



GHANA CIVIL AVIATION AUTHORITY

REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

GUIDANCE MATERIAL

Article 8 of the Convention on International Civil Aviation stipulates: **“No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting state undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft.”**

Ghana Civil Aviation Authority (GCAA) in addressing RPAS has provided Technical Directive Part 28 to underpin routine operation of RPAS throughout Ghana in a safe, harmonized and seamless manner comparable to that of manned operations. Most importantly, introduction of remotely piloted aircraft into Ghana’s airspace and at aerodromes should in no way increase safety risks to manned aircraft, persons and properties.

This document provides guidance to individuals, organisations and other entities, regarding the contents, instructions and required forms as prescribed in the aforementioned Technical Directive.

GCAA recognizes that in most cases, the unmanned aircraft can only be operated as part of a system, hence the term “Remotely Piloted Aircraft Systems” or RPAS. The RPAS consists of the following:

1. Remotely Piloted Aircraft (RPA)
2. Remote Pilot Station (RPS), and
3. Command and Control link (C2) that joins them.

Consequently, all unmanned aircraft, whether piloted, fully autonomous or a combination of both, are subject to the provisions of the Technical Directive Part 28 and must comply with the current GCARs which exist for manned Civil Aircraft, bearing in mind the Three (3) traditional areas of aviation (See Attachment 1 for scope of areas of oversight):

1. Operations
2. Equipment
3. Personnel

A. CLASSIFICATION OF RPAS

The focus here, therefore, would be to further classify RPAS into Two (2) broad groups (usually by weight), to distinguish “simpler” systems which are flown in visual line-of-sight (VLOS) operations, from potentially more complex RPAS possessing inter alia, more sophisticated Remote Pilot Stations (one or multiple) and ATC Communication which could be flown in Beyond VLOS and ultimately IFR operations.

1. Small RPAS: Unmanned aircraft with maximum take-off weight up to 1.5 kg, and shall be flown only within the visual line of sight of the pilot.
2. Light RPAS: Unmanned aircraft with maximum take-off weight of more than 1.5 kg but less than or equal to 7 kg, and shall be flown only within the visual line of sight of the pilot.
3. Large RPAS: Unmanned aircraft with maximum take-off weight of more than 7 kg which is flown either within the visual line of sight of the pilot or beyond the visual line of sight of the pilot.

B. CERTIFICATION

An Operating Permit will be required for all groups of RPAS. Certification, however, will only be required for commercial RPAS operators. The areas for consideration of such Certification are listed in Attachment A. Note that all RPAS, irrespective of weight, shall have a Civil Aviation Certificate of Registration.

C. AERODROME OPERATIONS

To operate RPAS at aerodromes, the aerodrome operator is required to demonstrate how the safety of those aircraft requiring the use of the aerodrome will be assured when RPAS operations are permitted at the aerodrome as prescribed in Ghana Civil Aviation (Aerodrome) Regulations.

It is important that vigilance for the purpose of detecting potential collisions be exercised while operating on the movement area of an aerodrome.

Regardless, the right-of-way rules will remain essential for the safe operation of aircraft, with or without a pilot on board. Likewise, for the surface movement of RPA in the aerodrome environment, it is necessary that RPA operations be conducted safely and efficiently without disrupting other aircraft operations.

D. SPECIAL AUTHORISATION

The RPAS operator shall request in writing to the Authority for approval, before undertaking any of the operations listed under Special Authorisation in Technical Directive Part 28.

E. INTEGRATION INTO ATM PROCEDURES

RPAS shall be treated as manned aircraft when operating in controlled airspace in Ghana. It shall be the responsibility of the RPAS pilots to acquire knowledge of the appropriate ATM procedures in Ghana, prior to operating in such airspace. Notwithstanding the above, permission shall be obtained from the appropriate ATS unit(s) prior to operating in any controlled airspace in Ghana.

F. RPAS OPERATIONS

All RPAS flights are limited to a maximum height of 400 feet above ground level. Flights above this level require the approval of the GCAA and/or the ATC units concerned.

RPAS are not to be operated within a 10 kilometre radius from an airport or helipad having operational control with published Instrument Flight Procedure and a 5 kilometre radius from an airport or helipad without a published instrument flight procedure without the written approval of the GCAA.

Flying above populous areas and gatherings is prohibited unless approved by the GCAA and with the explicit approval of the gathering.

All RPAS pilots, as listed below, shall be licensed by the GCAA after demonstrating sufficient knowledge of the rules and ability to operate the RPAS:

- Commercial RPAS Pilots
- Pilots of Type Certificated RPAS
- RPAS Pilots intending to fly BVLOS
- RPAS Pilots intending to fly above 400 feet agl
- Pilots of Large RPAS

RPAS NO FLY ZONES

Danger Zones

Danger Areas are areas of military airspace often used for activities such as fighter pilot training, live ammunition training or weapons and systems testing (including GPS jamming exercises). The official definition is “An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified time.

Prohibited Zones

Prohibited Areas are areas of airspace which for one reason or another have been prohibited from having aircraft enter them. The official definition is “An airspace of defined dimensions above the land areas or territorial waters of a State within which the flight of aircraft is prohibited”.

Controlled Airspace, Aerodromes and Airports

The Aerodrome Traffic Zones surrounding smaller airports and aerodromes that do not have additional controlled airspace. The official definition of controlled airspace is “An airspace of defined dimensions within which air traffic control services is provided in accordance with the

airspace classification”. You must not fly in these areas without prior permission from the air traffic service provider controlling that airspace.

Restricted Areas

Restricted Areas protect sensitive locations. The official definition is “An airspace of defined dimensions above the land areas or territorial waters of a State within which the flight of aircraft is restricted in accordance with certain specified conditions”

Military Aerodrome Traffic Zones

Military Aerodrome Traffic Zones, similar to civil Aerodrome Traffic Zones, typically protect military aerodromes in the same way.

Note: The above No Fly Zones are available in the GCAA Aeronautical Information Publication (AIP)

RPAS OPERATIONS VERSUS REQUIRED PERMIT

TYPE OF OPERATION	COMMERCIAL	RECREATIONAL	PRIVATE
Required Approval			
ROC	YES	N/A	N/A
RLA	N/A	YES	YES
RPL	YES	*N/A	*N/A
Registration	YES	YES	YES

*Operations above 400ft, BVLOPS and operations with Type Certificated RPAS shall require an RPL

Note: RME is required for maintenance on RPAS with Type Certificate

Abbreviation

- ROC – RPAS Operators Certificate
- RLA – RPAS Letter of Approval
- RPL – Remote Pilot License
- BVLOPS – Beyond Visual Line of Sight
- RME – RPAS Maintenance Engineer

Frequently Asked Questions (FAQs)

1. Can I fly my small drone in my backyard?

As long as doing so does not contravene any of the directives in GCAR Part 28. Such as the following:

- *No RPAS Operator shall fly an RPAS within a radius of 30 meters from buildings, vehicles or people not in his or her control or without explicit permission.*
- *RPAS shall not to be operated within a 10 kilometer radius from an airport or helipad having operational control with published Instrument Flight Procedure, and a 5 kilometer radius from an airport or helipad without a published Instrument Flight Procedure, unless approved by GCAA.*

2. Can I fly my drone over the Osu Castle and other prohibited areas?

RPAS Rules do not allow you to fly in the following flying zones.

RPAS NO FLY ZONES

- *Prohibited Zones*

Prohibited Areas are areas of airspace which for one reason or another have been prohibited from having aircraft enter them. The official definition is “An airspace of defined dimensions above the land areas or territorial waters of a State within which the flight of aircraft is prohibited”.

- *Danger Zones*

Danger Areas are areas of military airspace often used for activities such as fighter pilot training, live ammunition training or weapons and systems testing (including GPS jamming exercises). The official definition is “An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified time.

- *Controlled Airspace, Aerodromes and Airports*

The Aerodrome Traffic Zones surround smaller airports and aerodromes that do not have additional controlled airspace. The official definition of controlled airspace is “An airspace of defined dimensions within which air traffic control services is provided in accordance with the airspace classification”. If you are operating a RPAS above 7kg you must not fly in these areas without prior permission from the air traffic service provider controlling that airspace. If you are under 7kg, it is still strongly advised to notify the air traffic service provider of your activity.

- *Restricted Areas*

Restricted Areas protect sensitive locations. The official definition is “An airspace of defined dimensions above the land areas or territorial waters of a State within which the flight of aircraft is restricted in accordance with certain specified conditions”

- *Military Aerodrome Traffic Zones*

Military Aerodrome Traffic Zones, similar to civil Aerodrome Traffic Zones, typically protect military aerodromes in the same way.

3. Will it be possible to have software that stops drones from entering prohibited airspace?

This is dependent on the manufacturer.

4. Restrictions of 10km from aerodromes with published flight procedure is quite excessive.

This is not excessive taking into consideration the type (s) of Instrument Procedures conducted by Manned Aircraft within the airport perimeters. The 10km serves as a protection zone for Manned Aircraft.

5. What is the radius restriction around a restricted zone?

It is dependent on the type of restricted zone. The prescribed conditions for such restriction can be found in the Ghana Aeronautical Information Publication (AIP).

6. What do I need to get as a recreational user as opposed to a commercial user?

If flying below 400 feet agl and within visual line of sight (VLOS), small or light RPAS without a type certificate, then all you need is to register the RPAS and obtain a letter of approval which will be renewed annually.

7. Why are there more stringent restrictions on RPAS Pilots aged 40 and above?

There are no stringent restrictions on RPAS Pilots aged 40 and above. The increased frequency for medical checks for age 40 and above is prescribed by International Civil Aviation Organization (ICAO) to check for the possibility of degenerative diseases. This is applicable to not only RPAS Pilots, but to Pilots and Air Traffic Controllers (ATC).

8. How do users for research purposes come into play?

If the RPAS Operation is non-profit making, then it is “private” but, if it is for profit making, it is “commercial”.

9. What frequencies will large drones operate on?

It is dependent on the Manufacturer. However, if it is not the standard frequencies of 2.4GHz and 5.8GHz, then you will need the approval of Ghana National Communications Authority (NCA).

10. What are the specific frequencies for the C2 link?

Standard frequencies of the C2-link are 2.4GHz and 5.8GHz.

11. What process do I need to follow to use my drone for commercial purposes?

Contact the Safety Regulation Department of the Ghana Civil Aviation Authority (GCAA).

12. What are the costs involved in registering, licensing and certification?

Visit the GCAA website for the scheme of charges (www.gcaa.com.gh).

13. Would using drones for community journalism be classified under commercial use or recreational use?

If the RPAS Operation is non-profit making, then it is “private” but, if it is for profit making, it is “commercial”.

14. Are the ROC, permits and license for use by an individual or by an entity?

As per GCAR Part 28, see the following definitions:

- *Permit: A generic term for any approval from the Authority.*
- *License: Official or legal permission to engage in a regulated activity.*
- *RPAS operator certificate (ROC): A certificate authorizing an operator to carry out specified RPAS operations.*

15. Is flying at night prohibited or does it require special authorization?

It is only allowed with special authorization from the GCAA.

16. Can the Authority grant me permission to fly within the restricted 10km around aerodromes?

YES, but in accordance with prescribed conditions.

17. Can the Authority grant me approval to fly around obstacles?

It is determined on a case by case basis.

A. RECOMMENDED LITERATURE

Scope of Oversight (Attachment A)

*Technical Directive

*L. I. 2000 (Safety) Parts 1, 2, 4, 5, 6, 7, 8, 9, 13

*L. I. 2004 (Aerodrome) Parts 24, 27

*L. I. 2001 (Air Navigation) Parts 19, 24

ICAO Doc. 10019

* Available on the GCAA website: www.gcaa.com.gh/reg/