



Resource Typing Definition for Response
Situational Assessment

UNMANNED AIRCRAFT SYSTEM TEAM

DESCRIPTION	A small Unmanned Aircraft System (sUAS) Team is an aircraft operations team without a human pilot onboard, also known as a drone. The pilot on the ground has an FAA sUAS or Certificate of Authorization (COA) to fly to collect data for improved situational awareness through remote sensing. The sUAS Team operates under the Air Operations Branch, as established by the Incident Commander (IC).
RESOURCE CATEGORY	Incident Management
RESOURCE KIND	Team
OVERALL FUNCTION	<p>The sUAS Team:</p> <ol style="list-style-type: none"> 1. Provides situational awareness by transmitting real-time or near real-time imagery, data, or verbal assessment, using multiple technologies, such as photogrammetry, live video, thermal imaging, and lidar, to enhance the Common Operating Picture (COP), planning functions, and Incident Action Plan (IAP) development. 2. Uses various platforms based on mission need, in accordance with FAA Code of Federal Regulations (CFR) Part 107, including: <ol style="list-style-type: none"> a. Fixed wing aircraft under 55 Pounds b. Rotary wing aircraft under 55 pounds c. Lighter-than-air UAS
COMPOSITION AND ORDERING SPECIFICATIONS	<ol style="list-style-type: none"> 1. Discuss logistics for deploying this team, such as security, communications, lodging, transportation, power, recharging, fuel, and meals, prior to deployment 2. This team typically is self-sustainable for 72 hours, and is deployable for up to 14 days 3. Pilot in Command (PIC) determines duty cycle of aircraft based on assignment, environment, terrain, battery life, and other factors affecting performance 4. Incident Commander (IC) should consider the following needs when ordering: <ol style="list-style-type: none"> a. Collection: A measurable description of each information or image collection task, including image resolution; distribution instructions b. Processing: Ability to link platform to satellite; platform-required ground reception and range limitations, if any; data collection media used; delivery points of data on media; media compatibility with end users; turnaround time for analysis c. Distribution: Parameters for when, where, and how to disseminate images, information, and data d. Storage: Image, data, and information storage locations and servers; time frames for storage and maintenance e. Resolution, detail and IR or normal images/movies. f. Weather conditions. g. Duration of the mission. 5. Incident Commander (IC) orders data analysis capabilities separately 6. Incident Commander (IC) provides management and oversight of this team by: <ol style="list-style-type: none"> a. Providing Air Operations Branch staff, including the Air Tactical Group Supervisor and the Air Support Group Supervisor 7. Incident Commander (IC) should consider mission needs in selecting a Type 1 or Type 2 Team: <ol style="list-style-type: none"> a. Type 1 - sUAS team would have the highest, most robust UASs capability, including, but not limited to: Long term search and rescue, detailed disaster surveys, long flying missions (typically 4 or more fly hours), special multispectral surveys to include at least thermal imaging and/or HazMat surveys. Additionally, this team may have in the field video editing capability and night time fly waivers. b. Type 2 - sUAS team would be used for shorter flying durations (less than 4 hours), less detailed surveys and/or limited to visual imaging capability.



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8. Ensuring Air Operations Branch staff understand sUAS operations, FAA regulations, and requirements of other local, state and Federal agencies having jurisdiction
9. Incident Commander (IC) and provider should discuss availability of equipment and supplies needed to establish an adequate Ground Control Station, such as a portable system for data management, wireless or networking equipment, batteries, and a specialized communications cache
10. Based on mission requirements, Incident Commander (IC) and provider should discuss data collection payload options such as:
 - a. Aerial photography
 - b. Full motion video
 - c. Specialized sensors, such as photogrammetry, sonar, radar, infrared, lidar, and hyperspectral
 - d. Infrared thermography (IRT)
11. Discuss mission planning factors, including:
 - a. Time-on-scene and flight duration requirements
 - b. Topography, climate, land and maritime factors, and population density
 - c. Launch and retrieve capabilities; takeoff and line of sight capabilities; first-person view (FPV), beyond line of sight view, video piloting; use of multiple controllers; follow-me capability (electronic or tether)
 - d. Operational time (day/night); takeoff and landing terrain; and operational area terrain
 - e. Weather factors (maximum wind speeds, temperature, humidity, and inclement conditions)
 - f. Airports and restricted airspace nearby
12. Incident Commander (IC) and provider should discuss the need for FAA waivers and authorizations, such as permission to fly beyond the visual line of sight, fly at night, fly directly over a person or people, fly multiple aircraft with only one pilot, fly above 400 feet, fly near airports, and fly in other restricted or special-use airspace.
13. This team adheres to FAA restrictions on crew duty according to Title 14 Code of Federal Regulations (CFR) Part 117: Flight and Duty Limitations and Rest Requirements

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

COMPONENT	TYPE 1	TYPE 2	NOTES
MINIMUM PERSONNEL PER TEAM	3	3	Not Specified



COMPONENT	TYPE 1	TYPE 2	NOTES
<p>SUPPORT PERSONNEL PER TEAM</p>	<p>Same as Type 2</p>	<p>2 – National Incident Management System (NIMS) Type 1 Pilot-in-Command (PIC)–UAS 1 – NIMS Type 1 Technical Specialist–UAS</p>	<ol style="list-style-type: none"> 1. Incident Commander (IC) provides Air Operations Branch staff for management and oversight of this team. 2. Incident Commander (IC) ensures Air Operations Branch staff understand UAS operations and meet requirements of FAA, FCC, Department of Transportation (DOT), and other local, state and Federal agencies having jurisdiction. 3. One PIC–UAS serves as a safety flight observer for the UAS Team during flight operations and is not in direct control of an operational UAS platform. He/she provides field oversight and situational awareness, and ensures the safety of the PIC–UAS operating the UAS. 4. Teams can add additional UAS aircraft and a corresponding number of additional PIC–UAS personnel within a manageable span of control. 5. Each additional UAS aircraft should have an additional PIC–UAS, unless personnel are trained and qualified to operate more than one UAS, which requires an FAA waiver. 6. For Type 1 teams using UAS aircraft over 55 pounds, Incident Commander (IC) should add pilots and personnel based on manufacturer recommendations for safe operation and handling.
<p>AIRCRAFT SYSTEMS PER TEAM</p>	<p>Same as Type 2</p>	<p>Combination of fixed wing, lighter-than-air, and rotary wing UAS aircraft, under 55 pounds</p>	<ol style="list-style-type: none"> 1. Incident Commander (IC) determines image resolution required using the National Imagery Interpretability Rating Scale (NIIRS). 2. UAS platforms needed, such as fixed wing, rotary wing, or lighter-than-air, may vary based on mission assignment. 3. For Type 2 and Type 3 teams, each UAS should have a combined weight of less than 55 pounds, aircraft and payload included. 4. For Type 1 teams using UAS aircraft over 55 pounds, Incident Commander (IC) should add pilots and personnel based on manufacturer recommendations for safe operation and handling.



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COMPONENT	TYPE 1	TYPE 2	NOTES
INFORMATION COLLECTION EQUIPMENT PER TEAM	Same as Type 2, PLUS: Specialized information collection equipment, such as: <ol style="list-style-type: none">1. Specialized sensors, such as photogrammetry, sonar, radar, infrared, lidar, and hyperspectral2. Infrared thermography (IRT)	<ol style="list-style-type: none">1. Photography2. Full motion video	Incident Commander (IC) provides image resolution requirements based on mission needs.
COMMUNICATIONS EQUIPMENT PER TEAM MEMBER	Same as Type 2	<ol style="list-style-type: none">1. Two-way portable radio2. Cell phone	Consider alternate forms of communications, such as satellite phones, based on the mission assignment and team needs.



NOTES

Nationally typed resources represent the minimum criteria for the associated component and capability

REFERENCES

1. FEMA, NIMS 509: Air Operations Branch Director
2. FEMA, NIMS 509: Air Tactical Group Supervisor
3. FEMA, NIMS 509: Air Support Group Supervisor
4. FEMA, NIMS 509: Remote Pilot-in-Command, pending publication
5. FEMA, NIMS 509: Technical Specialist–Unmanned Aircraft System, pending publication
6. Federal Aviation Administration (FAA) Joint Order (JO) 7200.23: Air Traffic Organization Policy, October 2016
7. Title 14 Code of Federal Regulations (CFR) Part 107: Small Unmanned Aircraft Systems, latest edition adopted