香港特別行政區政府
民航處
Civil Aviation Department
The Government of the Hong Kong Special Administrative Region

Small Unmanned Aircraft Advisory Circular No. AC-007

Date: 9 May 2025

Permission for Heavy Small Unmanned Aircraft Operations

1. Background

1.1 The Small Unmanned Aircraft Order ("SUA Order"), Chapter 448G of the Laws of Hong Kong, came into operation on 1 June 2022. Under the SUA Order, small unmanned aircraft ("SUA") operations are regulated under a risk-based approach and be classified according to the weight of the SUA and the operational risk level.

1.2. Due to their heavier weight and usually larger size, **Category B SUA** with weight exceeding 7 kg at any time during the flight would be subject to a higher level of risk. Their operations are categorised as "**Advanced Operations"** for which a permission under section 37 of the SUA Order is required from the Civil Aviation Department ("CAD") prior to operation.

1.3. Some SUA models, despite not weighing over 7 kg during the flight, exceed the maximum dimensions specified for standard operations (see paragraph 2.2). Their operations are categorised as "**Advanced Operations"** for which a permission under section 37 of the SUA Order is required from the CAD prior to operation. Considering that the operational risk of these SUA is similar to that of the Category B SUA, they shall be subject to the same requirements for operations.

1.4. This Advisory Circular ("AC") sets out the requirements for permission to operate **Category B** or **Oversize** SUA.

2. Definition

2.1 Pursuant to section 3(2)(c) of the SUA Order, an SUA is a Category B aircraft (i.e. Category B SUA) in respect of a flight if its weight exceeds 7 kg at any time during the flight.

2.2 Pursuant to the Gazette Notice issued under section 17(2) of the SUA Order, the specified dimension of SUA does not exceed 1 m at all times during the flight, except that the longest distance between any two rotor blade tips can be up to 1.2 m. Any SUA exceeding the specified dimension is regarded as "Oversize" SUA in this AC.

2.3 In determining the weight or dimension, everything installed in, carried by, or attached to the SUA is to be taken into account. For example, the weight or dimension of any battery, fuel or payload carried by the SUA, such as cameras, lens filters, rotor guards, stickers, lights, etc. are considered as part of the weight or overall dimension.

3. Applicability

3.1 This AC applies to applicants who wish to apply for a permission from the CAD to conduct operations of Category B or Oversize SUA within Hong Kong.

Note: For operations of Category B or oversize model aircraft, please refer to AC-012.

3.2 Unless otherwise advised or specified in the permission, the operating requirements applicable to Category B or Oversize SUA are the same as those involving Category A2 SUA.

4. Equipment Requirements

4.1 The Category B or Oversize SUA shall be equipped with the necessary safety system capable of performing the functions specified in section 13 of the SUA Order, i.e. flight log and geo-awareness functions.

4.2 In addition to the above requirement, **geo-fence** and **altitude limiting** functions shall be equipped to cage the SUA manoeuvres within a pre-defined flight area and level. **Real Time Kinematic (RTK)** positioning system is recommended.

4.3 **Appropriate ground station** or **remote controller software** shall also be in place to assist the remote pilot in identifying the SUA's position in real time.

4.4 SUA equipped with obstacle avoidance function is recommended to provide an enhanced level of safety.

4.5 A **maintenance schedule** or **tech log** system shall be devised to form the programme for maintaining and servicing the SUA.

4.6 All personnel and crew members involved in the operations of Category B or Oversize SUA including the remote pilot are recommended to be provided with appropriate high visibility personal protective equipment (e.g. reflective apparel, safety vests, etc.).

5. Personnel Requirements

5.1 The remote pilot of Category B or Oversize SUA shall hold a valid remote pilot certificate and be assigned with an "advanced rating".

5.2 The remote pilot shall choose a visual observer ("VO") whom the remote pilot is satisfied that the VO is competent for the advanced operations to be conducted.

5.3 In addition to the VO and subject to the area of operation, to provide additional safety and observation support, sufficient supporting crew should be positioned in the operation area to assess the SUA's position, maintain constant visual lookout for any uninvolved people/ vehicles/ vessels getting close to the SUA, and take necessary actions concerning ground safety.

5.4 Prior to operations, the VO and/or other supporting crew shall be adequately briefed on details of the flight plan, safety risks involved, risk mitigations, operating procedures and emergency procedures, etc. They shall also be made aware of the terms and conditions of the permission issued by the CAD under section 37 of the SUA Order, and take all necessary measures to comply with such terms and conditions specified therein.

5.5 Effective audio communication must be maintained between the remote pilot, VO and/or supporting crew at all times during the flight.

6. Operating Requirements

6.1 A flight plan for each intended operation of Category B or Oversize SUA shall be devised, including but not limited to the proposed operation date, time, take-off and landing point(s), flight path, flight altitude, and geo-fenced area (if any), together with the applicable operating and weather conditions and risk mitigation measures. The flight plan should be appropriately documented and kept for at least two (2) years from the date of operation.

6.2 As part of the risk assessment process, a thorough site and flight safety assessment covering the take-off and landing points, and areas along and surrounding the SUA flight paths shall be conducted prior to the intended operations, to identify, record and address any hazards, restrictions and obstacles in the associated areas.

6.3 The SUA shall not be operated within a restricted flying zone or carry any dangerous goods during flight, unless a relevant permission has been separately obtained. For details of the restricted flying zone, please refer to the Drone Map published by the CAD.

6.4 The remote pilot shall comply with all other applicable operating requirements to the SUA, i.e. operating the SUA only in daylight hours, maintaining the flying altitude at 300ft or below, maintaining lateral separation with any uninvolved person and vehicle, vessel or structure not under the control of the remote pilot according to the speed of the aircraft, not carrying any person or animal during flight, nothing being dropped from the aircraft, the remote pilot operating no more than one SUA at the same time. More information about the requirements is available in the Safety Requirements Document ("SRD") published by the CAD.

6.5 Additional payloads carried by the SUA such as camera, sensor, auxiliary lights, safety equipment and other accessories that could facilitate the conduct of flight or achieve the mission of photography, survey, inspection and etc. should be documented in the Operations Manual. Provision of goods lifted, carried or delivered by the SUA is subject to technical assessment in respect of equipage and mounting/containment mechanism and satisfaction by the CAD prior to incorporation into Operations Manuals for the relevant operation.

6.6 Applications may be made for any one or more than one specific type of advanced operations; but in any one flight, only one type of advanced operations shall be involved, unless otherwise specified by the CAD in the permission concerned.

7. Emergency Procedures

7.1. The remote pilot shall determine suitable responses and fail-safe mechanism for emergency during operation, e.g. loss of command and control link, or navigational lighting.

8. Insurance Requirements

8.1. A policy of insurance will be in force during advanced SUA operation to insure a person or a class of person for the third-party liability (for bodily injury and/or death) arising out of or caused by the SUA operation. The minimum coverage is HKD 10 million.

9. Others

9.1. The remote pilot, responsible person of SUA or any other person who knowingly causes or permits the aircraft to be operated for the flight should take note that apart from the

SUA Order, other regulations, bylaws, requirements, etc. may also govern the usage of SUA. Applicable rules shall be observed and consent from relevant land or property owner, management, authority or agency shall be obtained if deemed necessary or appropriate for the intended operations.

10. Application

10.1. Applicants may apply to the CAD for permission to operate Category B or Oversize SUA following the requirements set out in AC-002.

10.2. Apart from the requirements prescribed in the AC-002, an applicant shall also include the following information/ document specific to operations using Category B or Oversize SUA as part of the application:

a) An Operations Manual including (See **Appendix A** for details):
- Duties and responsibilities of all crew member(s) including remote pilot, VO and/or supporting crew;
- Description of the heavy/oversize SUA operations and the procedures to ensure safe operation;
- General and emergency procedure to conduct the heavy/oversize SUA operations safely, including flight checks to be carried out and communication protocols between the remote pilot, VO and/or supporting crew;
- Description of qualifications requirements to ensure competency and currency for all personnel involved in the intended operations, including the VO and/or supporting crew; and

b) A risk assessment identifying hazards specific to heavy/oversize SUA operations and the corresponding risk mitigation measures (See **Appendix B** for details)

10.3. Dependent on the risks and complexity of the proposed operation, the CAD may require a flight demonstration to be performed to assess the applicant's capabilities and safety of the proposed operations of heavy or oversize SUA.

11. Enquiries

11.1. This AC will be subject to review and update from time to time in the light of the advancement of technology and increasing popular use of SUA in different professional applications. It should also be noted that the safety guidelines above are not meant to be exhaustive. It shall be the responsibility of the SUA responsible person and remote pilot to comply with all applicable regulatory requirements, put in place appropriate safety precautions and risk mitigating measures for the subject SUA operation, as well

as to follow the requirements and guidelines set out by any property owner and/ or manager to ensure the safe operations of SUA at all times.

11.2. This AC should be read in conjunction with the SUA Order, SRD and other SUA related documents published by the CAD.

11.3. For enquiries, please contact the Unmanned Aircraft Office of the CAD at sua@cad.gov.hk.

12. Notes

12.1. This AC supersedes the version dated 31 August 2023.

Appendix A – Operations Manual for Operations of Category B or Oversize Small Unmanned Aircraft (SUA)

The applicant may make reference to the sample of Operations Manual and incorporate into the manual specific descriptions/ policies/ procedures applicable to operations of Category B or Oversize SUA to address any concerns and issues arose. While the following are not intended to be exhaustive or prescriptive, the applicant should give similar considerations in the Operations Manual.

A. Responsibilities and Duties

- The duties and responsibilities of the Remote Pilot and Visual Observer shall be detailed in the Operations Manual, including but not restricted to:

Remote Pilot

a) Conduct SUA flight in accordance with the procedures set out in the Operations Manual;
b) Ensure the overall safety of the SUA operation;
c) Confirm the Visual Observer and Supporting Crew (if available) maintains currency of his/ her training and is physically fit to carry out duties as Supporting Crew;
d) Brief and debrief all members of the flight team and associated staff and ensure they are aware of their responsibilities and tasks for the particular SUA operation;
e) Conduct risk assessment to identify any hazard for the operation and determine risk mitigating measures to be implemented;
f) Conduct site survey to determine if the prevailing conditions are suitable for SUA operations and complete the associated forms;
g) Work out the flight details including flight time, flight duration, take-off and landing area, flight path, position of Visual Observer etc. and execute accordingly;
h) Perform pre-flight check to ensure the SUA is in good condition and functioning properly prior to take-off or launching;
i) Halt or cancel SUA operation if, at any time, the safety of persons or property on ground or in the air is in jeopardy, or if there is a failure to comply with the provisions of permission issued by the CAD; and
j) Ensure that all logs and records in relation to the operations are properly completed and signed.

Visual Observer

a) Maintain direct, unaided (other than corrective lenses) visual contact with the SUA to know the SUA location, determine the SUA's attitude, altitude and

direction of flight, observe the airspace for other air traffic or hazards and determine if the SUA become a hazard to any other aircraft, person or property;
b) Communicate continuously and effectively with the Remote Pilot and provide sufficient collision avoidance information to the Remote Pilot; and
c) Inform the Remote Pilot when the SUA is approaching its maximum operating range limits.

Supporting Crew

a) Keep the Remote Pilot updated constantly on an independent monitor on flight parameters of the SUA including battery level and satellites tracked when the Remote Pilot is focused on keeping the SUA within Visual Line of Sight (VLOS) or manoeuvring the SUA;
b) Assist in ensuring the operation is executed according to plan such as flight path followed and image captured;
c) Maintain constant visual lookout for any uninvolved people, vehicles, vessels or structures within or getting close to the minimum lateral separation required; and
d) Alert the Remote Pilot in case of any emergencies such as battery level and satellites tracked reaching the minimum level for safe operations.

B. Qualification Requirements

- The Visual Observer shall be competent for the operations of Category B or Oversize SUA to be conducted. He/ she is required to complete satisfactorily internal training and assessment relevant to the duties and responsibilities and maintain currency by test flights, training flights and/ or actual SUA operations. The training programme for Visual Observer shall be documented in the Operations Manual.

- All training records shall be properly kept and updated by the SUA Operator, and shall be made available in a legible format to the CAD upon request. For details, please refer to AC-002.

C. Equipment Requirements

- The Category B or Oversize SUA to be used shall fulfil the following requirements:
  a) A maintenance schedule programme or tech log for maintaining and servicing the SUA;
  b) Obstacle avoidance function will be used to further mitigate the risk of collision;
  c) Geo-fence and altitude limiting functions for SUA to operate within the intended area of operation will be used with Real Time Kinematic (RTK) positioning system;

d) Appropriate ground station or remote controller software will be used to assist the remote pilot in identifying the SUA's position in real time; and
e) Additional equipment or payloads carried by the SUA will be documented in the Operations Manual.

D. Communications

- The Remote Pilot shall consider adequate means of communication between crew members and any other relevant people when conducting operations, including any procedures that need to be implemented. The Remote Pilot should also consider back up communication methods in case the primary means of communication fails.

- Communication protocols between the Remote Pilot and Visual Observer to communicate collision avoidance information and corresponding commands.

E. On-site Procedures and Pre-flight Checks

- Before the operation, the Remote Pilot shall conduct comprehensive flight planning (including daylight reconnaissance and site safety assessment) prior to the operation to ensure compliance with all applicable statutory requirements, e.g. the flight path is so planned that the operation will be not be conducted in a congested area and within a restricted flying zone. Any hazards, restrictions and obstacles shall be identified, addressed and recorded.

- The Remote Pilot shall be satisfied that the airspace in which the operation will take place will be visible at all times by the Visual Observer during the flight. An assessment shall be conducted taking into account physical obstacles, meteorological conditions and position of the Visual Observer.

- The Remote Pilot shall brief the all crew members participating in the operation, especially the Visual Observer, to ensure they are fully aware of their responsibilities and the operational task.

F. Flight Procedures

- During operations of Category B or Oversize SUA, the Remote Pilot shall, with the assistance from the Visual Observer, continuously know and determine the position, altitude, attitude and movement of his/ her SUA and ensure it remains in the area of intended operation without exceeding the performance capabilities of the command and control link.

- At all times during the flight, the Visual Observer shall maintain VLOS with the SUA to

    a) know the SUA location;
    b) Determine the SUA's attitude, altitude and direction of flight;
    c) Observe the airspace for other air traffic or hazards; and
    d) Determine if the SUA become a hazard to any other aircraft, person or property.

  And maintain continuous and effective communication with the Remote Pilot for avoidance of potential collision hazards and maintaining awareness of the SUA location.

- If the Visual Observer fails to maintain VLOS with the SUA, or the SUA becomes a hazard to any other aircraft, person or property, the Remote Pilot shall immediately respond in accordance with established emergency procedures to ensure the safety of operation. The relevant emergency procedures shall be documented in the Operations Manual.

- The Visual Observer shall not maintain VLOS with more than one SUA or for more than one Remote Pilot at a time during operations of Category B or Oversize SUA. Neither should they be assigned other duties during the flight.

G. Emergency Procedures

- The Remote Pilot shall determine suitable responses and fail-safe mechanism for emergency during operation, e.g. loss of command and control link, and collision avoidance. If the aircraft will return to the 'home' position and land automatically, considerations shall be given to the minimum battery level throughout the flight so that, when such function is activated, the battery level is always sufficient to support a safe landing to the home point. The altitude for such function shall also be deliberated for obstacle clearance and avoiding collision risk with other aircraft, in any case not above 300 feet AGL.

Appendix B – Safety Risk Assessment for Operations of Category B or Oversize Small Unmanned Aircraft (SUA)

The applicant shall identify risks specific to the proposed operations of Category B or Oversize SUA and propose effective risk mitigation measures so that the risks are mitigated to an acceptable level. A template of risk assessment is available in the sample of Operations Manual. The following is an example of safety risk assessment for operations of Category B or Oversize SUA and some anticipated risks to be addressed. Applicant should note that the list is not exhaustive. Any other risks associated with the proposed operation shall be identified and addressed.

Risk No.	Identified Hazard	Associated Risk (What & How)	Existing Mitigation	Current Risk Rating	Further Mitigation	Revised Risk Rating
1.	*Unforeseeable circumstances of collision with obstacles*	*Fail to maintain VLOS with the SUA and the SUA may collide with obstacles*	*Visual Observer assistance to assess SUA position*	*4C*	*Install obstacle avoidance functions for additional safety assurance*	*1C*
2.	*Impact to ground when the SUA fell from height*					
3.	*Loss of control of the SUA*					
4.	*Impact to other airspace users, manned aircraft*					
5.						

– END –