

Mutual Aid Box Alarm Systems

Unmanned Aircraft Systems Program (UAS)

Definitions

OVERVIEW

This document contains the definitions used throughout the MABAS UAS Guideline.

MABAS OFFICIAL DEFINITIONS

Approved

Acceptable to the authority having jurisdiction.

Authority Having Jurisdiction (AHJ)

An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installation, or procedures.

Shall

Indicates a mandatory requirement.

Should

Indicates a recommendation or that which is advised but not required.

Standard

A MABAS Standard, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Non-mandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase “standards development process” or “standards development activities,” the term “standards” includes all NFPA Standards, including codes, standards, recommended practices, and guides.

GENERAL DEFINITIONS

Air Operations Branch Director

The Air Operations Branch Director (AOBD), a NIMS defined role, reports to the Operations Section Chief and is primarily responsible for preparing the air operations portion of the IAP, for implementing its strategic aspects, and for providing logistical support to aircraft operating on the incident.

Air Tactical Group Supervisor

The Air Tactical Group Supervisor aka “Air Boss”, a NIMS defined role, is an administrative non-crewmember that manages deconfliction of multiple air assets during operations that require the response of multiple UAS and/or manned air assets on the incident scene. This role is typically needed during type III and above incidents where multiple manned and unmanned aircraft will be operating in the same airspace. The Air Tactical Group Supervisor’s duties include:

- Interfacing between local Incident Command and responding air assets.
- Controlling and separating local air operations.
- Establishing Temporary Flight Restrictions (TFRs), authorizing, controlling and separating air operations.
- Coordinating with the FAA Special Operations Support Center on-scene when required.
- Establishing and maintaining safe landing sites on the fire ground or incident scene.

Airworthiness

The measure, or state, of an aircraft’s suitability for safe and predictable flight.

Anti-Collision Lights

Are a set of lights required on every aircraft to improve visibility to others. Typically, white or red in color. More can be found in FAA Advisory Circular AC 20-30B. For UAS, they are to be used from sunset to sunrise.

Aviation Terminology

Any terminology used to describe the operation of aircraft, duties of aircrew, duties of aircraft operators, and scope and interpretation of federal aviation regulations may be found in 14 CFR § 1.1 or Section 2 of the *Aeronautical Information Manual*.

Azimuth

The horizontal angle or direction of a compass bearing.

Battery Charging Cycle

One complete cycle through which a battery is completely depleted, then returned to a full state of charge.

Bingo Fuel

The minimum fuel or battery charge quantity remaining, to allow the Remote Pilot in Command (RPIC) to return the aircraft to land safely at the primary flight operations area given the present atmospheric conditions. Bingo Fuel is treated as a determinant factor to immediately terminate the mission and return to the landing area for refueling/recharging.

NOTE: Bingo Fuel should not be confused with Reserve Fuel, which is the minimum amount of fuel required to make a controllable landing anywhere.

Certificate of Authorization

COA is an authorization issued by the FAA to authorize a specific type of aircraft activity not otherwise supported by regulation.

Civil Operations

UAS operations that are not explicitly defined as recreational or public aircraft operations. It should be noted that it is not necessary to define a flight operation as a public aircraft operation for utilizing a UAS at an incident or event.

Controlled Flight into Terrain (CFIT)

An accident in which an airworthy aircraft, under pilot control, is unintentionally flown into the ground, a mountain, a body of water or an obstacle, frequently due to loss of situational awareness by the pilot in command.

Crew Readiness

The availability and readiness of the Flight Crew to deploy for sUAS operations given their knowledge and completion of pre-flight duties. (PQU.)

Data Acquisition

The collection of information from sUAS for the purpose of fulfilling the mission objectives and goals in accordance with the mission plan. (PQU.)

Decontamination (Decon)

The process by which an item is sanitized of hazardous compounds prior to returning to service.

Flight Crew

Personnel assigned to perform duty directly pertaining to the operation of the sUAS during flight time.

Ground Sampling Distance (GSD)

The Ground Sampling Distance is the effective resolution of a photogrammetric map or model, measured in centimeters per pixel. For instance, in an orthomosaic map with a resolution of 2cm/px one pixel would equal 2 centimeters, or $\frac{3}{4}$ of an inch.

Hasty Search

A search pattern intended to allow rapid coverage of the search area gathering clues or information that may be used to refine later search stages.

Incident Commander (IC)

The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. [FEMA — ICS Glossary, 2008].

Maximum Takeoff Weight (MTOW)

The maximum weight at which the aircraft is safely able to takeoff under standard conditions, as specified by the manufacturer.

Minimum Obstacle Clearance Altitude (MOCA)

The minimum altitude at which a UAS is guaranteed freedom of movement above all obstacles in a given vicinity.

Nadir

The lowest point in a spherical coordinate system, directly below the observer. A UAS's camera position is said to be Nadir when it is focused directly at the ground, with the lens parallel to the earth's surface.

Notice To The Airmen (NOTAM)

A notice filed with the FAA to alert aircraft pilots of potential hazards along a flight route or at a location that could affect the safety of the flight.

Nonparticipating Person(s)

Any person(s) other than flight crew, and qualified non-crewmembers.

Operational Deployment

The deployment of a sUAS operation shall be considered an additional segment of an operation or an operation of its own.

Operational Risk Assessment

The evaluation of the relative danger of sUAS operations when taking into consideration mission objectives and goals, sUAS, professional qualifications of the RPIC and visual observer, operational readiness of the crew, weather conditions, environmental conditions, and regulatory requirements, and unforeseen hazards and operating conditions. This practice is to be used primarily for justifying approval for additional waiver or authorizations from the FAA. Reference ASTM F3178 – 16 Standard Practice for Operational Risk Assessment of Small Unmanned Aircraft Systems (sUAS).

Orthomosaic

An aerial photograph or image constructed of multiple photographs geometrically corrected ("orthorectified") such that the scale is uniform. The resultant photo has the same lack of distortion as a map. Unlike an uncorrected aerial photograph, an orthophotograph can be used to measure true distances, because it is an accurate representation of the Earth's surface, having been adjusted for topography, lens distortion, and camera tilt.

Overwatch

A flight mission where an aircraft hovers or orbits around a point of interest to give an overview of an incident or scene. Typically, this mission provides a different perspective for incident command so that they may make more informed decisions.

Payload Drop

The release of an item or package from sUAS for the purpose of fulfilling the mission objectives and goals in accordance with the mission plan. (PQU)

Payload Operator

The crewmember responsible for securing and manipulating payloads (sensor or non-sensor), gathering and interpreting requisite inflight data, and transmitting the insights gathered from that data to the IC. The sensor operator may, when requested by the RPIC, assist the RPIC in navigation and situational awareness.

Photogrammetry

The science of extracting accurate measurements from photographs.

Public Aircraft

"Public aircraft" and "Public aircraft operator" are any aircraft, and aircraft operates described by 49 U.S.C. § 40125 - U.S. Code Title 49.

Public Aircraft Operations (PAO)

Public aircraft operations shall only refer to operations described by 49 U.S.C. § 40125 - U.S. Code Title 49. It should be noted that the use of UAS at an incident or event does not require defining the mission as a Public Aircraft Operation.

Public Blanket COA

A certificate of authorization granted by the FAA that allows public aircraft operations of a UAS over a wide or nonspecific area. These COAs typically only allow flights in Class G airspace and not within certain radii of airports, heliports, and seaplane bases.

Public Jurisdictional COA

A certificate of authorization granted by the FAA that allows public aircraft operations of a UAS within a defined geographic area. Typically, these COAs are used in more complex airspace such as near tower-controlled airports and have more stringent requirements.

Public Safety Entity

Any entity involved with public safety that has a mission to protect life, property, or the environment or any combination of these.

Public Safety Personnel

Any individual involved with public safety that has a mission to protect life, property, or the environment or any combination of these. (PQU)

Qualified Non-Crewmember

Is any person as defined by statute, 49 USC § 40125 (3) (B).

Remote Pilot in Command (RPIC)

The person that has been found to be properly qualified to exercise the privileges of Remote Pilot in Command and is directly responsible for the operation of the small unmanned aircraft, pursuant to 14 CFR § 107.19 or 14 CFR § 91.3 if operating a Public Aircraft as determined by the AHJ. (PQU)

Resources

The equipment, personnel, and facilities required for the sUAS operations provided by the public safety department. (PQU).

- Development of UAS Concept of Operations (Conops).
- Evaluation of UAS hardware.
- Procedure to determine acceptability of proposed risk.

Reserve Fuel

The minimum amount of fuel or battery charge remaining to allow the UAS to make a controlled landing anywhere.

Small Unmanned Aircraft

An unmanned aircraft weighing less than 55 lb. (25 kg) maximum takeoff weight [14 CFR Part 107, 2016].

Small Unmanned Aircraft Systems (sUAS)

A small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system [14 CFR Part 107, 2016].

Special Government Interest Addendum (SGI)

Formally known as an Emergency COA, is a type of Certificate of Authorization that is granted to allow immediate ability to conduct non-standard operations that would normally be subject to a waiver or authorization process. For more information see FAA Order # JO 7200.23A.

State of Charge (SOC)

The approximate percentage of energy contained within a battery at any given point in time, compared to its maximum potential.

sUAS Operations

The use of any sUAS for the purpose of training, certification or testing, or for protection life, property or the environment.

sUAS Program

The elements (administrative, operational, qualifications and training, safety, and maintenance) that are required within the structure of a public safety entity in order to support sUAS operations that are safe, efficient, and feasible.

Sustainable Life Cycle

A determination made by a public safety entity in relation to the ability of sUAS manufacturer, system provider, or both to supply replacement parts, critical maintenance, system updates, upgrades, as well as the availability of training, certification and support and other applicable components critical to ensuring continuous sUAS operations that are interoperable with associated agencies.

System Operation Support Center

An office of the Federal Aviation Administration (FAA) responsible for the approval or denial of Special Governmental Interest Addendum authorizations. Public agencies making a Special Governmental Interest Addendum request must contact the System Operations Support Center to do so.

Unmanned Aircraft

An aircraft operated without the possibility of direct human intervention from within or on the aircraft. [14 CFR Part 107, 2016].

UAS Tactical Group Supervisor

The UAS Tactical Group Supervisor is an operations non-crewmember that manages coordination and deconfliction of multiple air assets during operations that require the response of multiple UAS, or UAS and manned air assets on the incident scene. This role coordinates missions with Air Operations. UAS Tactical Group Supervisor duties include:

- Interfacing between local incident command and UAS teams.
- Coordinating activities with Air Operations.
- Reports to the Air Tactical Group Supervisor or Air Operations Branch Director, if present.
- This role may perform tasks assigned to an Air Tactical Group Supervisor or Air Operations Branch Director in their absence.
- Coordinating with the FAA Special Operations Support Center on-scene when required.
- Establishing and maintaining safe landing sites on the fire ground or incident scene.
- Coordinating and deconflicting operations with unmanned aircraft assets.
- This role is equivalent to the NWCG UAS Module Leader.

UAS Coordinator

The UAS Coordinator is an administrative non-crewmember that manages program readiness and regulatory compliance at the Departmental level if applicable. Duties include:

- Maintaining the crewmember roster and supporting training logs for any persons eligible to act as crewmembers on a MABAS UAS operation.
- Establishing and maintaining localized FAA authorizations/waivers.
- Ensuring all operations conducted are in accordance with the MABAS UAS Guideline.
- Maintaining departmental owned UAS airworthiness, including maintenance logs.
- Reporting pertinent crewmember and response information to the UAS Division Branch Chief and acting under the guidance of the UAS Division Branch Chief.

UAS Division Branch Chief

The UAS Division Branch Chief is an administrative non-crewmember that manages program readiness and regulatory compliance at the MABAS Division or Departmental levels. Duties include:

- Maintaining the crewmember roster and supporting training logs for any persons eligible to act as crewmembers on a MABAS UAS operation.
- Establishing and maintaining localized FAA authorizations/waivers.
- Ensuring all operations conducted are in accordance with the MABAS UAS Guideline.
- Maintaining divisional or departmental owned UAS airworthiness.
- Reporting pertinent crewmember and response information to the UAS Section Chief.

UAS Section Chief

The UAS Section Chief is an administrative non-crewmember that manages the MABAS UAS Program, including readiness and compliance at the MABAS-Illinois level. Duties include:

- Maintaining the crewmember roster and supporting training logs for any persons eligible to act as crewmembers on a MABAS UAS operation.
- Maintaining any MABAS-wide special authorization or waiver from the FAA.
- Acting as a single point of contact with the FAA.
- Updating, disseminating, and enforcing the MABAS UAS Guideline.

Visual Line of Sight

Visual Line of Sight is determined by the ability of the average human eye to resolve a distant object with or without corrective lenses.

Visual Observer (VO)

A person who assists the Remote Pilot in Command (RPIC) and the person manipulating the flight controls of the small UAS (if that person is other than the RPIC) and fulfills the duties of the crewmember described in 14 CFR § 107.33.

WX

An Abbreviation for Weather

Zulu Time

Universal Coordinated Time (UTC) or Greenwich Mean Time (GMT) a universal time zone used in aviation weather forecasting.