ADS-B and BVLOS Operations for Public Safety UAS

Course Syllabus and Training Overview

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Course Description

This course provides public safety professionals with operational knowledge required for safe and lawful Beyond Visual Line of Sight (BVLOS) unmanned aircraft operations. Emphasis is placed on integration into emergency response missions, risk assessment, airspace coordination, and the role of Automatic Dependent Surveillance–Broadcast (ADS-B) in mixed manned/unmanned environments.

Target Audience

Fire services, law enforcement, search and rescue, emergency management, disaster response teams, and other governmental UAS operators.

Learning Objectives

- Explain public-safety use cases for BVLOS operations
- Apply 14 CFR §107.31 and related FAA regulatory requirements
- Differentiate VLOS and BVLOS in emergency operations
- Explain ADS-B In and ADS-B Out and their role in operations
- Identify airspace where ADS-B is required or prohibited
- Perform basic BVLOS risk assessment and mitigation planning
- Describe detect-and-avoid responsibilities in mixed airspace
- Understand waiver and COA requirements for public safety flights

Public Safety Applications

- Search and rescue operations
- Fire scene monitoring and overwatch

- Disaster assessment and damage mapping
- Flooding and storm impact monitoring
- Hazardous materials incident assessment
- Wildfire perimeter mapping
- Border patrol and law enforcement support
- Infrastructure inspection during emergencies

Topics Covered

- Visual Line of Sight (VLOS) fundamentals
- Beyond Visual Line of Sight (BVLOS) concepts
- Part 107 regulatory framework and §107.31
- BVLOS mission planning for public safety
- ADS-B technology overview
- Operational airspace and communication coordination
- Detect-and-avoid vs. see-and-avoid concepts
- Fixed-wing vs. multirotor BVLOS platforms
- Safety management and risk mitigation
- BVLOS waivers and COA processes

Instructional Methods

- Lecture and multimedia presentation
- Scenario-based discussion
- Case studies from real emergency operations
- Knowledge-check quiz

Assessment

Participants will complete a short knowledge assessment and may participate in scenario-based evaluation activities appropriate to public safety environments.

Prerequisites

Basic UAS operational knowledge recommended. FAA Part 107 certificate preferred. Previous public safety operational experience beneficial.

Course Policies

- All UAS operations will comply with FAA rules and local agency policy.
- Operational safety supersedes mission objectives.
- Respect for privacy and civil liberties is required in all operations.
- Use of live aircraft is prohibited unless authorized and supervised.