Camera operations
 - Location identification/navigation
 - Radio communication (both field personnel and flight crew)
 - Tactical response skillsets