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REMOTELY PILOTED AIRCRAFT SYSTEM (RPAS)

Standards Document - **REMOTELY PILOTED AIRCRAFT SYSTEM**

PREFACE

General

Fiji's National Aviation Law consists of a three-tier regulatory system, comprising Acts, Regulations and Standards Documents; the purpose of which is to ensure, where deemed appropriate, compliance and conformance with ICAO Standards and Recommended Practices (SARPS).

The three-tier regulatory system represents Fiji's Primary Legislation System and Specific Operating Regulations to meet Critical Elements CE1 and CE2 of ICAO's Eight Critical Element of a safety oversight system.

Standards Documents (SD) are issued by the Civil Aviation Authority of Fiji under the provision of Section 14 (3) (b) of the Civil Aviation Authority Act 1979 (CAP 174A).

Where appropriate, the SD also contains technical guidance (Critical Element CE5) on standards, practices, and procedures that are acceptable to the Authority.

Notwithstanding the above, and where specifically indicated in this Standards Document that such a provision is available, consideration may be given to other methods of compliance that may be presented to the Authority provided they have compensating factors that can demonstrate a level of safety equivalent to or better than those prescribed herein. Accordingly, the Authority will consider each case based on its own merits holistically in the context of and relevancy of the alternative methods to the individual applicant.

When new standards, practices, or procedures are determined to be acceptable, they will be added to this document.

Purpose

This Standards Document – REMOTELY PILOTED AIRCRAFT SYSTEM (RPAS) is issued by the Civil Aviation Authority of Fiji pursuant to Section 14 (3) (b) of the Civil Aviation Authority Act 1979 (CAP 174A). This Document is intended for use by CAAF, applicants for, and holders of, an Air Operator Certificate and for their staff.

Change Notice

This Standards Document has been developed pursuant to the Authority's obligation to provide oversight on Air Operator Certificate operators and their personnel, as well as the operator's obligation to comply with standards notified by the Authority and is the means by which such notification is given.

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SD – RPAS OPERATIONS

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The following space is provided to keep a record of all amendments.

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1 Reference material

1.1 Acronyms

This SD majorly describes the general requirements for non-recreational use of RPAS. It is consistent with the work currently being developed by the International Civil Aviation Organization (ICAO) and that of other regulatory bodies. To this end, the terms and definitions are consistent with those used by ICAO as found in Annex 2, Rules of the Air, to the Convention on International Civil Aviation (the Chicago Convention).

The term 'drone' has become an increasingly popular way to refer to the small helicopter-like device that are being flown by many. However, there's a host of other terms used to describe them, which can make things a bit confusing.

It does seem a bit strange to have the word "drone" used to not only cover a hobby aircraft that a child can fly, but to also describe a high-tech weapon used on a battlefield. Those devices don't exactly serve the same purpose.

For starters, every UAV is a drone, but not every drone is a UAV.

1.1.1 Drone

While "Drones" make most people think of "an unmanned aircraft that can fly autonomously—that is, without a human in control." It can actually be used to describe a wide variety of vehicles. For example, there are seafaring or land based autonomously vehicles that also count under the given definition of drone.

Of course, the most common usage of the term refers to an aircraft that can be remotely or autonomously guided. Unfortunately, the only thing most experts can agree on with this term is that a drone doesn't have a pilot inside.

1.1.2 UAV

A UAV is an Unmanned Aerial Vehicle. They are able to fly remotely such as with a controller or tablet or autonomously. So, is UAV a drone? Basically, it is. The two terms are often used interchangeably.

However, UAVs need to have autonomous flight capabilities, whereas drones do not. Therefore, all UAVs are drones but not vice versa.

1.1.3 RPAS a.k.a UAS

A RPAS (Remotely Piloted Aircraft System) UAS (Unmanned Aircraft Systems) includes not only the UAV or Drone but also the person on the ground controlling the flight and the system in place that connects both of them. Basically, the UAV is a component of the UAS, since it refers to only the vehicle itself.

1.1.4 RPA

Many pilots prefer the term "Remotely Piloted Aircraft." This is because flying certain types of UAVs require a lot more skill than anything you could buy in a store. Taking control of an RPA requires more than simple handheld controls.

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below.

Term	Definition
Aeronautical data originator	An organisation that can submit notice to airmen (NOTAM) information to the authority and operators.
Autonomous aircraft	An unmanned aircraft that does not allow pilot intervention during all stages of the flight of the aircraft
Autonomous operation	An operation of an unmanned aircraft that does not allow pilot intervention during all stages of the flight of the aircraft.
Beyond visual line of sight operation	An operation in which the remote crew does not have direct visual contact with the aircraft.
CAAF	Civil Aviation Authority of Fiji, referred to as the Authority in this SD.
Command and control link	The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.
Commercial Operations	A drone operation carried out for hire and reward
Contracting State	A country that has signed the Convention on International Civil Aviation.
Controlled airspace	Airspace of defined dimension within which an air traffic control service is provided to flights in accordance with the airspace classification.
Conversion training	The training that the aircraft operator requires remote pilots to complete before assigning them to duty on an RPAS.
Detect and avoid	The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action to comply with the applicable rules of flight.
Drone	Another term for “unmanned aerial vehicles” (UAVs) or “remotely piloted aircraft” (RPA), covering a wide range of functions.
Aerial Work RPAS	An RPAS operated under prescribed conditions for commercial purposes that does not require a CAAF authorization, but co-ordination. e.g. Higher Education Faculty Research (USP, FNU, Fiji Uni, TAFE etc.) Search and Rescue, Defence Force (incl. Police) surveillance, Maritime Surveillance.
Extended visual line of site operation	An operation, available to approved operators and remote pilots only where, at times, the remote pilot does not have direct visual sight of the RPAS; however, with assistance from trained RPAS observers, the remote pilot is able to ensure safe operation of the RPAS.
First person view	A visual method for controlling an RPAS from the remote pilot station via an on-board camera. FPV equipment can only be used as an adjunct to visual observation during visual operations.
Hand-over	The act of passing piloting control from one remote pilot station to

Term	Definition
	another, or to another remote pilot at the same remote pilot station.
Commercial Authorisation RPAS	A non-regulatory term for RPAS operations that require authorisation in the form of a formal CAAF Authorisation requiring Basic Drone Certification as a minimum and Insurance.
Large RPAS	An RPAS (other than an airship) with a gross weight of more than 150 kg or a remotely-piloted airship with an envelope capacity of more than 100 m3.
Landowner or occupant	The person or organisation that has control over access to an area of land on an ongoing basis.
Lost link	The loss of control link contact with the remotely piloted aircraft such that the remote pilot can no longer manage the aircraft's flight.
Medium RPAS	An RPAS with a gross weight of at least 25 kg but not more than 150 kg or a remotely piloted airship with an envelope capacity of 100 m3 or less.
Model aircraft	An aircraft that is used for sport or recreational purposes and which cannot carry a person or cargo and does not have onboard sensors able to detect personal data and location.
Operational control	The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of safety of the aircraft and the regularity and efficiency of the flight.
Operator	A person, organisation or enterprise engaged in, or offering to engage in, an RPAS operation for commercial purposes.
Outside controlled airspace	Airspace of defined dimensions within which an air traffic control separation service is not provided to pilots (Class G airspace).
Pilot (verb)	To manipulate the flight controls of an aircraft during flight time.
Populated area	Generally, a built-up, urban or suburban area where people live and work.
Populous area	An area in relation to the operation of an unmanned aircraft that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the unmanned aircraft) to pose an unreasonable risk to the life, safety or property of somebody who is in the area, but is not connected with the operation.
Pre-flight inspection	A set of manufacturer-recommended functional tests of systems and components to be performed before any launch.
Protected airspace	Prohibited, restricted and danger areas (refer to Fiji AIP ENR 5.1).
Radio line of sight	An operation where the remote crew maintains control of the RPAS by a direct

Term	Definition
Recreational use	Aerial photography using a drone for personal use electronic point-to-point contact between a transmitter and a receiver.
Remote crew member	A crew member charged with duties essential to the operation of a remotely piloted aircraft system during flight time.
RPAS	A combination of a drone, pilot, and its command systems
Remote pilot	The person who manipulates the flight controls of a remotely-piloted aircraft, or who initiates and monitors the flight, and is responsible for its safe conduct during flight time.
Remotely piloted	Controlling an aircraft from a pilot station that is not on board the aircraft.
Remotely piloted aircraft	An unmanned aircraft, other than a balloon or kite, where the pilot flying is not on board the aircraft. The unit may have a camera and other sensor equipment able to detect personal data.
Small RPAS	An RPAS with a gross weight of at least 2 kg and less than 25 kg
SOC	Standard Operating Conditions
Spotter	When flying in FPV, this person keeps the drone in their visual line of sight (VLOS)
UAS	Unmanned Aerial System (ICAO) A term for unmanned aircraft, operated by a pilot on the ground. This includes drones. Also called an “unmanned aerial vehicle” (UAV).
UAV	A UAV is an Unmanned Aerial Vehicle. They are able to fly remotely such as with a controller or tablet or autonomously
Very small RPAS	An RPAS with a gross weight of less than 2kg.

1.3 References

Regulations

Fiji Civil Aviation Act and Regulations are available on the Fiji Register of Legislation:

https://www.laws.gov.fj/Search/AjaxPage?Query=air+navigation+regulation&ActId=0&SearchFor=0

Advisory material

CAAF's Advisory Circulars are available at http://www.caaf.org.fj

ICAO and other documents

Document	Title
ICAO Document 10019	Manual on Remotely Piloted Aircraft Systems (RPAS)
Convention on International Civil Aviation (the Chicago Convention)	Article 8, Pilotless aircraft
Chicago Convention	Annex 2, Rules of the Air
Chicago Convention	Annex 8, Airworthiness of Aircraft
ISO 31000	Risk management
Radio Technical Commission for	Operational Services and Environmental Definition (OSED) for
Aeronautics (RTCA) DO-320	Unmanned Aircraft Systems
RTCA DO-304	Guidance Material and Considerations for Unmanned Aircraft Systems

1.4 Forms

CAAF's forms are available at:

http://www.caaf.org.fj/index.php?option=com_jdownloads&Itemid=61&task=viewcategory&catid=220

Form number	Title
Form OP 137	Application for RPAS Recreational use
Form OP 138	Application for RPAS Commercial Use Initial Issue and Variation

1.5 Role of the Civil Aviation Authority of Fiji

The Authority is the designated competent authority for all civil aviation matters within Fiji. The duties of the Authority are set out in the Civil Aviation Reform Act 1999, as amended. The Authority regulates aviation within the legislative framework as set by the government and overseen by the Department of Civil Aviation. This remit of the Authority therefore includes the registration of aircraft, the safety of air navigation and aircraft (including airworthiness), the health of persons on board aircraft, the control of air traffic, the certification of operators of aircraft and the licensing of air crews and aerodromes.

Included within the role of the Authority, and the tasks of the UAS group, is:

a) The registration of recreational RPAS users

b) Issuing operational authorisations for commercial operations

c) Issuing safety notices and directives

d) Issuing general permissions and exemptions

e) Oversight activities for organisations and persons holding commercial authorisations and permits

f) Carrying out enforcement activity in cooperation with the Investigation and Enforcement Team.

It is not the role of the Authority to carry out Research and Development activities; these must be performed by the UAS industry. The research and development process could include consultation with the Authority at appropriate stages so that the Authority can provide guidance on the interpretation of the applicable rules and regulations.

It is strongly recommended that developers of new or novel technology for UAS or support systems set up a programme of discussion and review of their research and development activity with the Authority through the innovation team; early engagement is vital in the process.

1.5.1 Military and Civil Regulations

Military requirements are a matter for the Ministry of Defence, National Security and Policing. UAS/RPAS training is required by an approved training organization for Military operators. Authorisations from the Authority are not required, unless operating in controlled airspace above 200 feet and within restricted airspace around airports

Any aircraft that is not a military aircraft must, under the Fiji Air Navigation Regulations, comply with civil aircraft requirements. There is no special provision for other types of non-military aircraft such as those carrying out search and rescue, firefighting, coastguard or similar activities or services.

1.5.2 Privacy

UAS/RPAS operators and remote pilots should be aware that the collection of images of identifiable individuals, even inadvertently, when using surveillance cameras mounted on an unmanned aircraft, may be subject to the Information Act 2018 and the Constitutional Right to Privacy, unless it is necessary by law to limit these rights.

UAS operators must be aware of their responsibilities regarding operations from private land and any requirements to obtain the appropriate permission before operating from a particular site. They must ensure that they observe the relevant trespass laws and do not unwittingly commit a trespass whilst conducting a flight.

1.5.3 Minimum Age

A toy drone can legally be flown by a child of any age. Drones that require registration can be completed by a parent on behalf of their child. An individual must be at least 16 years of age to register their own drone. An individual must be at least 18 years of age to apply for a Commercial Authorisation.

2 Introduction

2.1 Classification of unmanned aircraft

2.1.1 The International Civil Aviation Organization (ICAO) defines unmanned aircraft as:

a) unmanned aircraft systems (UAS)

b) model aircraft

c) rockets

d) unmanned free flight balloons.

2.1.2 The Authority classifies unmanned aircraft as:

a) UAS

b) rockets

c) unmanned free flight balloons.

2.1.3 Classification hierarchy, focusing on the ICAO-UAS path, is shown in Figure 1.

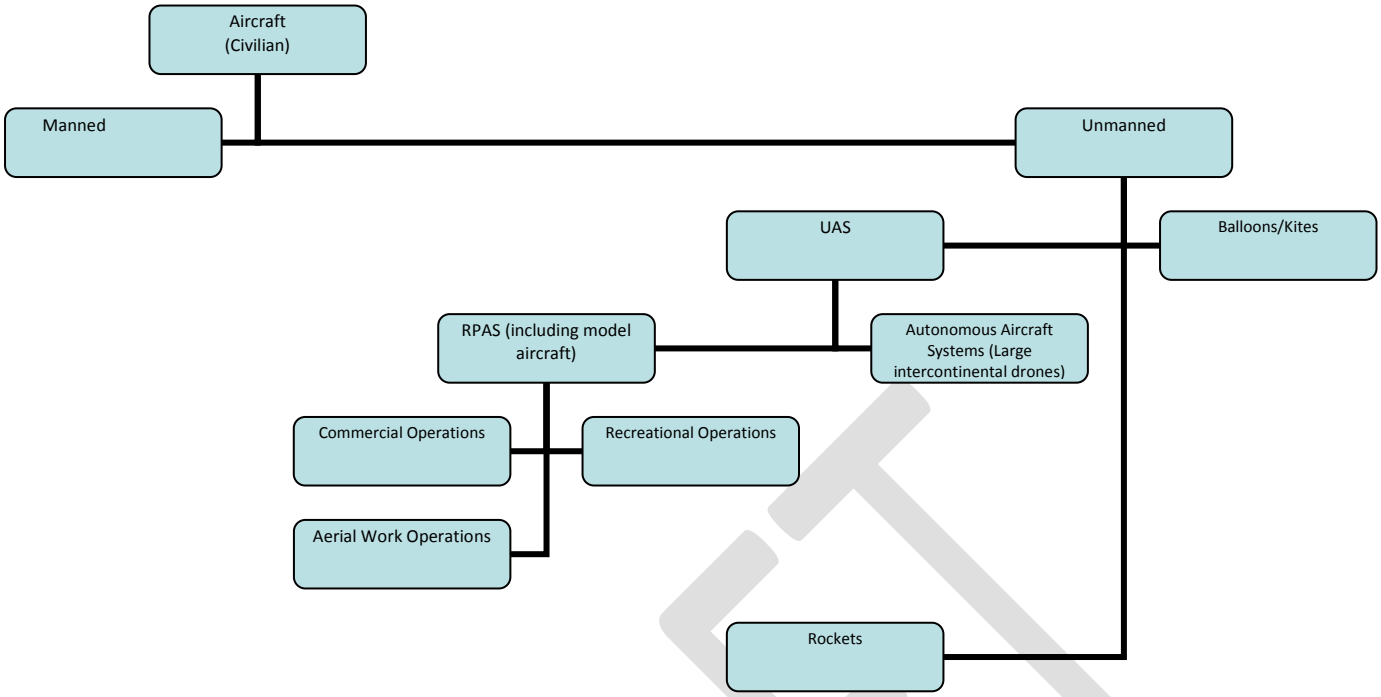


Figure 1: CAAF's classification hierarchy for unmanned aircraft

2.1.4 State aircraft and Fiji Defence Force RPAS

Currently there are no agreements in place for State RPAS operators (Land Transport Authority, Maritime Safety Authority of Fiji).

2.1.5 Civilian aircraft

2.1.5.1 RPAS can be further classified as either:

a) autonomous aircraft system

b) remotely piloted aircraft systems (RPAS a.k.a Drones)

c) unmanned aerial vehicles (UAV)

Remotely piloted aircraft systems

2.1.5.2 RPAS are a subset of UAV/UAS that are piloted by a remote pilot. RPAS include, but are not necessarily limited to:

a) the RPAS

b) a remote pilot station (RPS)

c) the command and control (C2) data-link.

2.1.5.3 Aircraft that are conventionally thought of as 'model aircraft' are considered to be RPAS. Model aircraft are defined by purpose as an RPAS used for sport or recreation.

Autonomous aircraft systems

2.1.5.4 While there are various degrees of automation in UAS, an autonomous operation is one in which there is no ability for the pilot to intervene in the conduct of the flight. This does not include lost link situations. However, the Authority's current focus is on RPAS operations, which are, by definition, operations that are non/semi- autonomous operations.

2.1.5.5 Autonomous operations may be approved but will be considered on a case-by-case basis and require the submission of an acceptable safety case to the Authority. If operators are

considering autonomous operations, they should contact the Authority on: Drones@caaf.org.fj as early as possible in the planning stages.

A note on automation

2.1.5.6 Automation—as opposed to autonomy—can assist in reducing the amount of human intervention required and can improve the quality, accuracy and precision of an RPAS operation. The ability to automate some aspects of the RPAS operation can result in a safer overall operation, as well as introducing some different risks (e.g. understanding exactly what each automated function does and how they relate to one another).

2.2 International regulation of unmanned aircraft

2.2.1 Article 8, Pilotless Aircraft, of the Convention on International Civil Aviation (the Chicago Convention) stipulates that:

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.

2.2.2 All RPAS (UAS) are subject to the provisions of Article 8 of the Chicago Convention. Fiji, as a signatory to the Chicago Convention, has created specific regulations to authorise unmanned aircraft operations in its territory. However, only RPAS will be able to integrate into the civil aviation system in the foreseeable future as the remote pilot's functions and responsibilities are, at this stage, considered essential to the safe and predictable operation of the aircraft as it interacts with other aircraft and the air traffic management system. Autonomous operations may not be easily accepted, unless stringent degrees of redundancies are applied, with a human interface.

2.3 Weight classes

2.3.1 RPAS are separated into the following weight classes:

a) **very small:** gross weight of less than 2 kg

b) **small:** gross weight of at least 2 kg and less than 25 kg

c) **medium:** gross weight of at least 25 kg and less than or equal to 150 kg (or, for **airships**, an envelope of 100 m^3 or less)

d) **large:** gross weight greater than 150 kg (or, for airships, more than a 100 m^3 envelope).

2.4 Operating Limits for very small to small RPAS.

Operations of the small unmanned aircraft must comply with the following limitations:

a) Cannot be flown faster than a groundspeed of 87 knots (100 miles per hour (mph);

b) Cannot be flown higher than 200 feet above ground level (AGL), unless authorised

c) Minimum visibility, as observed from the location of the controller, may not be less than 5 kilometers; and

d) Minimum distance from clouds being no less than 500 feet below a cloud and no less than 1km horizontally from the cloud

Note: These operating limitations are intended, among other things, to support the remote pilot's ability to identify hazardous conditions relating to encroaching aircraft or persons on the ground, and to take appropriate actions to maintain safety.

3.0 Types of RPAS operations

This Chapter will help you to understand, how the Authority categorises RPAS operations, and identify the type of operation you plan to conduct, and give guidance for different types of RPAS operations.

The 3 types of Operations considered:

a) **Commercial Operation**: defined as 'any flight by a small unmanned aircraft except a flight for public transport, or any operation of any other aircraft except an operation for public transport; which is available to the public; or which, when not made available to the public, in the case of a flight by a small unmanned aircraft, is performed under a contract between the RPAS operator and a customer, where the latter has no control over the remote pilot; or in any other case, is performed under a contract between an operator and a customer, where the latter has no control over the operator, in return for remuneration or other valuable consideration.'

b) **Recreational Flights: Recreational** or hobbyist **use** of drones that includes flying for enjoyment or educational **use** (class project, for **example**). It does not include flying for any commercial or public entity for hire or reward.

c) **Aerial Work:** Aerial work for drones is defined as circumstances where valuable consideration is given or promised in respect of a flight. At its simplest valuable consideration is payment, but its meaning is much wider than that and can refer to the provision of goods and services, such as search and rescue, humanitarian flights for disaster surveys and outreach. With respect to research, data collected exclusively for the operator's own use, such as data collected as part of a research project and intended for publication, would not usually be considered aerial work as long as the research was not directly funded by a business that intends to use the data for its own business purposes. Alternatively, flights undertaken for contracted research for an external company or on a consultancy basis would be aerial work and requires an authorization from the Authority.

3.1 Overview

3.1.1 Operators and pilots of all RPAS, regardless if recreational, aerial work or commercial, are operating within Fiji's airspace, operate their RPAS safely and in accordance with the relevant regulations that govern aircraft operations.

3.1.2 RPAS operations may pose safety risks to other airspace users and to the people and property over which they fly. These risks must be kept at an acceptable level.

3.1.3 A suitable baseline level of aviation risk is that demonstrated by the conventionally-piloted/manned aircraft industry. It is the Authority's policy that the RPAS sector demonstrate a level of safety that is similar to that currently achieved in the conventionally-piloted/manned aircraft sector.

3.1.4 The operator of a Commercial Operation/Aerial Work involving RPAS up to 25kg must hold a Drone Certification from an approved organization.

3.1.6 Section 3.2 explains the assessment criteria used to determine whether an operation is considered to be an Aerial Work or Commercial RPAS operation.

3.2 Assessment of operational risk

3.2.1 When considering requests for RPAS-related authorisations and approvals the Authority will consider the whole remote system, and not just the aircraft.

3.2.2 The assessment of an operation as either aerial work or commercial RPAS operation depends on a number of criteria:

a) gross weight of the RPAS

b) whether the flight is for recreational purposes, hire and reward, research, humanitarian purposes or security services, including Police work.

c) whether the flight complies with the above descriptions in 3.0.

Sport or recreational purposes

3.2.6 'Sport or recreational purposes' means operating an RPAS as a hobby or for pleasure and where the operation does not generate a direct commercial outcome of any sort (for the pilot or any third party).

Commercial Authorisation- Standard Operating Conditions (SOC)

3.2.8 The Standard Operating Conditions (SOC) applicable to RPAS are:

a) the RPAS **is operated**:

1) by visual line of sight (VLOS) only - close enough to see, maintain orientation and achieve accurate flight and tracking

2) no higher than 200 ft (61 m) above ground level

3) during daytime only – effectively, not before sunrise or after sunset

b) the RPAS **is not operated**

1) any closer than 30 m from people not associated with the flight in a prohibited area or restricted area

2) in a restricted area that is classified as Temporary Restricted Area

3) over populous areas

4) within 5 KM of the movement area of a controlled aerodrome – one with an operating control tower

5) in the area of a public safety operation without the approval of a person in charge of the operation

i. **only 1 RPAS** flown per pilot at any one time.

ii. RPAS must be operated in compliance with any conditions of operation imposed on the permit/authorisation to fly.

iii. Unmanned operations may be authorised by the Authority to operate by day or at night in visual meteorological conditions with the device in visual sight at all times.

c) Except with the permission of the Authority, RPAS must not be operated within:-

1) 5KM from any International aerodromes, or

2) 3KM from any Domestic aerodrome.

3) RPAS/RPAS shall not be operated over any sensitive and restricted areas:-

i. Government institutions,

ii. Prisons,

iii. Hospitals,

iv. Police Stations,

v. Military Checkpoint/Barracks,

vi. Parliament grounds including the Presidential Home,

vii. Airstrips and helicopter landing sites,

viii. Moving vehicles

ix. Sporting events and any other public areas including resorts and hotels except without prior permission from property management, the authority and/or relevant authorities.

Note: They must be operated within visual line of sight unless approved otherwise.

Unmanned aircraft may not be operated in any controlled airspace, flying training area, or low flying area, unless the operator has prior written permission from the Authority and the Air Traffic Control unit.

3.2.9 SOC notes:

a) **Height limit of 200 ft (61 m)** referenced to a point on the ground immediately below the RPAS at all times during the flight**,** except in the vicinity of aerodromes as described in ANR 78.

b) **Prohibited area**—area of airspace where the operation of all civil aircraft is prohibited. There are no permanently prohibited areas, but temporary ones are notified in notices to airmen (NOTAMs. Since there is no prospect of operating in these areas when they are active, no controlling authority contact details are published.

c) **Temporary Restricted areas** are temporary prescribed areas of airspace in which flight may be permitted, but only with the express permission of the controlling authority for that area. Permission to operate in a restricted area is as follows:

1) Excluded RPAS subject to the SOC may apply to the controlling authority for permission to operate within these areas. Controlling authorities are not obliged to grant permission or to give specific reasons for declining the request for access.

2) Approved operations will be subject to any conditions imposed by the controlling authority. Failure to comply with the conditions is a failure to comply with the regulations and would be treated as such.

3) The locations of permanent and temporary restricted areas are marked on aeronautical charts, and contact details for controlling authorities are published in the Fiji Aeronautical Information Publication (AIP) at section ENR 5.5.

4) Temporary restricted areas are notified by NOTAM.

d) **Populous areas** – Is an area that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the aircraft) to pose an unreasonable risk to the life, safety or property of somebody who is in the area but is not connected with the operation.

I.E. If a rotorcraft-type RPAS is flying at a relatively low height (i.e. 100 ft) directly above a single person not associated with the flight, it may be considered to be operating in a populous area due to the fact that a complete loss of power may cause injury to the person below. This interpretation would apply equally to higher flight over small or large public gatherings, or over built-up areas where there is a greater risk to property.

It is the responsibility of remote pilots operating RPAS to ensure the flight does not take place unless it is compliant with the 'populous area' rule and to take sufficient precautions when operating in the vicinity of people and property.

e) **Operation in controlled airspace**

1) All RPAS operated within controlled airspace, (including within 5 km of an International Controlled aerodrome and 3km from all other licensed aerodromes), but must remain below 200 ft/61m and outside the approach and departure paths. Operators shall liaise with ATC prior to operation and must have filed for a NOTAM 24 hours prior to the planned operation.

2) Operators must obtain approval from the Authority's Ground Safety Department (GSD) for operations within the controlled airspace stated above.

f) **Public safety operation** - includes a fire brigade, rural fire service, police or other public safety or emergency operation (e.g. bush fires, traffic accidents).

Training or experience

3.2.9 The Authority may permit certain training and experience activities to qualify as excluded RPAS operations and allow remote pilots to do any of the following under the SOC:

a) gain the experience needed to meet the 5-hour minimum experience requirement for the grant of a RePL, or for those who already hold a RePL, to get practical experience and gain competency in the operation of an RPAS not specified in their RePL

b) receive training from a certified RPAS operator.

Landholder rule

3.2.10 The 'landholder rule' requires that the operation be compliant with all of the following:

a) the remote pilot is the owner of the RPAS or is an employee operating the aircraft on the RPAS owner's behalf

b) the RPAS is being operated over the owner's property or property leased by the owner

c) the RPAS is being used for activities defined in paragraph 3.2.8 and;

1) aerial spotting

2) aerial photography

3) agricultural operations (e.g. weed spraying, pest spraying, fertiliser application, seed broadcasting or application of other substances for agricultural purposes)

4) aerial communications re-transmission

5) any other activity similar to those listed above

d) the remote pilot or the owner/leaseholder do not receive direct reward or compensation for the operation.

3.3 Getting the right advice for your RPAS operation

3.3.1 The decision flow chart in Figure 2: Decision flow chart to determine eligibility as an excluded RPAS, can be used to determine whether an RPAS operation is considered to be an 'included', excluded or model aircraft RPAS operation. Advice on 'included' operations is provided in Chapter 4. Directions to advice on other RPAS operations are noted in the following sections.

3.3.2 Very small RPAS

3.3.2.1 Authorisations are generally not required when using very small RPAS. The risks associated with aircraft of this size have been determined to be low when they are operated for sport or recreational purposes (see section 3.3.7), or in accordance with the SOC.

3.3.4 Small RPAS

3.3.4.1 The rules are slightly more complex for small RPAS.

The risks are still assessed as being low when these RPAS are used for sport or recreational purposes.

3.3.4.2 For operations that comply with the recreational use and aerial work use, operators and pilots have to meet requirements relating to ownership, qualifications, flight activity and remuneration (if any). Aerial Work operators are also required to notify the Authority of their intention to conduct these operations and ATC via NOTAMs.

3.3.4.3 Operation of small RPAS in a way that doesn't comply with both the recreational and aerial work RPAS operation will require the operator to hold an Authority Commercial Authorisation and the remote pilot to hold a RePL or Approved Drone Certification (see Chapter 7). The general operating conditions that apply to these operations are described in section 4.1.

3.3.5 Medium RPAS

3.3.5.1 Medium RPAS used for sport or recreation must only be flown under the approved procedures of a model aircraft association. Authorisations are required for medium RPAS flown for commercial purposes, unless they meet the requirements of the 'training or experience' and are flown under the SOC. The only difference to the small RPAS class is that for medium RPAS flown under the landholder rule, the remote pilot must also hold a RePL.

3.3.6 Large RPAS

3.3.6.1 All operations involving a large RPAS are high risk operations, requiring Operating Manuals and Standard Operating Procedures, with Safety Management Systems (see Chapter 6) and RePL authorisations (see Chapter 7).

3.3.7 Model aircraft

3.3.7.1 All large (>150 kg) civil RPAS are considered to be 'included' as RPAS, whether or not they are operated for sport or recreation. This requires the operator to conduct operations as described in this Standards Document, and includes the requirement for the operator to hold a ReOC (see Chapter 6) and the remote pilot to hold a RePL or equivalent. (see Chapter 7). The general operating conditions that apply to included RPAS operations are described in section 4.1.

3.3.7.2 RPAS used for sport or recreational purposes that weigh 150 kg or less are considered to be operating privately.

a) Medium (25-150 kg) model aircraft do not need to comply with the SOC but do need to operate in accordance with the procedures of an ICAO contracting state-approved model aircraft association.

b) Very small and small model aircraft < 25 kg) do not currently need to operate in accordance with the SOC or the procedures of an approved model aircraft association. However, the Authority recognises that these operations may present similar levels of risk as commercial RPAS operations and will work with model aircraft owner applications on a case by case basis.

4 General

4.1 Intentionally left blank.

4.2 General operational matters

4.2.1 When conducting RPAS operations, the most important considerations are:

a) the safety of other aircraft in the airspace

b) the safety of people and property on the ground

c) the safety of the crew.

4.2.2 Particular care should be taken in areas where low- level manned aircraft operations take place, especially in the vicinity of resort beaches and scenic areas (e.g. helicopters scenic flights). Operators, their pilots and observers should be acutely aware that low-flying aircraft may suddenly appear with little warning. Even relatively noisy aircraft may not be heard by the remote crew due to such things as wind, the RPAS's motors and other noises.

4.2.3 Operators should also make crew aware of 'cognitive tunnelling', where the remote pilot is so focused on the task at hand that extraneous events and noises are not perceived until it's too late to take corrective action.

4.2.4 Prohibited and Restricted areas

4.2.4.1 The Civil Aviation Authority of Fiji may notify any area(s) to be temporarily or permanently restricted in the public interest or for safety reasons. Public interest includes areas protected for conservation (fauna) purposes, and special events. Safety reasons include areas prescribed for Police or search and rescue operations. Aircraft are not prohibited from operating within a restricted area, but may enter an active restricted area with the prior approval of the Administering authority. Restricted areas when established are depicted on charts with the prefix FJ, designation R (followed by a number). There is one (1) restricted area in Fiji, specification is in Table ENR 5.1-2. These are temporary and permanent prescribed areas of airspace in which flight may be permitted, but only with the express permission of the controlling authority for that area. Permission to operate in a restricted area is as follows:

a) Approved operations will be subject to any conditions imposed by the controlling authority. Failure to comply with the conditions is a failure to comply with the regulations and would be treated as such.

b) The locations of permanent and temporary restricted areas are marked on aeronautical charts and contact details for controlling authorities are published in ERNC, AREA charts, VNC and Aeronautical Chart-Fiji Islands.

4.2.4.2 Danger Areas

Danger area are established to warn pilots of an area where danger to aviation may be present. A danger area requires pilots to have due consideration of the danger present within the area prior to entering, but does not require approval from any agency. Danger areas are depicted on charts with the prefix FJ designation D (followed by a number).

4.2.4.3 Temporary Hazards (including Parachute Drop Zones)

Occasionally, temporary special use airspace such as restricted or danger areas may also be prescribed by AIP SUP or NOTAM when it is necessary to notify pilots of activity warranting such airspace. Pilots are reminded to obtain up-to-date information on temporary hazards by adequate pre-flight briefing whenever possible. Parachute drop zones (PDZ) are established from time to time by Fiji Airports Limited to warn pilots of an area where intensive parachuting may be present. Pilots should treat active parachute drop zones as a danger area, although the actual portion of airspace within which parachuting is taking place is normally much smaller than the standard 3NM radius PDZ. The upper limit of a PDZ is determined by each parachute operation. Parachuting within any controlled airspace requires approval from the appropriate ATC unit. Parachute drop zones are depicted on charts with the prefix FJ designation PDZ (followed by a number).

4.2.5 Communications

4.2.5.1 Operations with very small RPAS below 200 ft/61 m and further than 5 km/3 km from a controlled aerodrome are not required to use aeronautical radio, although the Authority recommends that remote pilots with radio qualifications monitor the relevant frequency if there is a chance that the operation may infringe these restrictions.

4.2.5.2 The company operations manual should address how communications between any crew and the remote pilot will be managed. It should also detail how communications with any third parties (e.g. air traffic control [ATC] and other aircraft) would be handled in the event of the loss of the primary communication channels.

4.2.6 Transponders and aircraft surveillance (for Medium to Large RPAS)

4.2.6.1 If a secondary surveillance radar (SSR) or an automatic dependent surveillance - broadcast (ADS-B) transponder is required and attached to the RPAS for the operation in controlled airspace, it should meet the standards of Fiji AIC 06/20, ADS-B Performance Requirements. The remote pilot should have the capability to:

a) turn the transponder on and off

b) manually select modes and SSR/ADS-B codes

c) squawk identification as directed by ATC (if applicable).

4.2.6.2 If fitted, the transponder should be switched to ON/ALT whenever the RPAS is airborne for ATC surveillance and separation purposes, and detection by aircraft fitted with airborne collision avoidance systems. The default code is 1200 for fixed wing and 1500 for rotary wing; it should be used unless air traffic services (ATC) requires a different code.

4.2.6.3 In the event of a lost link, the RPAS controller/Observer should make contact with ATC as soon as possible.

4.2.6.4 A dedicated hexadecimal code may be assigned by ATC, with prior arrangement, for use with the particular RPAS where SSR/ADS-B codes cannot be selected while the RPAS is in flight.

4.2.7 Meteorological conditions

4.2.7.1 For VLOS operations, meteorological conditions must permit unaided visibility of the RPAS, the surrounding airspace and the ground beneath so that the remote pilot can avoid collisions and infringements of the regulations. This implies, and requires, the pilot to keep the RPAS clear of cloud.

4.2.7.2 For operations other than VLOS, weather minima for RPAS flights should be determined by the RPAS operator and published in their approved operations manual, considering the equipment and capabilities of each specific RPAS, the qualifications and experience of the remote pilot and the class of airspace in which the flight is conducted.

4.2.8 Recommendation for RPAS conspicuity and Visual Line of Sight (VLOS)

4.2.8.1 RPAS should be painted or patterned for maximum visibility. This may involve the use of high gloss, high visibility paint and contrasting colours and, where practicable, suitable collision avoidance lighting, such as strobe lights.

4.2.8.2 Visual Line of Sight (VLOS): Remote pilots flying under VLOS should always approach their task with the mindset that they will be the ones that will need to 'make the first move' when avoiding other airspace users; invariably, they will be the first to recognise (i.e. 'see' or more likely 'hear') the potential conflict. The small size and structure of most 'VLOS operated' UA, particularly the multi-rotor models, means that they are unlikely to be clearly visible to pilots of manned aircraft until at a much closer distance than would normally be the case when looking at another manned aircraft. This is particularly the case when the UA is hovering or moving slowly. Visually observing a small unmanned aircraft from another aircraft is likely to be a 'late sighting' with reduced time to alter course and avoid collision. Due to their small size and ability to operate out of small sites in towns and cities, the smaller types of unmanned aircraft are particularly difficult to see against an urban backdrop when compared to the relatively much larger size of a manned aircraft.

Many unlicensed helicopter landing sites also exist, including sightseeing spots, as well as air ambulance landing sites. Such aircraft may loiter at low- level or land and take off unexpectedly. All of these types of helicopter operations may therefore be affected by VLOS operations particularly when approaching to land or departing from a site; UAS operators and remote pilots must take active precautionary measures to avoid affecting the safety of other airspace users.

4.2.9 Precautions for automated flight

4.2.9.1 Particular care should be taken when inserting flight plans into the ground control station (GCS) for automated operations. There have been instances where incorrect or corrupt information has resulted in a crash or loss of the RPAS. Transferring way points from one program or application to another can cause errors, as can corrupt or outdated software. Automated flights should be constantly monitored to identify any deviations from the intended flight path, and rapid remedial action taken to fix the problem or terminate the flight to avoid creating an unnecessary hazard.

4.2.10 RPAS operational requirements within controlled airspace or aerodrome vicinity.

4.2.10.1 The job safety assessment for any planned operation should include the following areas:

a) aerodromes

b) helicopter landing sites (HLS).

4.2.10.2 Operations may be conducted below 200 ft/61 m above ground level (AGL) near (< 3 Nm/5.5 km) non-controlled aerodromes, but not over the movement area or in the approach and departure paths, unless specifically approved by the Authority. Those operating near aerodromes without a specific approval must land or not launch in the event of manned aircraft operations being conducted at the aerodrome.

4.2.10.3 Operators can apply to the Authority to be approved for conducting operations near non-controlled aerodromes while manned aircraft are operating, and/or in the approach and departure paths. The application must include the operator's proposed procedures. Any approval will be subject to conditions.

4.2.10.4 A thorough specific operation risk assessment is required with the application. This includes liaising with aerodrome operators and local operators of manned aircraft, and addresses any residual risk issues such as 'return-to-home' functions and un-commanded climbs.

4.2.10.5 A NOTAM must be issued detailing the RPAS operation in such circumstances, depending on the level of manned aircraft activity at the aerodrome.

Note, however, that an RPAS operation during periods of moderate or frequent manned operations is very unlikely to meet the requirement to NOT create a hazard to other aircraft or an obstruction.

4.2.10.6 Operators must be approved by the Authority for operations above 200 ft/61 m outside controlled airspace.

4.2.10.7 The datum for operations in the vicinity of aerodromes should be the aerodrome elevation. Aerodrome elevations are included in the FIJI AIP Aerodromes Supplement and available from aerodrome operators.

4.2.10.8 In some places, controlled airspace overlies non-controlled airspace with less than 500 ft between the ground and the control area. These areas are tinted purple on visual terminal charts (VTCs). In these places, RPAS should not be flown higher than 100 ft below the overlying control area. This entails flying at a height lower than the general 200 ft limit, depending on the location.

4.2.10.9 Radio use is not required for operations below 200 ft/61 m outside controlled airspace, but suitably qualified remote pilots should use their best judgement as to whether broadcasts or responses to transmissions by other stations would enhance the safety of their operations.

4.2.10.10 Many non-controlled aerodromes, particularly certified and registered aerodromes, appear in Fiji AIP-Aerodromes. However, some aerodromes are listed only in AIP-Supplement with their name and location code. Not all of these aerodromes are marked on aeronautical charts, and some aerodromes do not appear on charts or in the Fiji AIP, so operators should check using satellite pictures or ask someone with local knowledge to identify any nearby non-controlled aerodromes or HLS.

4.2.10.11Broadcast areas (Sector Lanes or Flight Training Areas)

The lateral and vertical boundaries of broadcast areas are depicted on aeronautical charts. The vertical boundaries of broadcast areas can be:

a) surface to 2,500 ft or 4000 ft above mean sea level

b) surface to a nominated level.

4.2.10.13 Remote pilots operating within a broadcast area of an unattended aerodrome on commercial operations are to liaise with ATC in addition to the NOTAM.

Position reporting

4.2.10.14 If required, position reporting to other traffic should be referenced to the RPAS position (not the remote pilot position) relative to an aerodrome, navigation aid, prominent ground feature, etc.

4.2.10.15 When a RPAS is operated at a non-controlled aerodrome normally used by manned aircraft, launch and recovery will need to comply (as appropriate) with the normal procedures that apply to that aerodrome or a notice to airmen (NOTAM) issued with the relevant details of the non-standard activities (refer to Section 4.3).

4.2.11 Populated and populous areas

4.2.11.1 A populous area is defined as an area in relation to the operation of an unmanned aircraft that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the unmanned aircraft) to pose an unreasonable risk to the life, safety or property of somebody who is in the area but is not connected with the operation.

4.2.11.2 An area within an urban environment may be deemed as ‘non-populous’ for the duration of an RPAS operation if certain conditions are met. For example, an oval devoid of people could be

used to photograph real estate from across the road through the use of oblique photography; or the area around a power pole within an urban area, set up as a demarcation zone with appropriate 'temporary workplace' signage may be used. Nonetheless, it is the operator's responsibility to ensure that any demarcation zone is suitably placarded, and an observer is in place to ensure that there are no encroachments on that area.

4.2.11.3 When considering RPAS operations over populated areas, the safety of people and property on the ground (or water) is paramount. The risk of injury or damage resulting from RPAS operations should be addressed in the operator's risk assessment and the job safety assessment.

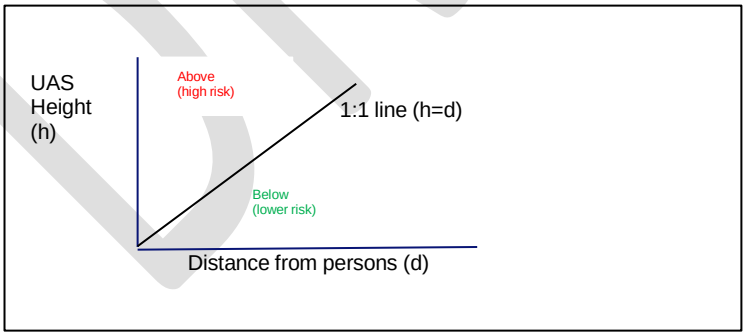
4.2.11.4 For certificated RPAS, approval to operate over densely populated areas will be dependent on the safety case provided to the Authority by the operator. The assessment will need to demonstrate that the risk mitigations put in place by the operator make the area effectively 'non-populous'.

4.2.11.5 As a guide to what may be considered an 'unreasonable risk', operators may look at the level of other risks that the community accepts (e.g. from motor vehicles or as casual observers of sports like cricket and golf), provided that a person who may be at risk could reasonably be expected to understand and perceive the risks involved when in the vicinity of RPAS operations.

4.2.11.6 Operations over a populated area should only take place if conducted at an altitude that would prevent the RPAS injuring people or damaging property in the event of an aircraft or system failure. This is particularly important when planning to operate at large public or private events (e.g. cricket, football, tennis, sports events, demonstrations, shows and exhibitions). The requirement for the RPAS to clear the area would generally preclude rotorcraft from flying over crowds/groups of people.

4.2.11.7 When operating in 'low-speed' mode within 30m of uninvolved persons, remote pilots should aim to maintain a horizontal separation distance that is greater than, or equal to, the aircraft's height, using the same units of measurement. (i.e. if the aircraft is at 10m height, it should be kept at least 10m horizontally away from uninvolved people.

Operations where the aircraft's height is greater than the separation distance (i.e. above the 1:1 line) should be avoided or kept to the absolute minimum time necessary, due to the increased risk. The '1:1 rule' is a simple principle (as opposed to an exact rule in law) which can be used to quickly work out what separation from uninvolved persons is safe enough in the short term. It is based on the relationship between the unmanned aircraft's height and its distance from the uninvolved person (the 1:1 line) and works as follows:



Flight testing

4.2.11.8 RPAS flight testing shall not be carried out over populated areas.

4.3 Use of NOTAMs

4.3.1 A NOTAM is used to alert pilots and crews about activities that may be hazardous to aviation operations. The Nadi NOTAM office is manned by Fiji Airports Ltd trained staff to disseminate NOTAMs from information stated on the requests. They can be contacted on nadinotam@fijiairports.com.fj

4.3.2 ReOC holders seeking to have a NOTAM issued should provide the details to the Notam Office and copy the Authority. The NOTAM office will then draft the NOTAM and pass it on to the interested parties for review prior to issue.

4.3.3 The operator should state the authorization number/date in Field E of the NOTAM and include details of the intended operation. Operators should forward a copy of the authorization (instrument) issued by the Authority to the NOF in the first instance.

4.3.4 The text of the NOTAM for RPAS operations should include as much operational information as possible to convey the scope of the operation, using the relevant NOTAM form made available by the authority via email, including:

a) the words 'unmanned' and the callsign

b) latitudes and longitudes of the operating area

c) operations area description (e.g. east of Bula-bay, or bearing [magnetic] and distance [NM] from a significant feature or datum, such as an aerodrome reference point)

d) size of the aircraft and visibility provisions (e.g. small, low potential for visual sighting)

e) broadcast frequencies and times, if applicable

f) periods of activity (in UTC time format)

g) planned operating levels. (above 200 feet AGL will need specific ATC approval)

4.3.5 NOTAMs should be provided to the Notam office (NOF) at least 24 hours before the commencement of the operation and during normal business hours (0800-1700 AEST, Monday to Friday).

4.3.6 For subsequent events, the operator should be ready to provide a copy of the instrument to the NOF (if required).

4.3.7 The Authority will advise Fiji Airports Limited when an operator is to be considered as an 'aeronautical data originator'. To gain this approval, the operator will need to arrange and undertake the relevant training with the Authority. Operators should contact the Ground Safety Department in the Authority for more information.

4.4 Flight logging

4.4.1 Operators and pilots should record the following information in a suitable form.

4.4.2 Aircraft information:

a) aircraft identification

b) total time in service for the aircraft

c) total flight time for the aircraft, if different

d) operating weight for the aircraft

e) defects and abnormalities that affect operations

f) actions taken to remedy the defects and abnormalities recorded

g) operational equipment and failsafe fitted to the aircraft that are unserviceable.

4.4.3 Flight operational information:

a) identification of the RPAS used

b) the date of the flight

c) for each crew member assigned to the flight:

1) the crew member's name

2) the duties assigned to the crew member for the flight for the flight:

3) the place of departure/arrival

4) the time the flight ends

5) the duration of the flight

6) certification of pre-flight 'fit-to-fly' check

7) certification of post-launch stability and control check

8) the amount of fuel/energy available on board the RPAS and at the RPS when the flight ends

d) incidents and observations (if any) relevant to the flight

e) the serviceability status of safety critical aircraft systems

f) the purpose of the flight

g) whether the flight was a VLOS flight, an EVLOS flight or ended up as a BVLOS flight. (Only specifically approved operators and remote pilots may carry out EVLOS and BVLOS operations.)

4.5 Changes to supplied information

4.5.1 Changes to the ReOC holder's organisation or practices and procedures need to be notified to the Authority.

4.6 Emergency procedures

4.6.1 The RPAS Operations Manual shall detail the emergency procedures to be followed in the event of an emergency, such as:

a) engine/propeller failure

b) loss of data link

c) loss of control

d) failure of navigation equipment

e) airframe damage.

4.6.2 Emergency procedures may include the use of recovery or fail-safe devices, such as parachutes, that help to mitigate the risk of injury to people or damage to property. The Authority encourages the use of such recovery devices when they are available for the RPAS type.

Note: Where an RPAS is fitted with a recovery device such as a ballistic parachute system, including a pyrotechnic charge, it must be compliant with dangerous goods regulations (ANR 29-(1) Except as provided for in this regulation, no person shall carry or cause or permit to be carried, in any aircraft flying to, from, within or over Fiji any munitions or implements of war, explosives, articles of a highly inflammable nature, arms, ammunition, military stores, oxidizing material, corrosive substance, compressed gas, tear gas, radio-active materials, poisonous substance or other goods notified by the Authority to be dangerous goods.). The relevant area or panel on the RPAS should be clearly marked to warn crew of the potential danger.

4.6.3 A mission plan should be prepared for each flight of an RPAS. The plan should include information about the local area and any hazards. It should also contain procedures about planned emergency flight profiles in the event of a lost data link. Depending on system capabilities, these profiles should include either an:

a) RPAS automated transit to a pre-designated recovery area, followed by an automated recovery; or

b) RPAS automated transit to a pre-designated recovery area, followed by activation of a flight termination system.

4.6.4 The RPAS data link should be continuously and automatically monitored while the RPAS is in flight, and a real-time warning should be displayed to the remote pilot in the case of failure.

4.6.5 In the case of a lost control data link, other than intermittent loss of signal or during programmed periods of outage, the pilot should:

a) advise ATC (if applicable) and any aircraft in the vicinity

b) execute recovery procedures.

Note: The parameters that determine acceptable intermittent loss of signal and total loss will be pre-determined by the manufacturer and documented in the operations manual.

4.6.6 In controlled airspace, the operator and ATC should agree how much time can elapse before the pilot must notify ATC of the loss of link.

4.7 Reporting

4.7.1 RPAS operator shall report all incidents, and accidents, to the Authority, which will assist in monitoring the safety of RPAS operations, analysis and evaluation.

4.7.2 These include:

a) a failure to respond to flight commands from the RPS

b) failure of the flight control unit (i.e. inertial measurement unit, global positioning system, inertial navigation system etc.)

c) failure of the lost link program

d) in-flight collision with another aircraft, structure or person

e) RPAS structural failures

f) near misses with other aircraft

g) any damage caused by collisions/handling.

4.7.3 Such instances shall be reported in accordance with the Authority in accordance with ANR 71.

The pertinent extract of ANR 71 is as follows:

(1) A person who is an aircraft operator domiciled in Fiji.

(2) Occurrences which shall be reported to the Authority under subregulation (1) include but are not limited to the following -

(a) damage or the likelihood of damage to an aircraft that affects or could affect the safety of flight;

(b) death or injury of a person involved in an aviation activity;

(c) impairment during a flight of the capacity of a member of the flight crew of an aircraft to undertake the functions to which his licence relates;

(d) the use of any procedures taken for the purpose of overcoming an emergency;

(e) the failure of an-aircraft system including failure of the flight controls, power plant, hydraulic, pneumatic, pressurization, electrical, navigation or electronic systems or is an equipment of a type notified by the Authority;

(f) impairment to the control of an aircraft in flight by its flight crew;

(g) the failure or inadequacies of facilities or services on the ground used or intended to be used for purposes of or in connection with the operation of aircraft;

(h) arising from the loading or the carriage of passengers, cargo or fuel; and

(i) any other occurrence which, in the opinion of such a person constitutes an occurrence endangering, or which if not corrected would endanger, the safety of an aircraft, its occupants or any other person.

(3) A person referred to in subregulation (1) shall make a report to the Authority –

(a) by the quickest possible means, either verbally or electronically; and

(b) within 96 hours of the occurrence, in a current form approved by the Authority.

(4) Notwithstanding subregulation (3)(b) the Authority may, at its absolute discretion, extend the reporting period in circumstances requiring detailed investigations.

Immediate notification of accidents and serious incidents

4.7.4 Accidents and serious incidents shall be notified to the authority in accordance with ANR 71.

Written notification of accidents, serious incidents and incidents

4.7.5 Written notifications must be submitted within 96 hours of an accident, serious incident or incident, in accordance with the: CIVIL AVIATION (OCCURRENCE REPORTING AND INVESTIGATION) REGULATIONS 2009.

The written notification should contain as much information about the accident, serious incident or incident as is within the knowledge of the person at the time of submitting the notification.

4.8 Other considerations

4.8.2 Legal restrictions

4.8.2.1 The Authority's authorisations do not grant an RPAS operator any rights against the owner or occupier of any land on or over which operations are conducted. They do not prejudice the property rights of a person in respect of any injury or damage to property caused directly or indirectly by an RPAS operation. Your attention is drawn to, The Laws of Fiji, and the Civil Aviation Act subsection 5.

4.8.2.2 Compliance with the Authority's regulations does not absolve the operator from compliance with any other regulatory requirements that may exist under the State or Local laws.

4.8.3 Surveillance and enforcement

4.8.3.1 As with other sectors of the aviation industry, RPAS operators will be subject to oversight, surveillance and enforcement by the Authority. Oversight and surveillance can be in the form of safety audits of the company's facilities, aircraft and procedures, and on-site checks of flying operations.

4.8.3.2 Non-compliance with regulations will be investigated and operators found to be in breach may be subject to safety and/or enforcement action.

4.8.4 Privacy

4.8.4.1 The Authority does not consider privacy concerns when issuing approvals.

4.8.4.2 The Authority strongly recommends operators include relevant privacy provisions in their operations manuals (refer to the Information Act 2018, Section 20 (k).

Notwithstanding anything contained in this Act, the following information is exempt from disclosure and any request made under section 6 for such information must be refused by the Commission—information which relates to personal information, the disclosure of which has no relationship to or does not affect any public activity or interest, or which would cause the unwarranted invasion of privacy of the person, unless the Commission is satisfied that the disclosure of such information is in the public interest.

Notwithstanding anything contained in this Act, the following information is exempt from disclosure and any request made under section 6 for such information must be refused by the Commission—

4.8.4.3 The following materials can be found also on the Office of the Attorney General website at https://www.laws.gov.fj/Acts/DisplayAct/2460

4.8.5 Aviation security

4.8.5.1 Remote crew members operating an RPAS from a security-controlled airport, should take into account the applicable aviation security requirements for access to airport operational areas.

4.8.6 Drug and alcohol management program (DAMP) and testing

4.8.6.1 Remote flight crew are considered to be involved in 'safety sensitive aviation activities' and, as such, they can be subject to random drug and alcohol testing as an operational requirement.

Operators and crew should make themselves familiar with their rights and obligations under the regulations.

4.8.6.2 Operators of medium to large RPAS are required to develop and implement a drug and alcohol management program (DAMP).

4.8.7 Frequency spectrum management

4.8.7.1 Telecommunications Fiji is responsible for the Aeronautical Radiofrequency Spectrum within Fiji. Telecommunications Fiji is able to provide a frequency assignment service as a first step to obtaining a radio communication apparatus license to operate a radio transmitter within the aeronautical bands. Assignment can be made for radio communications, links, navigation aids, surveillance and landing systems.

4.8.7.2 The frequency band allocated for aeronautical VHF communications is 118-137 MHz.

4.8.7.3 Telecommunications Fiji and Fiji Airports Ltd are responsible for the radiofrequency spectrum used for aeronautical high frequency (HF) and ultra-high frequency (UHF) communication, navigational aids and landing system.

4.8.8 Environment

4.8.8.1 The Authority strongly recommends that operators address obligations under the Fiji Environment Management Act 2005 in their operations manuals.

4.8.9 Noise abatement

4.8.9.1 Not applicable at this stage, but caution must be taken as flying close to people and homes can become a nuisance.

4.8.10 Insurance and third party requirements:

4.8.10.1 While the primary focus of the UAS Regulations is on the protection of persons, UAS operators and remote pilots must also bear in mind their responsibilities towards vehicles, vessels and structures while flying, even if they are unoccupied. This brings in the requirement that the operator shall have adequate insurance in the event of an incident or accidents during RPAS operations. This must include Public Liability (3rd Party cover).

4.8.10.2 Key points to note when considering the safety of third parties:

a) Fly defensively and with the expectation that control of the Unmanned Aircraft (UA) could be lost without notice

b) Reduce the harmful characteristics of the small unmanned aircraft to people

c) Minimise the UA mass wherever possible or use a smaller/lighter UA

d) Use a UA with design features that reduce harm, example Propeller Guards.

e) Do not fly at excessive speeds when close to people

f) Check that the UA is in a safe condition to fly

g) Consider the environmental factors that may aggravate the potential for loss of control or loss of propulsion

h) Consider the use of additional operating personnel to warn uninvolved people immediately following any loss of control or propulsion

i) Make use of any available technology or safety features which may reduce the risk of harm if control is lost

4.8.10.3 Uninvolved Persons

The primary focus for UAS operations is the protection of people that are not a part of the flying operation (i.e. third parties). Within the UAS regulations, they are referred to as ‘uninvolved persons’. An uninvolved person is a person that does not take part in the UAS operation, either directly or indirectly, such as:

a) Spectators or any other people gathered for sport activities or other mass public events for which the UAS operation is not the primary focus;

b) People sitting at a beach or in a park or walking on a street or on a road.

A person may be considered to be 'involved' in a UAS operation if they:

a) are solely present for the purpose of participating in the flight operation; or

b) have given explicit consent to the UAS operator or to the remote pilot to be part of the UAS operation (even indirectly as a spectator or just accepting to be overflown by the UAS); and

5.1 Approval for specialised operations

5.1.1 Before using an RPAS for a particular task, ReOC (RPAS above 25kg) holders should first assess whether the flight/mission is within the scope of their approved operations (see paragraph 4.1.3), or whether they require additional Authority approval. Where the proposed operation is outside the ReOC holder's authorisation, operators should obtain initial approval from the Authority.

5.1.2 Requests for approval should be submitted via email to the authority (dones@caaf.org.fj) and should be accompanied by a robust safety case. To ensure timely processing and an accurate estimation of costs, details of the purpose, scope/intent of the operations and a risk assessment should be included in the application. An approval may take up to 30 days.

5.1.3 Applications should be submitted as early as possible to allow time for the Authority to assess and estimate the costs of processing (this process can take up to four weeks). There may be delays if all the required information is not included when the application is submitted. The Authority is unable to make any assessment or provide any significant advice without first providing an estimate of costs and receiving payment. When payment has been made, the process of preparing and assessing the application should take place as soon as practicable to begin the actual approval process.

5.1.4 Area approvals will be considered by the Authority's Ground Safety Department (GSD) to determine whether to designate a temporary danger area or temporary restricted area (TRA), or to change a permanent airspace classification. This is necessary to address any residual risk after the application of other risk mitigations.

5.1.5 The TRA airspace change proposal process is defined in the Fiji AIP. The Authority Flight Safety staff will coordinate internally with the Ground Safety staff, as required.

5.1.6 When issuing approvals, the Authority may impose limitations on the operation of an RPAS in order to ensure that the RPAS will pose no greater threat to the safety of air navigation than posed by a similar operation involving a manned aircraft. Such limitations may include, but are not limited to:

a) altitudes

b) geographical restrictions

c) radio broadcast requirements (if required, cell phone communication will suffice))

d) the provision of observers

e) the timing of operations

f) pilot qualifications, experience and competency in relation to the operator's procedures.

5.2 Specialised operations

5.2.1 Extended visual line of sight operations

5.2.1.1 Extended visual line of sight (EVLOS) is an operational category in which the remote pilot does not have direct visual sight of the RPAS. However, with assistance from trained RPAS observers (persons who demonstrate competency via the operator's approved training requirements) the remote pilot is still able to ensure safe operation of the RPAS. Although technically these are BVLOS operations (because the remote pilot cannot actually see the unmanned aircraft), they are

more often referred to as 'Extended Visual Line of Sight' or EVLOS. It is important to note, however, that collision avoidance is still achieved through the 'unaided visual observation' of a human, either through the use of additional observers and/or visually 'scanning' a block of airspace for conflicts.

Factors taken into consideration must include:

a) the procedures for avoiding collisions;

b) the size of the unmanned aircraft being used;

c) the colour of and markings on the unmanned aircraft;

d) any additional aids to observation;

e) meteorological conditions and visibility, including background conditions (cloud / blue sky);

f) the use of deployed observers, including suitable communication methods within the team; and

g) operating range limits - suitable radio equipment must be fitted in order to be able to effect positive control over the UA at all times.

5.2.1.2 EVLOS operations are not routinely permitted. The Authority requires operators to conduct a case-by-case safety risk assessment and mitigation strategy prior to any application for approval to operate EVLOS.

5.2.1.3 In EVLOS operations, operators should be satisfied that all areas of the intended operational airspace will be visible at all times, by at least one of the remote crew during the operation. This assessment should consider physical obstacles and meteorological conditions. RPAS observers are to alert the remote pilot to any incoming traffic, and the remote pilot is to take the necessary actions to manage the flight and avoid collisions.

5.2.1.4 At least one of the RPAS observers, or the remote pilot, must have direct visual sight of the airspace around the RPAS and be able to communicate with the remote pilot continually in order to assist with collision avoidance responsibilities. When the aircraft is out of sight the observers must be acutely aware of the aircraft's location and have the surrounding airspace and ground below it in direct visual sight.

5.2.1.5 Both operators and remote pilots require the Authority approval to conduct EVLOS operations. Any approval will contain conditions to ensure the safety of other airspace users and people and property on the ground, including the situations and length of time that the aircraft may not be directly visible.

Electronic aids

5.2.1.6 Electronic aids (i.e. on-screen or moving map displays) can be beneficial to improving situational awareness of the local airspace environment for the remote pilot during EVLOS operations and, where available, may be used as risk mitigation tools. Such displays may be used as an additional aid to safety, but cannot be used instead of, or to replace, direct eye contact in VLOS operations.

First person view

5.2.1.7 First person view (FPV) may be used in aerial work EVLOS operations involving a search and rescue as an aid to obstacle avoidance. The RPAS observers or the remote pilot must be able to see the aircraft without electronic aids, the airspace around it and the ground beneath to ensure that the operation remains compliant with this SD.

5.2.1.8 Any other FPV drone operations must have a spotter that has visual line of sight of the drone at all times.

5.2.1.9 Visual Observer

If a visual observer is used during the aircraft operation, all of the following requirements must be met:

a) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must maintain effective communication with each other at all times.

b) The remote pilot in command must ensure that the visual observer is able to see the unmanned aircraft.

c) The remote pilot in command, the person manipulating the flight controls of the small unmanned aircraft system, and the visual observer must coordinate to do the following:

1) Scan the airspace where the small unmanned aircraft is operating for any potential collision hazard; and

2) Maintain awareness of the position of the small unmanned aircraft through direct visual observation.

Note: FPV would not be an acceptable solution for visually separating RPAS from other airspace users in a safety case for approval of beyond visual line of sight (BVLOS) operations.

5.2.2 Beyond visual line of sight operations

5.2.2.1 BVLOS operations are not routinely permitted. The Authority requires operators to conduct a case-by-case safety risk assessment and mitigation strategy prior to any application for approval to operate BVLOS.

5.2.2.2 Applicants will need to demonstrate how the proposed operation can be conducted at an equivalent level of safety to manned operations. Particular attention should be paid to:

a) aircraft controllability

b) fail-safe mechanisms

c) collision risk mitigation

d) navigation accuracy

e) height keeping accuracy

f) whether any technical solutions or procedures have been certified/assessed by the manufacturer of the RPAS to meet design assurance requirements.

5.2.2.3 The Authority will apply conditions to an approval for BVLOS operations, and all flights must be conducted in accordance with the conditions specified in the approval.

5.2.2.4 The Authority's Ground Safety Department (GSD) may have to declare a permanent or temporary restricted or danger area for the operations. However, in considering a request for such restrictions, the GSD may consider, among other things, the impact of the proposed flights on the operations of other aircraft with respect to access to airspace. The GSD is unlikely to approve a request for restricted areas where it would significantly limit the ability of other operators to use the airspace.

5.2.2.5 Equipment requirements

The Authority will require the following equipment to be fitted to the RPAS and operable for a BVLOS flight:

a) **position lights** (navigation lights) - should be turned on at all times, while the RPAS is in motion (including taxi, launch, flight, and recovery).

b) **anti-collision or strobe lights** - should be turned on at all times the RPAS is in flight (unless otherwise directed by the Authority or ATC).

c) **landing lights** - should be turned on during recovery (if fitted).

d) **transponders** - an approved SSR transponder or ADS-B out unit may be required The transponder should be switched to ON/ALT at all times the RPAS is airborne.

e) **aeronautical radio(for medium-large UA) /cell phone coverage** - If the operator is in possession of a medium to Large UA that requires the use of a runway, the aircraft must be registered with a callsign and the UA Pilot must possess a Fiji Radio Telephony License to

use an aeronautical radio. For smaller UA users, a cell phone for continuous contact with ATC is sufficient. If and when an operator requires a Large UA to be used, an application for Flight Radio Telephony License

Note: Position, anti-collision, strobe and landings lights, where required, should be demonstrably effective, but do not have to meet the standards of manned aircraft.

The normal published aeronautical very high frequencies should be used for communications with ATC.

g) **navigation equipment -** the RPAS should have the navigation capability to comply with the tracking requirements of the airspace classification in which the RPAS is being operated, and an acceptable level of design assurance.

h) **any additional equipment** that the operator has included in its safety case for the approval of the operation.

5.2.3 RPAS operations in controlled airspace

5.2.3.1 Pilots of RPAS operating above 200 ft/61 m in controlled airspace or within 5 km/3 km of the associated aerodrome must be able to comply with ATC clearances, and their aircraft should meet the equipment requirements applicable to the class of airspace within which they are operated.

5.2.3.2 Preparation for controlled airspace operations

The ReOC holder must obtain approval for controlled airspace operations from the Authority's GSD and operations must be conducted in accordance with any conditions on the approval. The initial application should be made to drones@caaf.org.fj. The GSD will coordinate the approval with ATC.

5.2.3.3 Operators will need to have suitable procedures in their operations manual, and pilots will need to have the relevant training certification from an approved organization.

5.2.3.4 Advice on any performance requirements or limitations unique to the RPAS should be provided as part of the application.

5.2.3.5 Each approval, or letter of agreement, should outline specific procedures for:

a) flight plan filing

b) ground RPAS operations

c) launch and recovery

d) integration of RPAS into the local traffic pattern

e) local airspace restrictions

f) communications requirements

g) noise abatement procedures

h) traffic priority

i) RPAS contingency procedures.

5.2.3.6 Designated 'safe areas' are to be established by the operator, on advice from ATC, for RPAS emergency holding and flight termination. A meeting between the operator, ATC and the Authority may be required to establish the specifics relating to different phases of flight.

Note: Remote pilots must receive certification from the ReOC holder when they complete the operator's approved training course for this purpose.

5.2.3.7 Flight clearance

The remote pilot should not request or accept any clearance (i.e. area, departure, altitude, holding pattern) that the RPAS is not capable of meeting within its designed flight envelope.

5.2.3.8 Flight termination procedures

Specific flight termination procedures developed by the ReOC holder and executed by the remote pilot should be agreed with ATC before undertaking the operation. At a minimum, the following information should be briefed:

a) pre-programmed loss-of-C2 link flight profile-including actions to take should the control link not be re-established within an agreed timeframe.

b) flight termination capabilities

c) RPAS performance under termination conditions.

5.2.3.9 RPAS should not be operated within controlled airspace without an operable flight termination system or one that provides automated recovery to a predetermined recovery area.

5.2.3.10 In the event of communications failure between the remote pilot and ATC, the remote pilot should squawk SSR code 7600 (if possible) and attempt to establish alternative communications. Pending re-establishment of communications with ATC, the RPAS should be controlled in accordance with the last acknowledged instruction, or the operational conditions contained in the approval. If communications with ATC are not re-established, the RPAS flight should be safely aborted.

Flight notification (to be confirmed with GSD and ATC)

5.2.3.11 Where an RPAS flight is to be conducted in airspace shared with manned aircraft, flight notification will be required and should be filed in accordance with normal procedures, unless otherwise agreed with ATC. The flight plan should indicate that the aircraft is unmanned and provide as much detail as possible concerning the nature of the flight.

5.2.3.12 Flight plan call signs are to consist of seven characters and include the prefix UX with any aircraft type designator (e.g. 'UXSCE04' meaning 'Unmanned Scan Eagle 4'). Call signs will need to be agreed with ATC.

Coordinating with ATC

5.2.3.13 Unless ATC only requires radio frequency monitoring, a condition of the approval will be that all remote crew members communicating on aeronautical frequencies hold a flight radio license (FRT), or a relevant qualification in accordance with ANR 27. (27.-(1) No person shall operate the radio station in an aircraft whether or not the aircraft is in flight, except in accordance with the conditions of the licence issued in respect of that station under the law of the country in which the aircraft is registered, and unless he is duly licensed or otherwise permitted to operate the radio station under that law.)

Where agreed with ATC, mobile telephone or other means may be used, but as a contingency only in the event of the loss of very high frequency (VHF) radio communications.

5.2.3.14 Communication requirements may vary according to the class of airspace in which the flight will occur. These are described in Aeronautical Information Publication En-Route (Fiji AIP–ENR).

Position reporting

5.2.3.15 RPAS operating in controlled airspace should be continuously monitored by the remote pilot for adherence to the approved flight plan or clearance. Position reporting to ATC should be the RPAS position (not the remote pilot position) relative to an appropriate aerodrome, navigation aid, ground feature, etc.

Flight deviations

5.2.3.16 Requests for deviations from the flight plan or clearance must be made by established procedures to the appropriate ATC unit. For RPAS equipped with automated launch, flight and recovery systems, the remote pilot should monitor RPAS system status and compliance with ATC clearances, performing flight path corrections as required and/or directed by ATC.

RPAS operations at or near controlled aerodromes

5.2.3.17 The Authority and ATC permission is required to operate at or within 5 km/3 km of a controlled aerodrome, being an aerodrome at which the control tower is operating. Outside tower hours, controlled aerodromes are treated as non-controlled aerodromes, although some may have special airspace arrangements. Such aerodromes, tower hours and procedures are listed in FIJI AIP Supplement and Aerodrome Section..

5.2.3.18 It is the responsibility of the remote pilot and ReOC holder to determine whether there are any other aerodromes within 5 km/3 km of their proposed area of operation. This can be done through:

a) a review of aeronautical maps and charts, noting that not all aerodromes appear in or on these publications

b) satellite imagery

c) consultation with local government bodies

d) consultation with landholders, other operators and pilots in the area.

5.2.3.19 Where there are other aerodromes or HLS within 3 km , the operator and remote pilot shall comply with ATC instructions with respect to operating while manned aircraft are using the aerodrome/HLS.

5.2.3.20 The height reference for controlled aerodromes is the aerodrome's elevation.

5.2.3.21 If operations are planned from a security-controlled aerodrome, operators should also take into account the requirements for access to operational areas and the aviation security requirements that apply to security-controlled aerodromes.

Military controlled airspace and military controlled aerodromes

5.2.3.22 Nil in Fiji.

5.2.4 Dropping, discharging and dispensing operations

5.2.4.1 ANR 81 dictates dropping or articles. (**Note**. ANR 81 is in the process of being amended.)

(1) No article or animal, whether or not attached to a parachute, shall be dropped, or projected or lowered or permitted to drop, project or lower from an aircraft in flight so as to endanger persons or property.

Provided that this subregulation shall not apply to the descent of persons by parachute from an aircraft in an emergency, or to the dropping of articles by, or with the authority of, the pilot in command of the aircraft in the following circumstances

(a) the dropping, projecting or lowering of articles for the purpose of saving life;

(b) the jettisoning, in case of emergency, of fuel or other articles in the aircraft;

(c) the dropping of ballast in the form of fine sand or water;

(d) the dropping of articles solely for the purpose of navigating the aircraft in accordance with ordinary practice or with the provisions of these Regulations;

(e) the dropping, projecting or lowering at an aerodrome, of ropes, banners or similar articles towed by aircraft with the prior permission of the Authority and in accordance with any conditions subject to which that permission may have been given

(f) the dropping of articles for the purposes of agriculture, horticulture, forestry or public health or as a measure against weather conditions, oil pollution, or for training for the dropping of articles for any such purposes, if the articles are dropped with the permission of the Authority and in accordance with any conditions subject to which that permission may have been given.

Fijian state and local government regulatory requirements and conditions shall be met for the dropping or dispensing of chemicals or other materials. It is the responsibility of the operator

to ensure that the appropriate approvals are obtained from local authorities before conducting such operations.

5.2.5 Flight test authorisation

5.2.5.1 RPAS with a gross weight of more than 2 kg and all RPAS flown outside the SOCs for flight testing, or aircraft research and development, will require a flight test authorisation from the Authority.

5.2.5.2 Areas for RPAS flight test and certification flights must be approved by the Authority in a separate area approval. These areas will normally be established outside of controlled airspace.

5.2.5.3 Under the operating approval, such flights will be required to be conducted in accordance with any conditions imposed by the Authority. Flights will need to be flown by licensed and well-experienced remote pilots.

5.3 International RPAS operations

5.3.1 ICAO requirements

a) RPAS shall not be operated without the appropriate authorisation from the State from which the departure is made

b) RPAS shall not be operated across the territory of another State, without special authorisation issued by each State, in which the flight is to operate. This authorisation may be in the form of agreements between the States involved

c) RPAS shall not be operated over the high seas, without prior coordination with the appropriate ATC authority

d) The authorisation and coordination referred to above (b and c), shall be obtained prior to departure if there is a reasonable expectation, that the aircraft may enter the airspace concerned

e) RPAS shall be operated in accordance with conditions specified by the State of registry and the State(s) in which the flight is to operate. Any conflicting operational rules will need to meet the more exacting standard.

5.3.2 Flight outside of The Civil Aviation Authority of Fiji's territorial jurisdiction

5.3.2.1 Intentionally blank

5.3.3 International operators

5.3.3.1 International operators who want to fly RPAS into or out of Fijian territory should contact the Authority in the first instance on drones@caaf.org.fj. The Authority will ask you for the following information:

a) a comprehensive description of the planned operations

b) details of the aircraft to be flown (i.e. the performance characteristics)

c) a copy of the company operations manual and the flight and maintenance manual for the aircraft (if available)

d) a copy of the risk assessment for the event

e) a copy of the remote pilots' and operator's RPAS credentials

f) any national aviation authority (NAA) approvals that permitted the mission in that authority's jurisdiction.

g) copy of a liability insurance cover for the drone operator and drone.

5.3.4 Verification and scrutineering

5.3.4.1 The Authority will conduct verification and scrutineering of international operators before any operations are conducted in Fijian territory. To cover these requirements, international

operators are requested to position their mission team in Australia, or arrange for the Authority's inspectors to visit their facilities, with sufficient time to allow testing and demonstration flying, including emergency procedures.

6 RPAS operator's certificate (Commercial Authorisation above 25kg)

6.1 Overview

6.1.1 A ReOC is similar to the air operator's certificate (AOC) for traditional aviation operations. Like the AOC, it authorises the holder to conduct included (most commercial) operations using the type(s) of RPAS and under the conditions endorsed on the certificate.

6.1.2 A ReOC is required for any commercial operation, including for:

a) RPAS weighing more than 25 kg whether or not flying under the SOCs (conditions of operations), unless meeting the 'landholder' criteria.

b) all operations with a large RPAS.

Note: Model aircraft are, by definition, used for sport and recreation and do not require a ReOC

6.1.3 The benefit of having a ReOC is that it permits a range of RPAS operations—subject to approval—that are unavailable to other operators (see 'Specialised operations' in Chapter 5.2).

6.2 RPAS operator's personnel

6.2.1 Figure 3 shows the relationships between the chief remote pilot (CRP), remote pilot and other members of the remote crew. The Authority requires the RPAS observer and other remote crew to be trained and certified as competent in their roles by the ReOC holder, in accordance with the organisation's approved documented procedures. These personnel will not be directly authorised by the Authority.

Note. In all cases, ReOC holders must be approved to conduct the type of operations flown by their remote pilots.

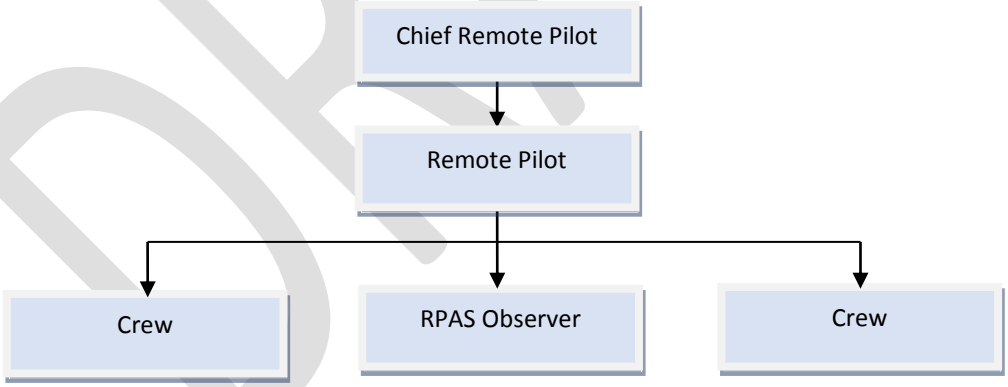


Figure 3: Remote crew organisational structure

6.2.2 Chief remote pilot

6.2.2.1 All ReOC holders must either personally qualify to be, or employ, a Chief Remote Pilot (CRP). Currently there are no additional training or experience requirements for the position of company CRP. However, to be considered suitable, the person would need to have a RePL and advanced knowledge and experience commensurate with the operator's planned operations. However, the company must demonstrate to the Authority that the person intending or proposed to occupy the position can effectively carry out the functions and duties of the CRP required by this SD, specifically:

a) ensuring the operator's RPAS operations are conducted in accordance with the civil aviation legislation

b) maintaining a record of the qualifications held by each person operating an RPAS for the operator

c) monitoring the operational standards and proficiency of each person operating an RPAS for the operator

d) maintaining a complete and up-to-date reference library of the operational documents required by the Authority.

6.2.2.2 A flight test of the chief remote pilot is also required and can be carried out by the Authority or an approved delegate.

6.2.3 Remote pilot

6.2.3.1 Any other remote pilots working for the operator must hold a RePL and be trained in the company's operational procedures.

6.2.4 RPAS observers and other remote crew

6.2.4.1 The Authority does not authorise other remote crew members. RPAS observers and other remote crew should complete an operator's course of training appropriate to their function, in accordance with the syllabus and program in the operator's approved operations manual.

6.2.4.2 Competency standards and training for intercommunication among RPAS crew (e.g. between an RPAS observer and remote pilot) is the responsibility of the operator. Training procedures and standards must be included in the operations manual.

6.2.4.3 RPAS operators must maintain records that show the training delivered to, and the level of competency of, personnel in non-regulated roles. This should be consistent with the requirements in the approved company operations manual.

6.3 Training obligations of a ReOC holder

6.3.1 To ensure the unmanned aircraft community conducts safe RPAS operations, operators and remote pilots should keep up-to-date with the development of technology and procedures. Operators shall also ensure they and their remote crew are appropriately trained and competent in conducting RPAS operations.

6.3.2 Operators shall determine the training required for their RPAS crew and detail this in their operations manual. If a remote pilot does not fly within any currency timeframe identified in the operations manual for the RPAS, a refresher program of theory and practical flying should be conducted. Some of the practical training may be done in a simulator.

6.3.3 ReOC holders will require approved training procedures to conduct conversion training. This training is limited to the operators' personnel, unless they also have a training organisation approval on their ReOC.

6.4 RPAS training organisations

6.4.1 Operators must obtain approval from the Authority to conduct RPAS training for the general public. Operators intending to conduct training should familiarise themselves with the guidance below.

6.4.2 RPAS training organisations have obligations related to the licensing of remote pilots (see Chapter 7). the Authority, together with industry, has accepted CASA approved syllabi and also defined a set of remote pilot training requirements specifically designed for RPAS operations. This includes basic aviation knowledge and skills, and specialist RPAS knowledge and skills. Adoption of these standards by RPAS training organisations will ensure that appropriate RPAS safety levels are attained.

6.4.3 The guiding principles behind the Authority's requirements for RPAS training and licensing are drawn from International Civil Aviation Organization (ICAO) Doc. 10019.

6.4.4 The Authority is committed to working with training organisations to ensure that training standards reflect those that the Personal Licensing department (PEL) within the Authority.

6.4.5 Training should be carried out using the category and weight class of an RPAS the person intends to fly. Test candidates will not need to demonstrate manual flight control of an RPAS that can only be flown using automated piloting techniques. However, a candidate will need to demonstrate

competency in both manual and automated flight for automated systems that rely on manual control in the event of a loss or degradation of the autopilot.

6.4.6 Students should undertake thorough practical training in the operation and control of an RPAS in flight. The training should enable the remote pilot to demonstrate control of a specific RPAS throughout its design parameters and varied operating conditions, including dealing appropriately with abnormal flight, emergencies and system malfunctions.

6.4.7 Instructor training and skills

6.4.7.1 Instructor training programs should be completed by all who provide instruction to the RPAS industry sector. Instructors should be competent in conducting RPAS training and may be appointed as ground or flight instructors, or both.

6.4.7.2 There is currently no formal RPAS flight instructor qualification or syllabus of training. However, to carry out RPAS instruction a person should have considerable RPAS or model aircraft flying experience in the relevant category and hold a RePL endorsed with the applicable category and weight class of RPAS to be flown.

6.4.7.3 Instructors should ideally have at least one of the following qualifications:

a) an approval from either CASA/NZCAA to conduct RPAS Training

b) hold or have held a flight instructor qualification.

6.4.7.4 Depending on the type of operation, the operator may, on advice from the CRP, approve RePL holders with lesser experience to be assistant instructors provided suitable risk mitigation strategies are in place.

6.4.7.5 The Authority may impose additional requirements for the delivery of the course and the instructors as a condition of the training authorisation for organisations training pilots to operate larger or more complex aircraft, or training for higher-risk flight activities.

6.4.8 Synthetic training devices

6.4.8.1 The Authority encourages the use of simulators and synthetic training devices appropriate to the type of RPAS to be flown. For smaller, simple RPAS, use of simulators may reduce the time spent actually flying the RPAS before the person becomes competent. However, applicants will still require 5 hours flight time experience to qualify for a RePL.

6.4.8.2 Simulators are essential for large complex RPAS. As with conventional aircraft, simulators reduce the risks associated with training, allowing pilots to practice normal operations as well as abnormal and emergency procedures in a safe, controlled environment.

6.4.8.3 The Authority requires RPAS training organisations to maintain records of:

a) results from the applicant's aeronautical theory examination

b) results and notes from the practical flight training element of the course

c) accrued training hours for the applicant on the RPAS type used in the flying training

6.5 Preparing a ReOC application

6.5.1 Figure 4 depicts the steps involved in preparing a ReOC application. Before applying for a ReOC, applicants should consider the type(s) of operations planned and the category and size of RPAS to be used. Once this is done, contact the Authority's RPAS office for advice before compiling the required manuals and completing the application form.

Manuals (ReOC applicants for RPAS above 25kg)

6.5.2 Procedures for the proposed operations need to be documented in the operator's manuals. The following manuals are required in an application for a ReOC and for the operator's library of operational documents:

a) operations manual

b) RPAS flight manuals

c) RPAS maintenance manuals.

6.5.3 A sample/template operations-manual for RPAS will be provided upon request. Applicants for a ReOC can develop their own operations manual by amending or adding extra information to suit their proposed RPAS type(s) and planned operations.

6.5.4 The level of detail and complexity in these manuals will depend on the systems operated and the type of operations conducted. For example, the RPAS flight manual and maintenance manual may be a single document for simple aircraft.

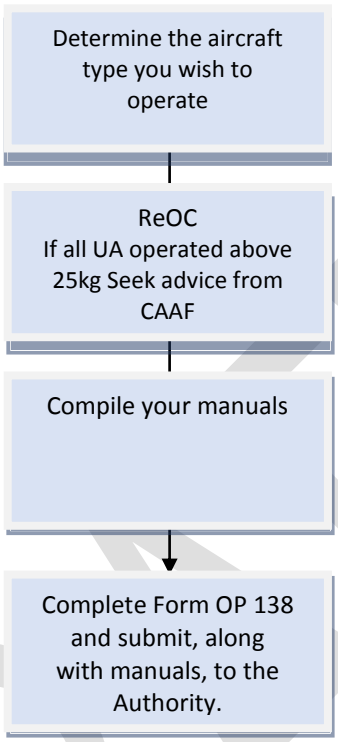


Figure 4: Steps in preparing a ReOC application

6.5.5 Chief Remote Pilot

Each operator must be, or employ, a qualified chief remote pilot. Information about obtaining a RePL and qualifying as a chief remote pilot can be found in Chapter 7. The name, contact details and experience of the person nominated to be chief remote pilot must be included in the operator's application, along with the names of the CEO/Managing Director and the maintenance controller—noting that they can be the same person. These details should be included in form OP 138.

6.6 Submitting a ReOC application

6.6.1 The required manuals and application forms should be submitted electronically to the Authority via drones@caaf.org.fj.

6.6.2 In submitting your applications, the authority will conduct an administrative assessment and estimate the time and cost for processing and assessing the application. The authority will then send the applicant an invoice for payment, based on the estimate, which must be paid before the formal assessment process by the authority's RPAS team can commence.

6.7 Assessment of application

6.7.1 The formal assessment will include:

a) a review of the applicant's manuals

b) interviews with the person(s) who have been designated as the chief remote pilot and the RPAS maintenance controller

c) a demonstration of the RPAS under the proposed operating procedures

d) an inspection of the facilities, documentation (e.g. flight and technical logs) and a review of the proposed maintenance procedures.

6.8 Issue of a ReOC

6.8.1 The Authority will issue successful applicants with a ReOC, which permits the operator to conduct RPAS operations under the general operating conditions (see section 3.2.8) A ReOC does not confer on the holder any other privileges, and operators must also ensure that they meet any other local statutory laws applicable to their activities.

6.9 Updating your ReOC

6.9.1 ReOC holders manuals must include specific procedures for the types of operations they plan to conduct.

6.9.2 Different flight activities and RPAS types may be added to the ReOC at a later date, and this will require suitable procedures to be added to the approved operations manual. Any changes to the manuals must be accepted by the authority.

Note: RPAS aerial work does not include passenger-carrying operations.

7.0 Remote pilot licensing and qualifications (Fijian Drone licensing will be mandated at the end of 2022)

This Chapter provides the information necessary for an applicant to obtain a RePL and describes the various limitations and permissions that may be attached to a RePL. It also provides details of additional qualifications that a RePL holder may require for specialised operations. RePL are not produced by the Authority. The Authority will accept RePL from accepted ICAO Contracting states.

7.1 RPAS categories and weight classes for a RePL

7.1.1 For the purposes of acceptance of RePL, RPAS are divided into a number of categories:

a) fixed-wing

b) rotary (single-rotor class and multi-rotor class)

c) airship

d) powered lift (hybrid fixed wing with vertical take-off capability-VTOL).

7.1.2 RPAS are also divided into weight classes:

a) **very small:** with a gross weight of less than 2 kg

b) **small:** with a gross weight of at least 2 kg and less than 25 kg

c) **medium:** with a gross weight of at least 25 kg and less than or equal to 150 kg

d) **large:** with a gross weight greater than 150 kg.

7.1.3 Initial training can be done with the Authority -approved training organisations/consultants. A list of current RPAS training organisations/consultants can be confirmed via email with the Authority at drones@caaf.org.fj.

7.1.4 The Authority will accept a RePL from a person who has qualified as a remote pilot. Based on that person's experience and further training, the operating organisation (the ReOC holder) can assign its crew to meet operational requirements. The criteria for each remote crew position should be set out in the company operations manual.

7.2 RePL application process (CAAF) (Pending formalization)

7.2.1 Existing UAV controller's certificate holders

7.2.1.1 Holders of valid unmanned aerial vehicle (UAV) controller's certificates continue to be authorised to exercise the privileges of that qualification under this SD. UAV controller certificate holders can transfer at any time to a RePL on request. A certificate holder seeking a variation to their flying privileges (e.g. adding an approval or removing a limitation) will be automatically issued a RePL.

7.2.2 Applicant with no aeronautical qualifications (Tentative)

7.2.2.1 An applicant for a RePL with no aeronautical qualifications should complete the following steps:

a) apply for a RePL through an approved training organization/consultancy.

b) Provide copy of RePL or equivalent to the Authority

7.2.3 Applicant with previous aeronautical qualifications

7.2.3.1 Applicants who already hold a pass in an aeronautical knowledge examination, the Authority issued pilot qualification or an acceptable overseas or military equivalent qualification, but have not recently flown/operated a RPAS for over 1 year need to complete an assessment flight with an approved training organization or the Authority.

Note: The Authority may conduct a flight test with a person seeking a Drone/UAV Controllers Certificate/RePL based on overseas or military qualifications.

This will include a knowledge test/brief and a brief on Fiji flight rules and air law.

7.2.3.2 To obtain a RePL, an RPAS training organisation must submit forms to the Authority Personnel Licensing drones@caaf.org.fj on behalf of the applicant, accompanied by evidence of training results and a radio qualification, if applicable.

7.2.4 Application to fly beyond visual line of sight operations

7.2.4.1 An applicant for an approval to fly beyond visual line of sight (BVLOS) operations must pass at least one of the following exams:

a) an aeronautical knowledge examination for an instrument rating.

b) the CASA syllabus instrument theory examination (IREX)

c) an approved examination for this purpose.

Note: Currently, BVLOS operations can only be conducted by the Authority approved operators on a case-by-case basis. An examination tailored specifically for RPAS BVLOS operations will be created once a syllabus of training has been written.

7.3 Log books

7.3.1 A log book is a practical method of recording flight hours as evidence of flying experience. Remote pilots who choose to use a log book should record the flight time, location, flight rules and a short description of any tasks performed.

7.3.2 An electronic log book may be used, but it should include an auditing functionality that ensures the veracity and accuracy of the data entered.

7.3.4 A traditional pilot's log book may be used and can be purchased from an aviation store and used as a permanent record of RPAS flying hours. Remote pilot hours can be logged in a separate column in the traditional pilot's log book, but traditional and RPAS hours cannot be aggregated.

7.4 RePL Licenses (ICAO contracting state)

7.4.1 A RePL is issued with certain permissions endorsed on it, depending on:

a) the RPAS weight and category type the person has qualified to fly

b) the operations that the remote pilot plans to conduct.

7.4.2 To ensure that the remote pilot is competent to operate different types of RPAS, the Authority requires pilots to undergo training and demonstrate competency in the RPAS category and weight class that they will fly. For RPAS weighing less than 25 kg, a generic grouping is endorsed on the RePL (e.g. multi-rotor, < 7 kg; aeroplane, < 25 kg). RPAS larger than 25kg will normally have the training covered in the type training by the manufacturer. This training and trainers must be endorsed by the State Authority of the manufacturer.

7.4.3 As indicated previously, in the interests of aviation safety, the Authority may limit some RePL holders to operations with RPAS weighing less than 7 kg.

Conversion training

7.4.4 Conversion training is required to fly RPAS in a different category or weight class. This training can be conducted by:

a) an Authority approved RPAS training organisation

b) ReOC holders with approval to operate the applicable type of RPAS (only for the removal of the 7 kg condition on a RePL for their own personnel)

c) the original equipment manufacturer (OEM) or an approved agent of an OEM, provided they hold a ReOC with training approval.

7.4.5 Operational approvals

7.4.5.1 RePL holders may be eligible to conduct a range of operations, depending on the approvals attached to their licence. Other operations outside of the general operating conditions (see paragraph 4.1.3) may be conducted provided ReOC holders have suitable procedures in their approved Operations Manual and remote pilots have achieved competency under the operator's training program relevant to the operation to be flown.

7.4.5.2 Normally approvals will be issued to ReOC holders who will ensure that their remote pilots are suitably trained to operate under the particular conditions of the approval. Additional approvals are required for the following operational types above the standard ReOC privilege:

a) operations in controlled airspace above 200 ft/61 m

b) operations at controlled aerodromes

c) operations on or over the movement area, or in the approach and departure paths, of certified or registered non-controlled aerodromes

d) operations with more than one RPAS at any one time

e) EVLOS operations

f) BVLOS operations (including flight in other than visual meteorological conditions).

7.4.5.3 Some approvals relate to a design feature of the RPAS. These are:

a) automated flight (usually issued with the initial RePL, as required)

b) manual flight (usually issued with the initial RePL, as required)

c) liquid-fuel propulsion for aircraft over 25 kg take-off weight.

7.4.5.4 Applicants for these types of approvals may need to demonstrate their knowledge and practical skills in a flight test, noting that the Authority may ask an applicant to meet other requirements as a condition of the approval (e.g. knowledge of an operator's procedures for carrying out the type of flight activity proposed).

7.5 Flight Restriction Zones

7.5.1 Temporary Restricted Areas (TRA)

7.5.1.1 Generally, TRAs' are implemented at the majority of Fiji aerodromes (a complete list can be found in the AIP, and on the DJI Website). Their purpose is to enhance safety for other airspace users within the vicinity of an aerodrome

7.5.1.2 Airport Restricted Areas (**DJI drone users**) comprise three sections:

a) A cylinder, with the same dimensions as the Aerodrome Traffic Zone (ATZ);

b) Runway Protection Zones (RPZs);

c) Additional Boundary Zones namely;

d) **Restricted Zone**

No flight whatsoever is permitted inside a Restricted Zone. These zones cover airport runways in a rectangular shape that is 1.2 km wide and the length of the runway with 3 km added to each end.

e) **Altitude Zones**

An Altitude Zone is an area of restricted flight altitude. Each of these zones consists of two parts. Part one is a 60-meter height-restricted area, which extends 3.6 km outwards from the four corners of a Restricted Zone at an angle of 8.5°. Part two is a 150-meter height-restricted area, which extends 8.4 km outwards from the corners of part one.

f) **Authorization Zones**

In an Authorization Zone, all flight is restricted by default, but users can self-unlock with a DJI-verified account. These oval-shaped areas consist of two 4 km semicircles on each end of the runway that connect in the middle.

g) **Enhanced Warning Zones**

An Enhanced Warning Zone is a circular area that extends 2 km outwards from the perimeter of an Authorization Zone. When a drone is approaching this area from the outside, the DJI GO app will issue a warning. Users must then confirm that they wish to continue flying.

These 4 areas make up the overall DJI Manufactured Drone TRA, for which permission to fly within must be obtained from the Authority or the Governmental Ministry involved with the TRA.

Permission to fly above 200 feet (61 metres) within the FRZ may be granted by the ATC or AFIS unit, without requiring further permission from the Authority, providing the flight remains entirely within the TRA. If ATC unit is present, then flight above 200 feet (61 metres) within the TRA is not permitted unless permission has been granted by the Authority.

In order to mitigate safety risks associated with UAS operating within a TRA and interacting with manned aircraft, a NOTAM action is compulsory. Any operation within the specific category will include such a requirement within the conditions of the authorisation.

7.6 Flight proficiency and currency

7.6.1 RePL holders must at least prove 5 take-off and landings within the preceding 6 months prior to any commercial operation. All remote pilots should maintain their proficiency and currency through regular practice, which may consist of RPAS flying supplemented by computer-based simulator time.

7.6.2 Lack of proficiency or currency that led to an accident or incident might later be determined to be hazardous operation if it was reasonable to assume that the RPAS could have been competently controlled in the circumstance by a remote pilot of higher proficiency or with more currency.

7.6.3 ReOC holders should include proficiency and currency requirements in their documented practices and procedures for all personnel undertaking duties essential to the safe operation of the company's RPAS.

7.7 Dangerous goods – carriage by unmanned aircraft

7.7.1 Dangerous goods must not be carried by UA without approval from the Authority.

The carriage of dangerous goods by UA in Fiji may be carried out in the specific and certified categories of operation but only when approved by the Authority. Dangerous goods carriage by UA is a new policy area for the Authority as a whole. It is likely that supporting procedures and guidance will evolve over time as evidence and experience refines the system.

8.0 Authority Audits

The Authority may at regular intervals conduct audits on RPAS Commercial Authorisation holders. A seven day notice will be issued to these operators prior to an audit.