



Civil Aviation Authority, Bangladesh

CIRCULAR

Subject : Regulations for Operating Remotely Piloted Aircraft Systems (RPAS)

Applicability : This document applies to members of the public, organizations, institutions and/or any other agencies who operate or intends to operate RPAS.

Issued By : Chairman, Civil Aviation Authority, Bangladesh

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1. INTRODUCTION

1.1 Purpose

This Circular provides information, instructions, requirements, procedures and standards for the operation of Remotely Piloted Aircraft Systems (RPAS) or any such flying objects operating in the airspace of Bangladesh.

1.2 Terminology

When the term Remotely Piloted Aircraft Systems (RPAS) is used, it would mean drones, unmanned aerial vehicles, remotely piloted air vehicle etc. But it is understood that media, public and manufacturers may use different terms when describing a remotely controlled aircraft.

1.3 Applicability

- (a) This Circular applies to members of the public, organizations, institutions and/or any other agencies who operate or intends to operate RPAS.
- (b) Any person, organization, institution intending to operate RPAS shall apply for a Special Flight Operations Certificate (SFOC) for the operation of a RPAS for any professional and/or non-recreational purpose such as aerial photography, geomantic surveying, crop observation, advertising, research and development.

1.4 Definitions

The following **definitions** are used in this document:

- (a) **Maximum Take-off Weight** – means the weight of the RPAS at the time of the operation, including the weight of any payload (e.g. a camera) and fuel/battery.
- (b) **Special Flight Operations Certificate (SFOC)** – is a CAA, Bangladesh document required for operating a Remotely Piloted Aircraft System (RPAS).
- (c) **Unmanned Air Vehicle** – means a power-driven aircraft, other than that is designed to fly without a human operator onboard. Unmanned air vehicles exclude fireworks, kites, rockets and large unmanned free balloons.
- (d) **Visual Line-of-Sight** – means unaided (corrective lenses and/or sunglasses exempted) visual contact with the unmanned air vehicle sufficient to maintain operational control of the aircraft, know its location, and be able to scan the airspace to see and avoid traffic.

2. BACKGROUND

Flying RPASs have become a trend in Bangladesh and have gained momentum. RPASs are by design, flown without a pilot on board and controlled through an external device such as a remote control, tablet, smart phone, etc. In Bangladesh airspace, flight safety of civil aircraft is governed by the Civil Aviation Authority, Bangladesh (CAAB) with a set of Rules & Regulations. It is now considered a requirement to bring RPASs as legitimate airspace users. As such these must be integrated into Bangladesh's national airspace in a safe manner to ensure the safety of other airspace users and people and property on the ground. In order to legalize the RPAS operations in Bangladesh, the Chairman CAA, Bangladesh has decided to introduce the mentioned Circular.

3. REQUIREMENTS

- (a)** Any person conducting such operations shall be responsible for conducting a safe operation and shall not pose a risk to aviation safety.

Note: This principle is the basis for all such RPAS operations. Understanding and complying with the conditions contained in this Circular is essential for conducting a safe operation.

- (b)** Any person operating a RPAS shall not operate in such a reckless or negligent manner so as to endanger or likely to endanger the life or property of any other person.
- (c)** Any person conducting such operations shall be of minimum of 18 years of age.
- (d)** Any person conducting such operations shall subscribe for appropriate liability insurance covering risks of injury or damage to public and/or property.
- (e)** The pilot operating such devices shall not operate the controls of a RPAS if there are reason/reasons to believe that the pilot is suffering or likely to suffer from fatigue, or suffering from any other condition which would render him/her unfit to perform his/her duties.
- (f)** The pilot operating shall not operate a RPAS within eight (8) hours after consuming an alcoholic beverage or while under the influence of alcohol or while using any drug that impairs the judgment to the extent that the safety of the operation is endangered in any way. Impairment from drugs could include illicit drugs or prescription and over the counter medication.
- (g)** Any person conducting operations shall be familiar with the relevant aeronautical

information that is appropriate to the intended flight, before commencing a flight.

- (h)** Any person conducting operations shall obtain permission from the owner(s) of the property on which a RPAS intends to take-off/launch from and/or land/recover on.
- (i)** Any person conducting operations shall, prior to commencing operations, perform a site survey to assess the suitability of each location and confirm that safe operations can be conducted. Typical elements that should be assessed would include, but are not limited to:
 - (i)** Defining the boundaries of the area where the actual operation will be carried out;
 - (ii)** Class of airspace and/or specific provisions of the airspace.
 - (iii)** Altitudes and routes to be used on the approach and departure to and from the area where the operation will be carried out;
 - (iv)** Other aircraft operations (e.g. proximity of aerodromes including heliports and seaplane bases, or other operating sites);
 - (v)** Hazards associated with nearby industrial sites;
 - (vi)** Areas of high-intensity radio transmissions or electromagnetic interference (e.g. radar sites);
 - (vii)** Limitations and/or restrictions of local by-laws;
 - (viii)** Location and height of obstacles (e.g. wires, masts, buildings, cell phone towers, wind turbines, etc.);
 - (ix)** Airspace restrictions such as restrictions around nuclear facilities or military bases;
 - (x)** Built-up areas, major roadways and recreational activity sites;
 - (xi)** Security provisions to limit public access;
 - (xii)** Predominant weather conditions for the site and proposed operating areas; and
 - (xiii)** Minimum separation distances from persons, vehicles and structures.
- (j)** Any person conducting operations shall cease operations if at any time the safety of other airspace users or persons or property on the ground is in jeopardy, or if the person conducting operations is unable to comply with the conditions of this Circular.
- (k)** If at any time the operation is deemed to be a risk to other airspace users or people and property on the ground, the operation will cease until such time as the issues that were causing the unsafe conditions are addressed/remedied. Flight operations should not resume until the issues are resolved.

- (l) A copy of the following documents shall be available to any person conducting operations.
 - (i) CAAB permission (SFOC);
 - (ii) Proof of appropriate liability insurance coverage;
 - (iii) Name, address and telephone number of the RPAS operator; and
 - (iv) A copy of the RPAS operating limitations as published by the manufacturer
- (m) A person conducting operations shall immediately produce any of the documents and/or information listed in condition 12 above to a local authority, police officer, or CAAB inspector upon request.
- (n) This Circular does not relieve any person operating RPAS from complying with the provisions of any other relevant Acts, Regulations or Laws in Bangladesh.

4. RPAS OPERATOR RESPONSIBILITY

- (a) The pilot operating shall maintain continuous unaided visual contact with the RPAS sufficient to be able to maintain operational control of the RPAS, know its location and be able to scan the airspace in which it is operating to decisively see and avoid other air traffic or objects.
- (b) The pilot operating shall not use a first person view device. A First Person View (FPV) device which generates and transmits a streaming video image to a ground station display or monitor giving the pilot who is viewing this video, the illusion of actually flying the aircraft from an onboard pilot's perspective and thus do not have adequate capability to ensure safe traffic separation and compliance with right of way requirements.
- (c) The pilot operating under this exemption shall only operate a RPAS from a single control station and control relays or visual observers to extend the operational area are prohibited.

Note: Due to the additional communications and coordination requirements, extended range operations using visual observers introduce a higher risk to other airspace users and people and property on the ground. As such the operator would be required to apply for an SFOC in order to determine the additional safety conditions required to mitigate the associated increased risks

- (d) The pilot shall operate no more than one RPAS at any one time.
- (e) The pilot operating a RPAS shall give way to all manned aircraft (i.e. aeroplanes, helicopters, gliders, ultra-lights, hot air balloons, etc.), unmanned balloons and any

other flying objects at all times.

- (f)** The RPAS operation shall only be conducted during daylight hours and in Visual Meteorological Conditions (VMC).
- (g)** The maximum height for operations of RPASs shall be 200 feet above ground level (AGL).
- (h)** For operation of RPASs within 10 (ten) nautical miles of an aerodrome, special authorization will be needed from the concerned Aerodrome Operator.
- (i)** The pilot operating shall not operate a RPAS over a forest fire area, or over any area that is located within 5 (five) nautical miles of a forest fire area.
- (j)** The pilot operating shall not operate a RPAS in airspace that has been restricted.
- (k)** The pilot operating shall not operate a RPAS within 5 (five) nautical miles of a built-up area.
- (l)** The pilot operating shall operate a RPAS at a lateral distance of at least 1000 feet from any building, structure, vehicle, vessel, animal or person unless:
 - (i)** The building, structure, vehicle, vessel or animal is the subject of the aerial work; and
 - (ii)** Only persons inherent to the operation are present.
- (m)** The pilot operating shall not operate a RPAS over an open-air assembly of persons.
- (n)** The pilot operating shall operate a RPAS at a lateral distance of at least 1000 feet from the general public, spectators, bystanders or any person not associated with the operation.
- (o)** The pilot conducting operations shall be able to take immediate active control of a RPAS at all times.
- (p)** Full automation in RPAS is not to be allowed. Fully autonomous systems which do not allow the pilot to intervene are not permitted due to the potential unpredictability of their flight profile. The pilot of a RPAS must be able to override the pre-programmed systems at any time, should there be a technical issue with the RPAS that requires pilot intervention.
- (q)** Any person conducting operations shall establish and adhere to procedures to be followed in the event that control of the aircraft can no longer be maintained. Specifically:
 - (i)** Procedures for contacting emergency assistance;
 - (ii)** Procedures for landing/recovering the RPAS safely;
 - (iii)** Procedures for contacting the appropriate air traffic service unit; and

- (iv) Name(s) of individuals responsible for following each of the above procedures.
- (r) Any person conducting RPAS operations shall be in possession of and adhere to an Emergency Contingency Plan. The Emergency Contingency Plan shall address the action to be taken should the RPAS result in injury to third parties or damage to property.
- (s) Radio Frequency Link for the operation of RPAS is vital and should be provided with no unacceptable interference to the RPAS. Any person, organization, institution conducting RPAS operation shall ensure that no unacceptable interference to the RPAS is present prior to flight, or is likely to be present during flight.
- (t) Any person operating shall not conduct a take-off/launch of a RPAS unless the risk involved with lost link circumstances has been assessed and a proper contingency procedure has been developed and in place for the recovery of the RPAS in case of a lost link situation.
- (u) The pilot operating shall not operate a RPAS unless it is operated in accordance with the operating limitation specified by the manufacturer.
- (v) The pilot is responsible for operating the RPAS in accordance with any specifications, directions or instructions provided by the manufacturer and for ensuring that any operating limitations relating to the operation of the RPAS are adhered to.
- (w) The pilot operating shall not permit the use of a portable electronic device at the control station of a RPAS where the device may impair the functioning of the systems or equipment.
- (x) The pilot operating shall not conduct a take-off/launch of a RPAS if explosive, corrosive, bio-hazard or bright light emitting (laser) payloads, or any payloads that can be jettisoned, dispersed or dropped, are carried onboard.
- (y) Any person operating RPAS shall ensure the following operational and emergency equipment is immediately available:
 - (i) checklists or placards that enable a RPAS to be operated in accordance with the limitations specified by the manufacturer; and
 - (ii) Hand-held fire extinguisher of a type suitable for extinguishing fires that is likely to occur.
- (z) The pilot/operator must be prepared to handle any emergencies that occur as a result of operating the RPAS (i.e. grass fire, injury to people of the ground, etc). This

requires that the appropriate procedures be developed and the required equipment is immediately available to those conducting the operation.

- (aa)** The pilot conducting operations shall remain clear of the take-off, approach and landing routes and the pattern of traffic formed by manned aircraft operating in the vicinity of aerodromes.
- (bb)** Any person conducting operations shall ensure that the appropriate air traffic service unit(s) is advised immediately anytime the flight of a RPAS inadvertently enters into controlled airspace.
- (cc)** The pilot operating a RPAS shall in no case enter published Restricted, Prohibited and Danger Area in Bangladesh.

5. PILOT TRAINING CONDITIONS

- (a)** The pilot operating a RPAS shall have successfully completed a pilot ground school program that provides instruction on the following subject areas:
 - (i)** Airspace classification and structure;
 - (ii)** Meteorological and NOTAM reporting services;
 - (iii)** Interpretation of aeronautical charts and the Bangladesh Flight Supplement;
 - (iv)** Applicable content of the requirements.
- (b)** The pilot conducting operations shall be appropriately trained and qualified for the area of operation and the type of operation.
- (c)** The pilot conducting operations should satisfy himself with the knowledge of aircraft system, the normal and emergency procedures and any limitations for the operation of the RPAS. Additionally, practical training would be required to become competent with the actual flying of the RPAS.

6. RPAS CRITERION

- (a)** Any person conducting operations shall, prior to conducting a take-off/launch of a RPAS, should be in position of appropriate procedure for:
 - (i)** Controlling the flight of the RPAS;
 - (ii)** Monitoring the RPAS ;
 - (iii)** Navigation;
 - (iv)** Communication, as required by the CARs;
 - (v)** Detecting hazardous environmental flight conditions;
 - (vi)** Mitigating the risk of loss of control of the RPAS;

- (vii) Sensing and avoiding other aircraft;
 - (viii) Avoiding flight into obstacles and terrain; and
 - (ix) Remaining clear of cloud.
- (b) Any person conducting operations shall ensure that a RPAS is in a fit and safe state for flight prior to take-off/launch.
- (c) Any person conducting operations shall ensure appropriate preflight inspections and checks to ensure, among other things, that the RPAS is not damaged, there is sufficient fuel/battery charge to last for the planned flight (with a reasonable reserve) and confirmation that the radio link is working properly.
- (d) Any person, organization, institution operating shall ensure that the RPAS is equipped with an emergency locator transmitter (ELT).

7. REPORTING CONDITIONS

Any person, organization, institution operating shall, prior to the commencement of operations, request permission in writing from the Chairman, CAA Bangladesh through the Director (Flight Safety & Regulations) two weeks before the intended date of operation giving information on the following at the following address:

Director (Flight Safety and Regulations),

Civil Aviation Authority Headquarter,

Kurmitola, Dhaka-1229,

Bangladesh

Phone: +880 2 8901406

Fax: +880 2 8901418

E-mail: dfs@caab.gov.bd

AFTN: VGHQYAYR

Information to be provided:

- a) Name, address, telephone number and e-mail of the operator;
- b) The model of RPAS(s) being operated including serial numbers, where appropriate;
- c) The type of work being conducted; and
- d) The geographic boundaries of the operation.
- e) Any person operating RPAS shall notify the Chairman, CAAB within 10 working days of any change to the information provided in the above condition or upon the permanent cessation of RPAS operations.
- f) Any person conducting RPAS operations shall report to the Chairman, CAA, Bangladesh at the mentioned address above or the closest Airport Operator as the case may be , as soon

as possible, with the details of the following occurrences as appropriate during the operation of a RPAS :

- g)** Injuries to any person requiring medical attention;
- h)** Unintended contact between a RPAS and persons, livestock, vehicles, vessels or other structures;
- i)** Unanticipated damage incurred to the airframe, control station, payload or command and control links that adversely affects the performance or flight characteristics of the RPAS;
- j)** Anytime the RPAS is not kept within the geographic boundaries and/or altitude limits as outlined in this exemption;
- k)** Any collision or risk of collision with another aircraft;
- l)** Anytime the RPAS becomes uncontrollable, experiences a fly-away or is missing.
- m)** Any person conducting RPAS operations shall, following any of the aviation occurrences listed above shall cease operations until such time as the cause of the occurrence has been determined and corrective actions have been taken to eliminate the risk of reoccurrence.

8. IMPORT PROCEDURE OF RPAS

In connection with import of any RPAS into Bangladesh, an applicant or importer should seek concurrence from CAAB in addition to any other Government agencies as may be required.

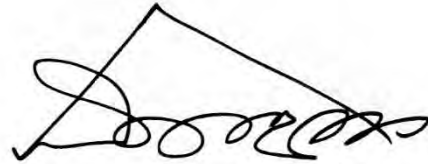
9. PENALTIES

Using RPAS in a reckless and negligent manner (e.g. not complying with the conditions as set forth in the Circular) could lead to penalties and fines.

10. CONTACT OFFICE

For more information operating RPAS in Bangladesh airspace, DFSR, CAAB Headquarters may be contacted at the following address:

Director (Flight Safety and Regulations),
Civil Aviation Authority Headquarter,
Kurmitola, Dhaka-1229,
Bangladesh
Phone: +880 2 8901406
Fax: +880 2 8901418
E-mail: dfsr@caab.gov.bd
AFTN: VGHQYAYR



Air Vice Marshal M Sanaul Huq, GUP, ndc, psc
Chairman
Civil Aviation Authority, Bangladesh