



3L Marketing Services Unmanned Aircraft Systems Operations Manual

August 2019

1. Preface

The following procedures are intended to promote safe, efficient and lawful operation of **3L Marketing Services'** unmanned aerial system (UAS). Safety, above all else, is the primary concern in each operation, regardless of the nature of the mission.

2. Philosophy & Mission Statement

3L Marketing Services' main mission is to employ personnel who are trained in the use of unmanned aircraft systems (UAS), to use this resource to conduct aerial photography, videography, commercial inspections (agriculture, buildings and infrastructure), and aerial surveying, mapping and 3D modeling.

It shall be the intent of every UAS operator to make reasonable effort to not invade a person's reasonable expectation of privacy when operating the UAS. When operating the UAS, **3L Marketing Services** operators abide by all FAA Regulations for flight and receive the proper authorization for flight.

3. Protection of Rights and Privacy

UAS operators and observers ensure the protection of private individuals' civil rights and reasonable expectations of privacy before deploying the UAS. UAS operators and observers ensure and are held accountable for ensuring that operations of the UAS intrude to a minimal extent upon the private persons and businesses. To accomplish this primary goal, **3L Marketing Services** observes the following:

A. During a Mission, the UAV and the onboard camera are turned, as best possible, to be facing away from occupied structures, etc. to minimize inadvertent video or still images of uninvolved persons or property. **B.** **3L Marketing Services** does not conduct random surveillance activities. The use of the UAS is tightly controlled and regulated. **C.** All authorized missions for **3L Marketing Services** UAS are for: a. Aerial photography, videography, commercial inspections (agriculture, buildings and infrastructure), and aerial surveying, mapping and 3D modeling. **D.** **3L Marketing Services** meets semi-annually for the purpose of reviewing the existing UAS procedures as well new technologies, laws, and regulations on UAS usage. The meetings consist of personnel from **3L Marketing Services** and possibly business partners and or advisors. **E.** **3L Marketing Services** UAS operate strictly within the law and regulations. If in doubt, prior to operating the UAS we ensure that the proper forms and applications are applied for and obtained. We balance all operations with the need to accomplish the mission while maintaining public privacy and the freedom from intrusion.

4. Administration

This section includes Operations Manual, Organization and Personnel.

A. Operations Manual

1. The policies and procedures contained in this manual are issued by **3L Marketing Services**. As such it is an official business document of **3L Marketing Services**. 2. This manual is not intended to be all-inclusive, but as a supplement to other company guidelines, Federal Aviation Administration regulations, pre-flight safety checklists, aircraft manufacturers' approved flight manual, etc. 3. This manual is been written to address UAS operations as they existed when it was drafted. Equipment, personnel, environment (internal and external), etc., change over time. The entire manual must be reviewed, at a minimum, annually to assure it is up to date. Any changes to the manual will be communicated as currently dictated by company policy. 4. A copy of the manual (electronic and/or paper) is issued to every person having UAS responsibilities.

B. Organization

1. The UAS unit is comprised of those personnel approved by **3L Marketing Services** and includes operators, observers and others deemed necessary and an have assignment as part of the UAS crew. 2. Assignment to the UAS crew is carefully selected by a **3L Marketing Services** staff member with knowledge of the airspace within which the operation will take place and how that airspace fits into the National Airspace System (NAS).

C. Personnel

1. The UAS flight coordinator or pilot-in-command (PIC) is responsible for the overall direction and performance of the UAS unit and exercises command and control over it. The PIC must be FAA part 107 certified. 2. UAS Coordinator Responsibilities: a. maintaining all training, flight and maintenance records for each operator and observer as well as individual airframes; b. maintain contact with the FAA and regulations as they change and maintain current FAA certification as needed and required by US law for civil UAS operations. c. evaluates airframes based on mission needs; 3. Operators: a. To be considered for selection as an operator, applicants must meet the requirements for and successfully pass a **3L Marketing Services** administered UAS Operators Course AND be FAA part 107 certified in order to be accepted into the UAS crew. b. Operators interacting with Air Traffic Control (ATC) or Terminal Radar Approach Control Facilities (TRACON) shall have sufficient expertise to perform that task readily. Operators must have an understanding of and comply with FAA Regulations applicable to the airspace where the UAS operates. c. An operator's primary duty is the safe and effective operation of the UAS in accordance with the manufacturers' approved flight manual, FAA regulations and company policy and procedures. Operators must remain knowledgeable of all FAA regulations; UAS manufacturer's flight manual and bulletins and company policy and procedures. d. Operators may be temporarily removed from flight status at any time by the UAS coordinator, for reasons including performance, proficiency, physical condition, etc. Should this become necessary, the operator will be notified verbally and in writing of the reason, further action to be taken and expected duration of such removal. e. The UAS

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Coordinator shall maintain a file for each operator which shall include copies of training records, flight incidents, etc. This file is reviewed in accordance with current company policy and procedures. 4.

Observers a. Observers must have been provided with sufficient training to communicate clearly to the operator any turning instructions required to stay clear of conflicting traffic and obstacles. Observers receive training on rules and responsibilities described in 14 CFR 91.111, Operating Near Other Aircraft, 14 CFR 91.13, Right-of-Way Rules, cloud clearance, in-flight visibility, and the pilot controller glossary including standard ATC phraseology and communication. 14 CFR 91.17, Alcohol or Drugs, applies to UAS observers. b. An observer's primary duty is to operate the UAS's equipment including cameras, FLIR, radio communications with other crew members and property owners as well as be an observer for anything that may affect the operator's primary duty (see and avoid). c. The UAS Coordinator maintains a file for each observer, which includes copies of training records, UAS incidents, etc.

5. Safety

A. Safety Policy

3L Marketing Services 1. Is committed to having a safe, healthy and accident free workplace, including no harm to people, no damage to equipment, the environment and property. Open reporting of all safety hazards in which management will not initiate disciplinary action against any personnel who, in good faith, disclose a hazard or safety occurrence due to unintentional conduct is our goal. Support for safety training and awareness programs. Conducting regular audits of safety policies, procedures and practices. Monitoring the UAS community to ensure best safety practices are incorporated into the organization. 2. It is the duty of every member within the UAS flight crew to contribute to the goal of continued safe operations. This contribution comes in many forms and includes always operating in the safest manner practicable and never taking unnecessary risks. Any safety hazard, whether procedural, operational, or maintenance related must be identified as soon as possible after, if not before, an incident occurs. Any suggestions in the interest of safety should be made to the UAS Coordinator. 3. If any member observes or has knowledge of an unsafe or dangerous act committed by another member, the UAS coordinator is to be notified immediately so that corrective action may be taken.

B. Safety Officer - Operator/Observer/Coordinator

1. Regarding safety, all members of the UAS flight crew are responsible for the following: a. Ensuring all flight operations personnel understand applicable regulatory requirements, standards and organizational safety policies and procedures. b. Observe and control safety systems by monitoring all operations. c. Review standards and the practices of company personnel as they impact operational safety. d. Communicate all reported safety related problems and the corrective action taken. If there were any in-flight problems (or learned experiences), the proper procedures for handling that problem

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should be discussed. e. Copy and circulate pertinent safety information. f. Copy and circulate emergency safety bulletins. g. Place any electronic copies of safety information or bulletins in a conspicuous location for all employees to access. h. It is emphasized again that safety is the responsibility of ALL members of the UAS unit.

C. Safety Training

1. All members shall receive training in the following subjects prior to operating the UAS: a. Company commitment to safety b. Company policy c. UAS member's role in safety d. Emergency safety procedures 2. All members shall review the company safety policy and procedures on an annual basis and that review shall be noted in their training history.

D. Basic Flight Training

Observers and Operators must have completed enough training to communicate to the pilot any instructions required to remain clear of conflicting traffic. This training, at a minimum, shall include knowledge of the rules and responsibilities described in 14 CFR 91.111, Operating Near Other Aircraft; 14 CFR 91.113, Right-of-Way Rules: Except Water Operations; and 14 CFR 91.155, Basic VFR Weather Minimums; knowledge of air traffic and radio communications.

E. Recurrent Training

1. All members within the unit shall maintain proficiency in their operator/observer abilities. Recurrent training is not limited to actual operating/observer skills but includes knowledge of all pertinent UAS/aviation matters. 3. Failure to prove proficiency can result in removal from UAS responsibilities.

F. Medical Factors

1. Operator and Observers shall only deploy the UAS when rested and emotionally prepared for the tasks at hand. 2. Physical illness, exhaustion, emotional problems, etc., seriously impair judgment, memory and alertness. The safest rule is not to act as an operator or observer when suffering from any of the above. Members are expected to "stand down" when these problems could reasonably be expected to affect their ability to perform flight duties. 3. A self-assessment of physical condition shall be made by all members during preflight activities. 4. Performance can be seriously hampered by prescription and over-the-counter drugs. The UAS Coordinator must be advised anytime such drugs are being taken. If it is determined that the medication being taken could hamper an operator or observer, that member shall be prohibited from the deployment or exercise. 5. No member shall act as an operator or observer within eight hours after consumption of any alcoholic beverage, while under the influence of alcohol, or while having an alcohol concentration of 0.04 (FAR 91.17)

6. General Operating Procedures

A. Client or Prospect Requesting UAS Services: Procedure

3L Marketing Services (UAS Coordinator) will maintain and communicate with their UAS Personnel/Flight Crew who will screen the request using the following factors: a. Is the proposed use of UAS within the capabilities of the UAS equipment and personnel to perform? b. Does the proposed use of the UAS fall within the FAA and department policies and regulations for UAS usage? c. Can the UAS be deployed safely given current weather conditions? d. If the UAS deployment requires a warrant has one been requested and approved? e. Are enough trained and qualified personnel available to safely operate the UAS? 4. The UAS flight crew will either accept or decline the request for UAS support. If the request is denied the UAS flight crew will provide a reason for declining the support request to the UAS Coordinator who will provide the requestor this information along with the reason for declining. If the UAS Coordinator accepts the support request they will contact a UAS operator who will be provided all available mission information. 5. The UAS operator will contact a certified observer from the list of available trained observers. The UAS operator is responsible for transporting the UAS and all required equipment to the scene. Upon arriving at the requested location, the UAS operator will contact the requestor to check in and receive a briefing on the mission requested. The UAS operator will make an on-scene determination of the ability of the UAS to perform the requested mission safely and within company and FAA policies and procedures. 6. If the UAS operator determines that the use of the UAS would violate company policy or directives then the UAS operator will inform the requestor of the potential conflict along with recommendations for modifying the requested mission to conform to company policies and procedures. As this is a change from the original approved mission the UAS operator will contact the UAS coordinator for direction on how to proceed. As soon as possible after the completion of the mission, the UAS operator will make a full report of the circumstances and their concern through the UAS coordinator. 7. UAS operators will have sole discretion for declaring safety or violation of FAA rules. If the UAS operator determines that a requested mission would violate FAA rules or endanger person or property, then the UAS operator will respectfully inform the requestor of the reasons for refusing to operate the UAS and contact the UAS coordinator immediately. The UAS will not be flown in this circumstance and the authority of the UAS operator is absolute. 8. If the UAS operator determines that the requested mission will potentially damage the UAS or its associated equipment the UAS operator will inform the requestor of their concerns. The UAS operator will fully document and send a report to the UAS coordinator.

B. Flight Boundaries

1. Although there may be requests for UAS support in restricted airspace, FAA regulations for UAS restrict UAS deployment inside restricted airspace. 2. At no time shall UAS support be granted inside restricted airspace without first obtaining permission from the local FAA FSDO and approval by local authorities. 3. Maximum altitude shall not be set more than 400 feet per the FAA regulatory standards.

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4. The operator will obtain the consent of all persons involved in the mission and ensure that only consenting persons will be allowed within 75 feet of the flight operation, and this radius may be reduced to 25 feet based upon an equivalent level of safety determination.

C. Minimum Personnel Requirements

1. The nature of the mission will determine the minimum personnel required. ALL missions will adhere to a standard, an operator that is flying within VLOS of the UAS and on many missions, additional observer(s). **Under no circumstances will an operator attempt to complete a deployment alone.**

D. Personnel Responsibilities for Deployments

(OPEN COMMUNICATION/SAFE OPERATIONS)

1. Operator a. The operator is directly responsible for and is the final authority over the actual operation of the UAS. b. Operators have absolute authority to reject a flight based on personnel safety or violation of FAA regulations. No member of **3L Marketing Services**, regardless of status, shall order an operator to make a flight when, in the opinion of the operator, it poses a risk to personnel or is in violation of FAA regulations. c. Operators are responsible for compliance with this manual, company policy and procedure and FAA regulations. d. The operator's main duty during the deployment of the UAS is to operate the UAS safely while accomplishing the goals of the deployment. e. Operators shall see-and-avoid any obstacle that will lessen safety during the mission. f. Operators shall be responsive to the requests of the observer in order to accomplish the deployment. g. Operators shall be responsible for documentation for mission training and updating of flight books. 2. Observer a. Observers shall see-and-avoid any obstacle that will lessen safety during the mission. b. Observers are responsible for the operational aspect of the deployment. c. Observers shall operate any attachments to the UAS, allowing the operator to maintain complete focus on the operation of the UAS. d. Observers shall remain alert for suspicious persons or activities on the ground and coordinate response by other UAS flight crewmembers. e. Observers shall assist the operator in the main objective of safe operations of the UAS. f. Observers shall be responsible for documentation for mission training and updating of flight books.

E. Personal Equipment

1. Operators/Observers shall always wear eye protection while the UAS is in flight. 2. Take necessary measures to deploy in a professional matter, wear Hi-Visible vests when appropriate, and take into consideration that all deployments are subject to media requests. 3. Operators/Observers will take into consideration the current weather conditions when planning to deploy and wear appropriate clothing to deploy comfortably. 4. Use of the radio or cellular phones during the deployment of the UAS is allowed, but the operator/observer should at all times take into consideration safe operation of the UAS when

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using a radio or another device (use of the radio or other device is strictly prohibited by the operator during flight). 5. Operators/Observers shall wear clothing that easily identifies them as **3L Marketing Services** UAS Flight Crew members.

7. Pre-Flight/Post-Flight Actions

A. Inspections

1. Operators/Observers are both responsible for a thorough preflight inspection of the UAS. 2. Before and after each deployment (whether a mission or training), the operator and observer shall conduct a thorough inspection of the UAS in accordance with the instructions contained in the manufactures user's manual. 3. Any issues found that will put in jeopardy the safe operation of the UAS shall be documented and resolved immediately prior to flight. 4. It has been recognized that the use of a checklist is a significant method to combat UAS accidents. A pre-flight checklist is contained with each UAS Base Station and is utilized prior to each flight. 5. Any physical equipment that cannot be resolved on-site, and which have an impact on safety or the mission, will override the deployment. These issues will be resolved before flight.

B. Weather

1. Before each deployment, the operator/observer will ensure that he/she gathers enough information to make themselves familiar with the weather situation existing throughout the area of deployment. The operator shall utilize FAA approved weather resources to obtain the latest and most current weather conditions. 2. An anemometer should be utilized in order to better estimate the wind speed and determine if it is within the capabilities of the airframe being flown. 3. Operators/Observers should use the Beaufort Scale when making deployment decisions regarding wind conditions. 4. The weather conditions reported for the operation shall be recorded in the pre-flight checklist. 5. The operator shall ensure that the flight will occur within FAA VFR weather requirements.

C. Documentation

1. Inspection and weather will be documented prior to flight within the logbook. 2. After each flight, the operator will complete a statement documenting the UAS operations.

D. Planning

1. The operator/observer shall familiarize themselves with all available information concerning the deployment including, but not limited to, the weather conditions, hazards, description of the incident, deployment goals, etc. 2. Operators will ensure that the location for take-off and emergency landing is adequate for a safe deployment. a. The take-off/landing area should be clearly marked and identifiable with short cones. b. At least one emergency landing area should be identified per deployment. 3. Operators will ensure that they are aware of their surroundings in the event that an emergency landing is necessary. This includes the ability to recover the UAS.

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E. Checklists

1. Operators shall utilize pre-flight checklists to ensure the highest level of safety for deployment. 2. Prior to flight, the flight log shall be initiated.

F. Maintenance

1. Although there are few parts on the UAS that need servicing, it is necessary that the manufacturer's maintenance schedule is followed and properly documented. 2. Any issues that arise during maintenance that cannot be resolved by routine methods shall be forwarded to the manufacturer for further technical support.