



Australian Government
Civil Aviation Safety Authority

CASR PART

101

Micro and excluded Remotely Piloted Aircraft operations

PLAIN ENGLISH GUIDE | SEPTEMBER 2020



REGULATORY PROGRAM



About this guide

Safety in the sky is our priority. To keep people, property, and the environment around you safe, it is essential you know the rules that apply to the operation of a drone. The Civil Aviation Safety Authority's (CASA's) *Plain English Guide for micro and excluded Remotely Piloted Aircraft (RPA) operations* summarises Part 101 of the Civil Aviation Safety Regulations 1998 (CASR) and Part 101 *Manual of Standards (MOS)* that relate to the operation of micro and excluded RPA.

This guide is a tool to assist you to understand and apply drone regulations and safety rules. The guide does not reproduce all the text of the regulations or MOS, but it does provide the associated legislative reference if you want to refer to the full text at the [Federal Register of Legislation website](#).

By following this guide, it is expected you will comply with the rules that apply to micro RPA (250 g or less) and excluded RPA (more than 250 g, but not more than 25 kg) that may be used for commercial activities or certain activities over your own land.

We are committed to providing you with accurate, consistent, and clear information to help you understand your obligations. If you follow this guide and some information turns out to be incorrect or misleading and you make a mistake as a result, CASA will apply its [regulatory philosophy](#) in determining what corrective action, if any, to take.

How to use this guide

In this guide, the word *you* refers to the person operating the remote controls of an RPA. We have also used *the controller* and *the remote pilot*, where *you* does not meet the intent of the text. Within the guide, there are two key definitions of the term drone. A remotely piloted aircraft (RPA) is a drone that is used for hire or reward, commonly referred to as commercial activities. A model aircraft is a drone that is used for sport and recreation.

Further, we have defined certain words to avoid repetition and improve readability. Where we do not define a word, you should consider its meaning to be that given in the Macquarie Dictionary or the regulations.

For improved understanding, we have added *comments* to assist in explaining a requirement. This commentary is not intended to introduce a new requirement, but to provide a more detailed explanation.

To enhance the experience with digital interactive elements included in this guide, save this guide to your device. Then:

- › for iOS operating systems open the guide with Apple Books application
- › for Android operating systems open the guide with PDF viewer application.

Use the [Quick Menu](#) page as the central reference point to navigate through this guide.

The following terminology table has been created for this guide to improve readability:

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The Civil Aviation Safety Authority is responsible for the safety regulation of civil air operations in Australian territory, and for the regulation of Australian-registered aircraft outside Australian territory. For further information, visit CASA's website www.casa.gov.au.


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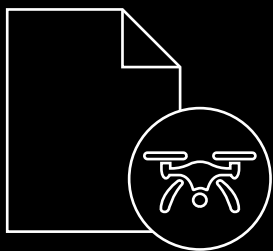
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Term	Meaning
accreditation	an accreditation authorises a person to operate a micro RPA, an excluded RPA or a model aircraft (other than a glider)
controller	a non-regulatory term for -the person controlling an RPA
crew	this includes the controller and any other person tasked with ensuring the safety of an RPA activity (for example, RPA observers tasked with keeping a lookout for aircraft and people)
drone	an unmanned aerial vehicle
excluded RPA	<p>very small and small RPA, operated by a controller with a valid accreditation, in standard RPA operating conditions for certain activities other than sport and recreation, in certain conditions</p> <p>a medium RPA, operated by a controller with a valid RePL, in standard RPA operating conditions for certain activities other than sport and recreation, in certain conditions</p> <p>RPA used solely for the purpose of the person receiving training by an authorised Remotely Piloted Aircraft Operator's Certificate holder</p>
manned aircraft	conventionally piloted aircraft
micro RPA	<p>an RPA which is 250 g or less which is not an excluded RPA but can also be used for other than sport and recreational purposes using an accreditation rather than a RePL.</p> <p> <i>Previously a micro RPA was 100 g or less</i></p>
movement area	part of the aerodrome where aircraft taxi or are towed while on the ground, i.e. heading to or from the runway, boarding gates, or a hangar
no-fly zone of a controlled aerodrome	any area within 5.5 km (3 NM) of the movement area of a controlled aerodrome and the approach and departure path
no-fly zone of a non-controlled aerodrome	any area within 5.5 km (3 NM) of the movement area of a non-controlled aerodrome or the approach and departure path which is being used (or will be used) by a manned aircraft
operate	fly or control the RPA
operator	the legal entity (organisation) or person conducting the RPA activities
participant	includes the registration holder, controller, crew and operator noting that one person may perform any or all these roles
person	takes the ordinary meaning of the word but includes a certified RPA operator
registration holder	the legal entity (the person or company) that holds the RPA registration
remote pilot	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 the flight
you	the controller or remote pilot

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CHAPTER 1: INTRODUCTION

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Checklist 1 – Can you operate your drone for commercial activities without a RePL or ReOC? 08

This guide is for a person who does not hold a [Remote Pilot Licence](#) (RePL) and intends to use a drone (not more than 2 kg) for commercial or professional activities (i.e. hire and reward) for work, research, training, or community services. Common areas of these activities include photography and film making, media, university research, real estate, surf lifesaving, construction and trade.

This guide is also for a person who does not hold a RePL and intends to use a drone (not more than 25 kg) over their own land for certain operations such as aerial spotting, land surveying, weed and pest spraying, infrastructure inspections or carrying cargo.

If you fly a drone, as part of your job or to deliver a service, you're usually required to hold a RePL and operate under a [remotely piloted aircraft operator's certificate](#) (ReOC). However, if you intend to operate an RPA for one or more of the activities described above, and comply with the drone safety rules and [standard RPA operating conditions](#), you may be permitted to conduct these activities without a RePL and certification requirements. Instead, you will need to register your drone and obtain an RPA operator accreditation. Registration and RPA operator accreditation can be obtained in the [myCASA portal](#).

CASA has produced a short [excluded category safety video](#) of the rules that apply to micro and excluded RPA used for activities other than sport and recreation, covered in this guide.

Within the aviation legislative framework, drones operated for sport and recreation are defined as model aircraft. Drones operated for a purpose other than sport and recreation (for example, drones used commercially for hire and reward) are defined as RPA (remotely piloted aircraft).

The relevant legislation and guidance material is available on the [CASA website](#).

Types of RPA by weight and operation

RPA are classified by weight:	
Micro	› 250 g or less
Very small	› more than 250 g, but not more than 2 kg
Small	› more than 2 kg, but not more than 25 kg
Medium	› more than 25 kg, but not more than 150 kg
Large	› more than 150 kg

The activity or operation you may conduct will depend on the:

- › activity and location
- › weight of the RPA
- › qualifications, accreditation/ licence and certification required to conduct the activity.

Remotely Piloted Aircraft Operator's Certificate (CASR Division 101.F.4)

An RPA Operator's Certificate (ReOC) is required for more complex commercial RPA activities, such as flying at night or over people. To be able to fly an RPA under a ReOC, a person must also successfully complete training through a certified training provider and hold a Remote Pilot Licence (RePL) – see Figure 1. More information about the ReOC can be found on the [CASA website](#).

Note: The ReOC is outside the scope of this guide.

Excluded RPA (CASR 101.237)

Excluded RPA are drones that can be used for activities that are not sport or recreation. These include commercial or professional activities (i.e. hire and reward) for work, research, training, or community services. Common areas of these activities include photography and film making, media, university research, real estate, surf lifesaving, construction and trade.

To operate an excluded RPA, the controller is not required to hold a RePL but must be 16 years or older, hold a valid RPA operator accreditation and must operate the registered RPA in the [Standard RPA Operating Conditions \(SOC\)](#) at all times (see Figure 1).

The following types of RPA can be operated as excluded RPA.

Very Small RPA (more than 250 g, but not more than 2 kg)

Very small RPA may be operated for commercial activities (payment or reward) for work, research, training, or community services; basically, any activity that is not sport or recreation. You do not need to hold a RePL, however you will need to be 16 years or older to obtain a valid RPA operator accreditation, register your RPA before the first flight and you must operate in the [Standard RPA Operating Conditions](#) at all times.

Small RPA (more than 2 kg, but not more than 25 kg)

Small RPA may be operated as excluded RPA over the RPA owner's land for activities such as aerial spotting, land surveying, weed and pest spraying, infrastructure inspections or carrying cargo. The controller does not need to hold a RePL. The activity must meet the requirements below, the controller must hold a valid RPA operator accreditation and the RPA must be registered before the first flight and operated in the [Standard RPA Operating Conditions](#) at all times. [Records of the activity](#) must also be kept.



Medium RPA (more than 25 kg but not more than 150kg) may also be operated as excluded RPA over your own land but you are required to hold a RePL and hold a specific rating for that RPA. Further details can be found on the [CASA website](#).

To operate a small excluded RPA over your own land:

- › the controller must be the owner of the RPA or a person operating on behalf of the RPA owner
- › the RPA must be operated over the RPA owner's land or land occupied by the owner of the RPA
- › the RPA must be operated in the standard operating conditions
- › the RPA is operated for one of the following purposes (CASR 101.237):
 - » aerial spotting
 - » aerial photography
 - » agricultural operations
 - » aerial communications relay
 - » carriage of cargo
 - » any similar activity described above.

- › neither the operator, controller or owner of the RPA, or the owner or occupier of land, or any person on whose behalf the activity is conducted, may receive any money or remuneration for the operation of the RPA.

Gaining practical experience

A person may operate a small RPA as excluded RPA to gain practical experience for the sole purpose of obtaining an RePL. If a person already holds a RePL and wants to gain practical experience or proficiency, they may operate a small RPA as an excluded RPA. In every occasion, the RPA must be flown in the [standard RPA operating conditions](#).

Note: The RePL holder may only fly a small RPA of the same category specified in the licence. i.e. aeroplane, helicopter, multirotor but it may exceed the weight class specified in the RePL currently held by the remote pilot.

RPA of any weight class are also excluded RPA when used for the sole purpose of training a person, in accordance with an authorised ReOC holder's documented training procedure.

Micro RPA (CASR Division 101.FA.2; CASR Subpart 47.C.2)

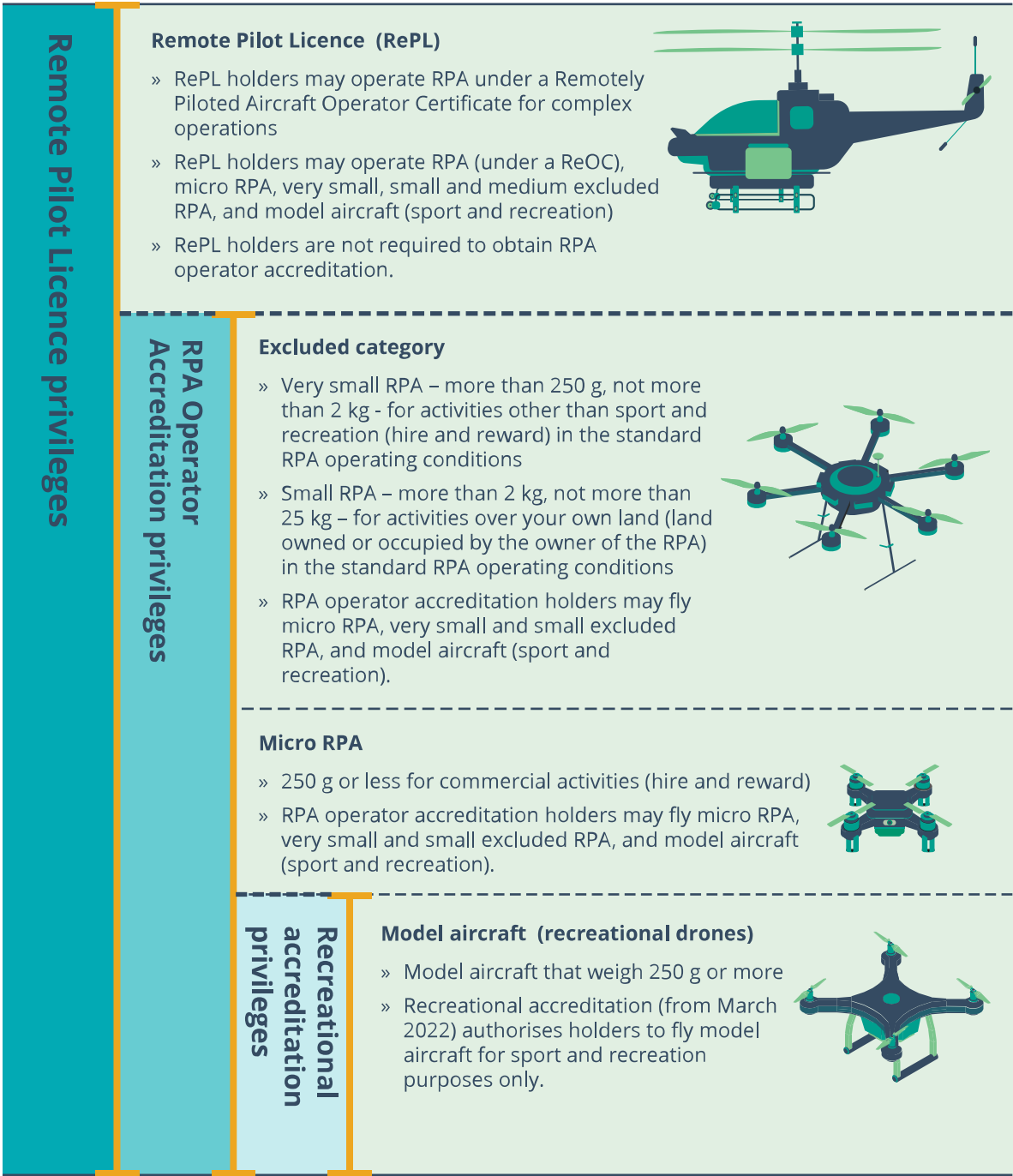
RPA weighing 250 g or less used for a commercial activity (i.e. for hire and reward) are micro RPA. A micro RPA must be registered, and the controller must be 16 years or older and hold an RPA operator accreditation before the first activity is conducted (see Figure 1).

Model aircraft (CASR.101.023 and Subpart 101.G)

Model aircraft are aircraft (other than a balloon or kite) that do not carry a person and are used for sport and recreation. Model aircraft flown at CASA-approved model airfields are not required to be registered and the controller does not need accreditation. However, from March 2022, model aircraft weighing 250 g or more flown in areas other than a CASA-approved model airfield, will need to be registered and the controller accredited.

Note: Model aircraft are outside the scope of this guide.

Figure 1: Remote Pilot Licence and accreditation privileges



Standard RPA operating conditions

(CASR 101.238)

An RPA is operated in standard RPA operating conditions if, at all times during the operation the RPA is:

- › operated in Australian territory
- › operated within the visual line of sight of the person operating the RPA; and
- › operated at or below 400 ft AGL by day; and
- › not operated within 30 m of a person who is not directly associated with the operation of the RPA; and
- › not operated:
 - » in a Prohibited area; or
 - » in a Restricted area that is classified as RA3; or
 - » in a Restricted area that is classified as RA2 or RA1 otherwise than in accordance with regulation 101.065; or
 - » over a populous area; or
 - » within 3 NM (5.5 km) of the movement area of a controlled aerodrome; and
- › not operated over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of a person in charge of the operation, and the person operating the RPA operates only that RPA.

Record keeping (MOS Division 10.3)

Small and medium excluded RPA operators must keep an operational log of each flight (CASR Part 101 MOS section 10.10).

The operator is required to keep a record of the following:

- › the nature and purpose of the operation
- › the specific location of the operation and the maximum height at which the RPA was flown
- › information identifying the RPA, including the type, model and unique identification mark
- › the remote pilot station for the operation
- › the dates and times of the operation
- › the name and aviation reference number (ARN) of the controller
- › whether the RPA was serviceable after the final flight of the day and the nature of any unserviceability.

An operational record should be created as soon as practicable after each flight and kept for a period of three years after the last time the RPA is operated (by the operator).



CASA does not specify the form of the RPA operational log. The operator may keep the log physically or electronically, so long as the records are available upon request from CASA.

Checklist 1 – Can you operate your drone for commercial activities without a RePL or ReOC?

STEP 1

Are you flying your drone for sport and recreation?

- ☐ **Yes** – you are flying a model aircraft. Use a CASA [verified safety app](#) to check where you can fly and follow the drone safety rules
- ☐ **No** – you are flying an RPA go to **Step 2**.



STEP 2

Is your RPA 250 g or less?

- ☐ **Yes** – it is a *micro RPA* which may be used for hire and reward, provided it is registered, you are accredited and follow the drone safety rules, see [Chapter 2](#)
- ☐ **No** – go to **Step 3**.



STEP 3

Is your RPA more than 250 g, but not more than 2 kg?

- ☐ **Yes** – it is a very *small RPA* which may be operated for hire and reward provided it is registered, you are accredited and you follow the drone safety rules and standard operating conditions, see [Chapter 2](#)
- ☐ **No** – go to **Step 4**.



STEP 4

Is your RPA more than 2 kg, but not more than 25 kg which will be flown over land you own or occupy for one of the following purposes:

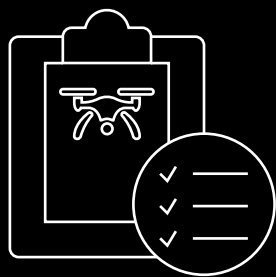
- › aerial spotting
- › aerial photography
- › agricultural operations
- › aerial communications relay
- › carriage of cargo
- › any activity similar to those described above

- ☐ **Yes** – it is a *small RPA* which may be operated for hire and reward provided it is registered, you are accredited and follow the drone safety rules and the standard operating conditions. You may not be remunerated (paid) for the activity. See [Chapter 2](#)
- ☐ **No** – a RePL and ReOC is required.



Notes: A medium RPA (more than 25 kg, but no more than 150 kg) may also be operated as set out above (in Step 4) if you or the operator holds a RePL with a specific rating for that RPA.

This checklist omits the RPA which are excluded on the basis that they are being used for training or for gaining practical experience and proficiency.



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Before you fly, you must ensure your micro RPA or excluded RPA is registered and you hold a valid RPA operator accreditation.

To do these things, you will first need an ARN.

Aviation Reference Number (ARN)

An ARN allows CASA to transact with you and provide a service. Think of it as a driver's licence number or bank account number.

Your ARN will allow access to the myCASA portal to obtain accreditation or register your RPA. This portal also provides access to other aviation services.

Types of ARN

Individual ARNs are available to eligible persons who are not flying for a business or organisation, to register drones or become accredited. You will need an individual ARN to access the myCASA portal to register your drone and obtain accreditation. If you are an individual running your own business, we suggest you also apply for an organisation ARN.



You are generally eligible to hold an ARN if you pass the identity checks.

Organisation ARNs are available to eligible Australian businesses. You will need an organisation ARN to interact with CASA and register drones on behalf of a business or company. An organisation ARN is the only way to allow more than one person to act on behalf of the business in the myCASA portal. You will also need an individual ARN and be authorised to apply on behalf of the business.



You are generally eligible if your organisation holds an ABN, ACN, ARBN or foreign ID number.

How to get an ARN?

An ARN application for an individual can be made through the [CASA website](#) and should not take long to complete. The applicant will need to provide CASA with proof of identity. Details of acceptable identity documents are available on the CASA website.

An ARN application for an organisation or business can be made through the [CASA website](#). Before applying for an organisation ARN, the authorised representative of the organisation will need to obtain an individual ARN.

Accreditation (CASR 101.FA)

When operating a micro RPA or excluded RPA, you must be accredited. If you already hold a RePL, you do not need to obtain RPA operator accreditation. Accreditation is free and is valid for three years.



There is also the requirement for a person flying a micro RPA to be accredited.

You can obtain an RPA operator accreditation after viewing a short safety video, reading the educational material, and successfully completing an online quiz to test your knowledge of the standard RPA operating conditions and drone safety rules.

Accreditation can be completed online through the [myCASA portal](#)

Age limit (CASR 101.374B(4))

- › you must be 16 years or older to become accredited.
- › if you are under 16 years, you may only operate an RPA if supervised by an accredited person who is over 18 years.

Proof of accreditation (CASR 101.374C)

If requested by CASA or the police, you must present proof of your valid accreditation or RePL. Your proof of accreditation can be electronic or printed.



Image | Dianagrytsku | stock.adobe.com



Image | Civil Aviation Safety Authority

RPA registration (CASR 47.C.2)

Like registration requirements for a motor vehicle, there is a compulsory registration system for all RPA. RPA registration is valid for 12 months. Anyone 16 years or older can register an RPA. Registration can be completed online through the [myCASA portal](#).



There is a requirement to register your micro RPA.



It is an offence to operate an RPA used for commercial purposes that is not registered. The offence may be attributed to the RPA operator and/or the controller. Where the RPA controller is under the age of 16, the offence may be attributed to the supervising adult, parent, or guardian.

Proof of registration (CASR 47.099B)

If requested by CASA or the police, you must provide proof of your RPA registration certificate. This can be an electronic or printed document.

RPA registered in another country (CASR 101.099)

RPA registered outside Australia can be operated in Australian territory, but the RPA details must be recorded with CASA and permission issued to the operator before the first flight. The controller must also hold an RPA operator accreditation or a RePL.

The process for applying for permission to fly a foreign-registered RPA is similar to registering an Australian RPA. This can be completed through the [myCASA portal](#).

Notification requirements

(CASR 101.371)

By registering your Excluded RPA before your first flight, you have satisfied the requirement to notify CASA.



There is no need to notify CASA before you operate a micro RPA

Checklist 2 – Ready for the first flight?

Follow this checklist if you are operating an RPA.

STEP 1

Have you obtained an ARN?

- ☐ **No** – apply for an ARN through [myCASA portal](#)
- ☐ **Yes** – go to **Step 2**



STEP 2

Have you completed accreditation?

- ☐ **No** – get accreditation through [myCASA portal](#)
Note: if you hold a RePL, you are not required to hold accreditation.
- ☐ **Yes** – go to **Step 3**

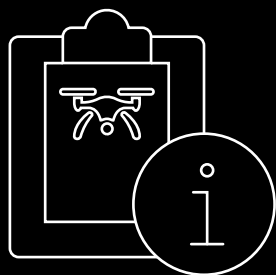


STEP 3

Have you registered your RPA?

- ☐ **No** – register your RPA through [myCASA portal](#)
- ☐ **Yes** – you are ready to operate. Follow the drone safety rules, see [Chapter 3](#)





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Before every flight you should identify the areas where you must not fly, seek permission if required and always operate with caution. These areas include:

- › prescribed areas
 - » no-fly zones for controlled and non-controlled aerodromes
 - » no-fly zones for non-controlled airspace
- › restricted or prohibited areas
- › danger areas.

How to identify no-fly zones?

Drone safety apps

CASA-[verified drone safety applications](#) are the easiest way to find information about no-fly zones and restricted airspace. The drone safety apps and web applications provide customised location-based information with easy to use maps about where you can and cannot fly your drone in accordance with aviation legislation.

While drone safety apps show all controlled aerodromes and most non-controlled aerodromes, some uncertified aerodromes in Australia may not be captured in these apps.

Drone safety apps are useful for identifying areas where you must not fly. However, they are not an official source of air navigation information and should be supplemented by using official sources of information when planning an operation.

Official sources of information

It remains your responsibility not to operate in a no-fly zone. While drone safety apps provide guidance, CASA recommends you refer to official aeronautical information publications such as the En Route Supplement Australia (ERSA), Visual Terminal Charts (VTC), Visual Navigation Charts (VNC), NOTAMs and the Aeronautical Information Publication (AIP) itself (see appendix A).

Other

You may also need to check with your local or State government for local rules or regulations before you fly, for example, in national parks or marine parks.

Prescribed areas — No-fly zone around aerodromes

(CASR 101.075, Part 101 MOS Ch.4 & 9)

An aerodrome can range in size from a small dirt airstrip on an outback cattle station to a large airport in a capital city. An aerodrome (which includes helicopter landing sites - HLS) can be found just about anywhere—even a helideck on a cruise liner could be an aerodrome. No-fly zone refers to the area around controlled or non-controlled aerodromes.

Controlled aerodromes

A controlled aerodrome generally has an air traffic control tower. At a controlled aerodrome, there is increased air traffic and strict rules about where you can and cannot fly. You must not fly an excluded RPA:

- › over a departure or approach path
- › over a movement area
- › within 5.5 km (3 NM) of a movement area of a controlled aerodrome.



Micro RPA are permitted to be flown within 5.5 km (3 NM) of the movement area of a controlled aerodrome provided it is:

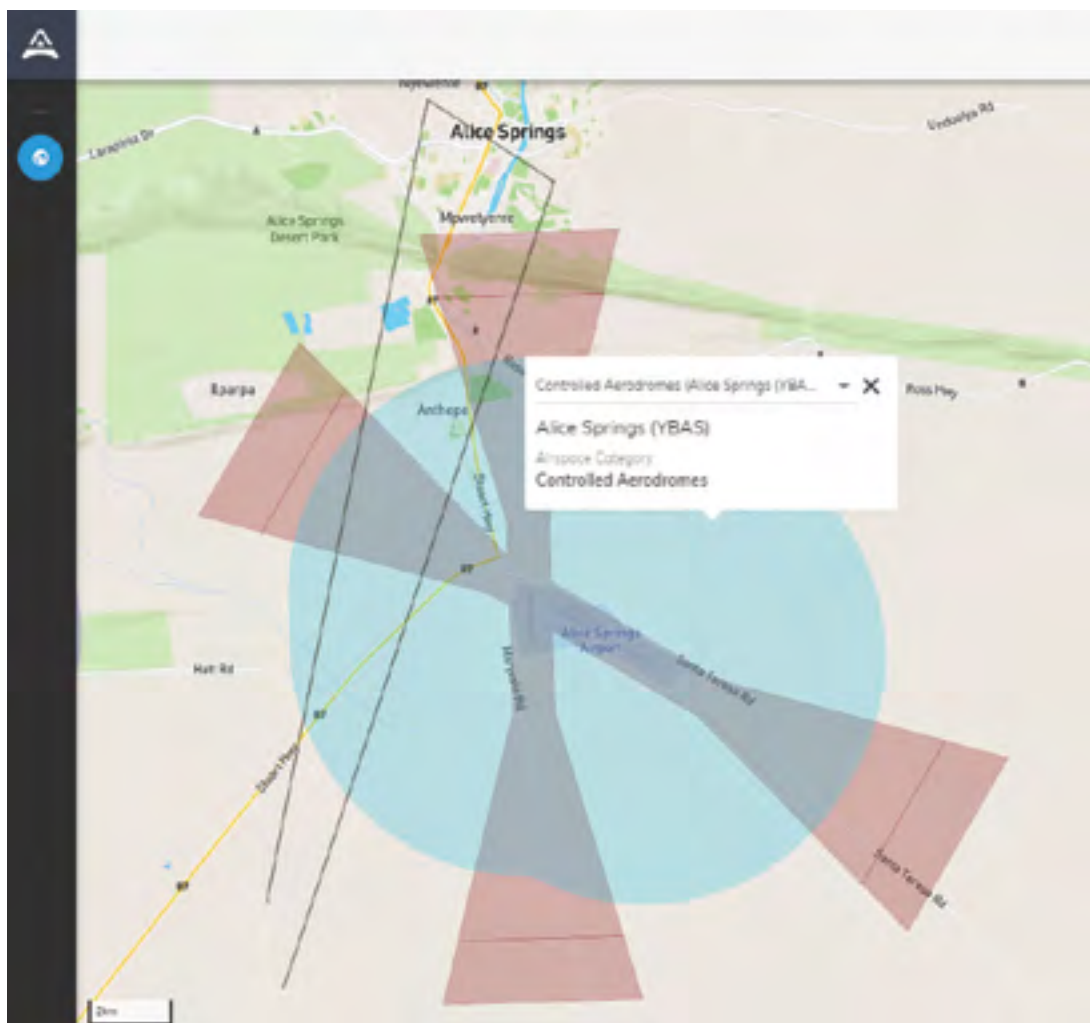
- › *not operated over the movement area*
- › *not operated over or in the departure or approach path*
- › *not creating a collision hazard to other aircraft taking off or landing.*

Figure 2 is a snapshot taken from a CASA-approved drone safety app. It illustrates the no-fly zone near the Alice Springs controlled airport including the approach and departure paths, and the 5.5 km (3 NM) boundary from the movement areas of the aerodrome. If you require more detailed information on movement areas and the defined departure and approach paths, please refer to Appendix B.

Exceptions around controlled aerodromes

You can only fly your RPA in a no-fly zone of a controlled aerodrome if it is flown indoors where it is physically impossible for it to escape.

Appendix B provides more information on no-fly zones around controlled aerodromes.

Figure 2: No-fly zone for (YBAS) Alice Springs

Source: Image courtesy of [AiRXOS](#), part of GE Aviation

Non-controlled aerodromes

A non-controlled aerodrome does not have an air traffic control service and generally does not have a control tower. Many aerodromes in Australia are non-controlled. Manned aircraft communicate with each other via radio to maintain separation and sequence landing and take-off.

The limitations which apply to operating around controlled aerodromes, do not apply to operation around non-controlled aerodromes. However, any time you become aware a manned aircraft is operating (or is about to operate) within 5.5 km (3 NM) of the movement area for the aerodrome or the defined departure and approach paths, you must

not launch your RPA. If your RPA is already in the air, you must quickly and safely manoeuvre your RPA away from the path of the manned aircraft and land as soon as possible.



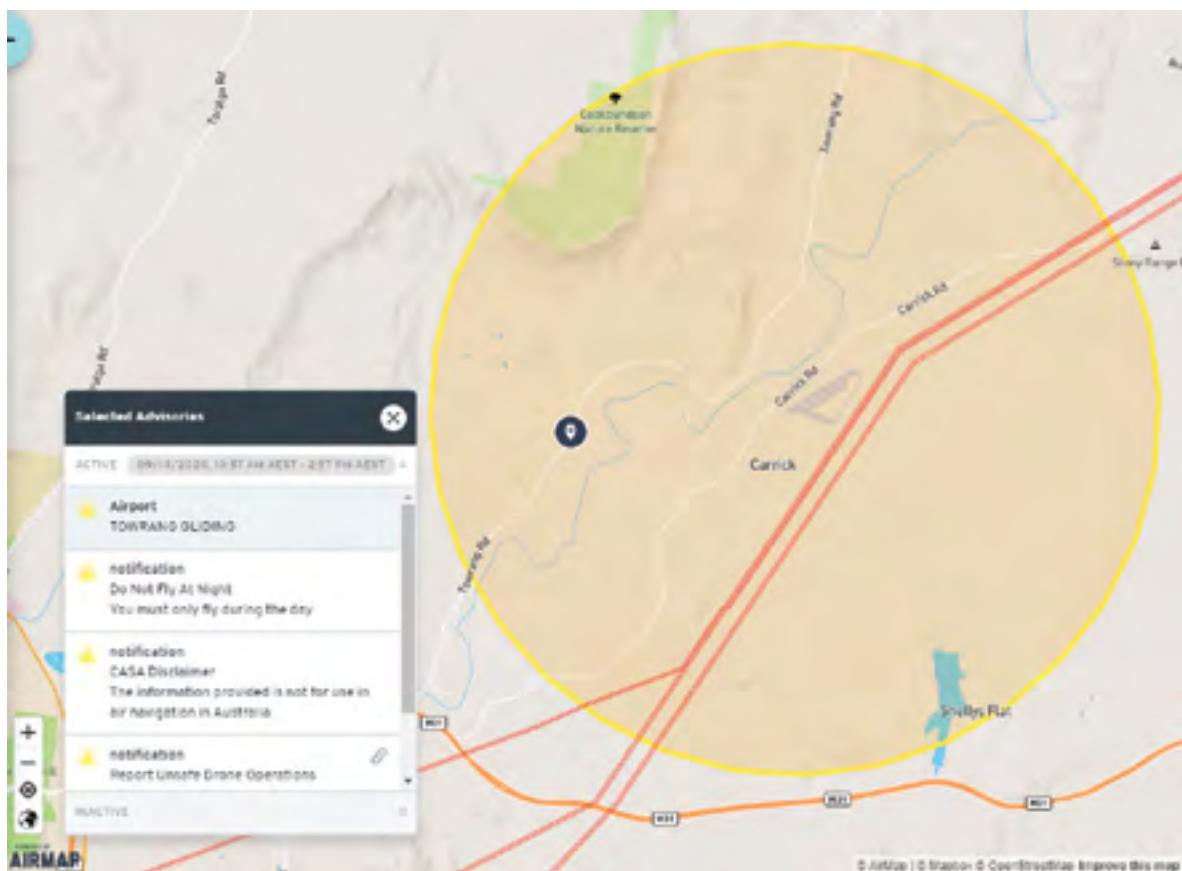
You or an observer will normally become aware of a manned aircraft by hearing or seeing it.

If you are unsure whether there is an aerodrome in the area you plan to operate, it is good practice to check a CASA-verified drone safety app. If you are in a more remote location, check with local aviation operators (aero clubs, flying schools, agricultural and aerial work operators).

Figure 3 is a snapshot from a CASA-verified drone safety app. It illustrates the no-fly zone for the Towrang gliding aerodrome when a manned aircraft is in the area. The image does not show the departure and approach paths for this aerodrome; it only shows the no-fly zone as a circle with a 3 NM (5.5 km) radius from the centre of the aerodrome.

If you require more detailed information on movement areas and the defined departure and approach paths, please refer to [Appendix B](#).

Figure 3: Drone safety app depiction of no-fly zone non-controlled aerodrome



Source: Image courtesy of [AirMap](#) by AirMap Inc

Prescribed areas — No-fly zones for non-controlled airspace overlayed with controlled airspace

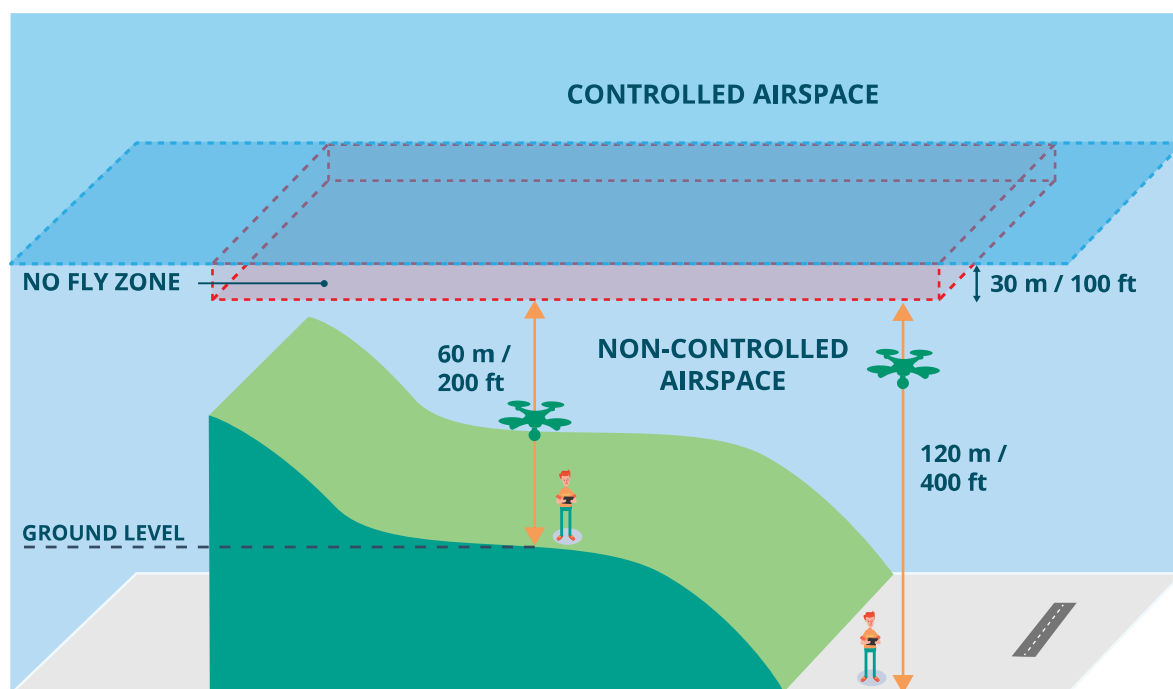
(Part 101 MOS Ch.9)

Non controlled airspace within 30 m (100 ft) of controlled airspace constitutes the no-fly zone for non-controlled airspace. You must not operate in this zone.

There are locations throughout Australia, where non-controlled airspace is overlayed by controlled airspace which is relatively low to the ground. In some areas, the lower limit of controlled airspace, begins less than 150 m (500 ft) above the ground. At these locations you will need to take extra care to ensure your RPA is not operated in the no-fly zone for non-controlled airspace (see Figure 4). For example, from an elevated position on a hill, you may not be able to fly higher than 60 m (200 ft) AGL to remain clear of the no-fly zone.

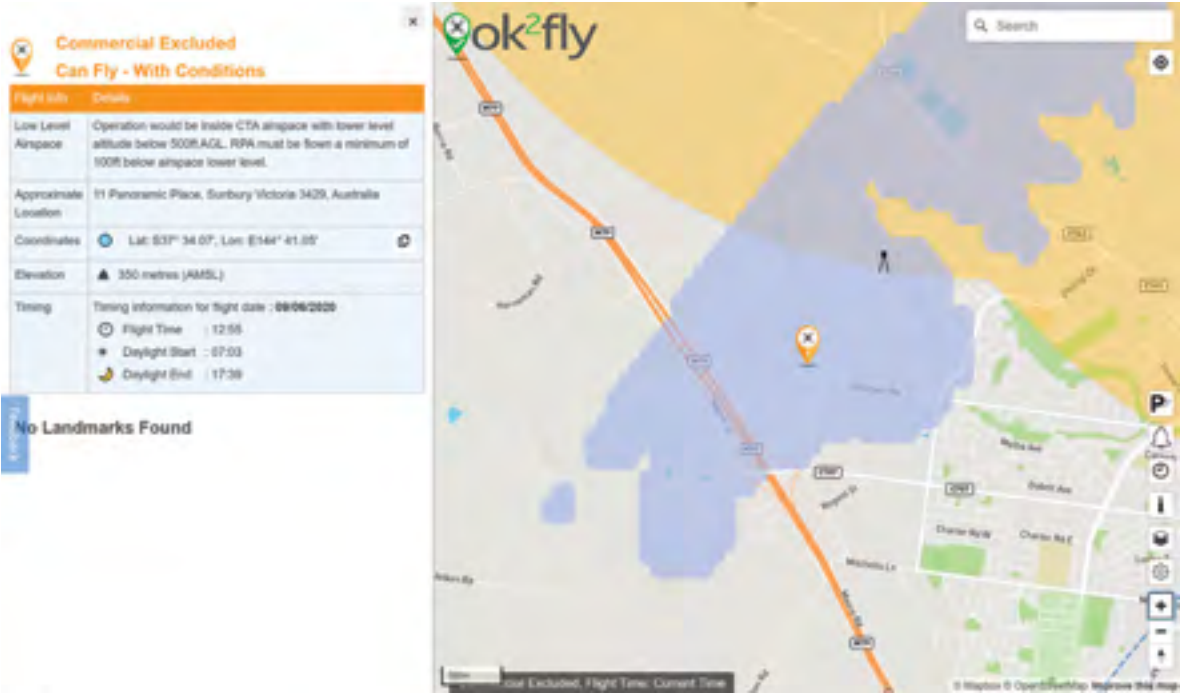
These areas are identified on [Visual Terminal Charts \(VTC\)](#) published by Airservices Australia by a purple tint.

Figure 4: No fly zone for non- controlled airspace



Some CASA-verified drone safety apps show overlying controlled airspace.

Figure 5: Drone safety app depiction of the areas where the lower limit of controlled airspace is less than 500 ft AGL



Source: Image courtesy of [ok2fly](#) by AvSoft Australia

Restricted and Prohibited areas (CASR 101.065)

No-fly areas associated with Prohibited and Restricted areas

An RPA is not permitted to be flown in a Prohibited area. Prohibited areas are rarely declared in Australia. In fact, at the time of publishing this guide, there are no declared prohibited areas.

Restricted areas are quite common in Australia. An RPA is not permitted to be flown when the Restricted area is active. Restricted areas are often (but not always) associated with military flight or weapons training but can be established for many reasons. Radio or optical telescopes, for example, may be the reason why the area is classified as a Restricted area.

The Visual Navigation Chart extract shows the Restricted area around the Tidbinbilla Deep Space Tracking Station, west of Canberra.



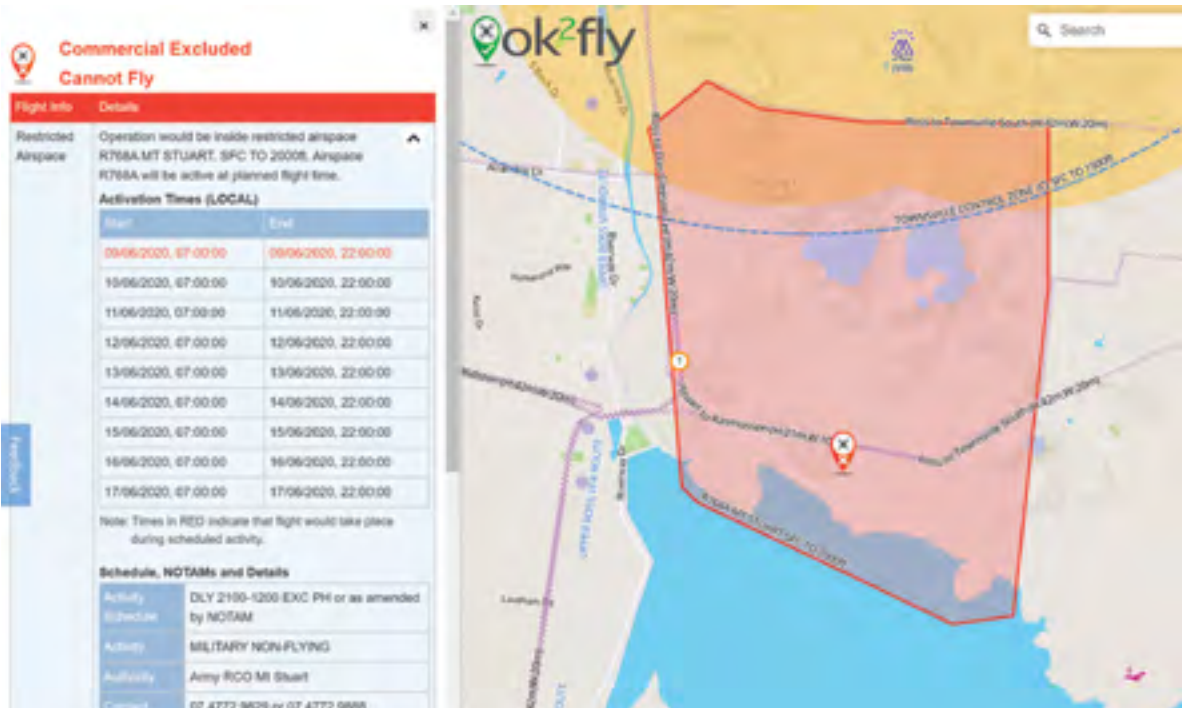
It is the controller's responsibility to check if an area is Restricted before commencing operations.



Image | © Canberra Deep Space Communication Complex

The CASA-verified drone safety apps show the locations of most Prohibited and Restricted areas and some also show activation times for Restricted areas (see Figure 6).

Figure 6: Drone safety app depiction of Restricted area activation times



Source: Image courtesy of [ok2fly](#) by AvSoft Australia

Airservices Australia also publishes the activation times for some Prohibited, Restricted and Danger areas in the AIP En Route Supplement Australia (ERSA) <https://www.airservicesaustralia.com/aip/aip.asp>. Activation times may vary and become active with very little notice. Activation times may also be published via NOTAM (please see the next section)

NOTAM

A NOTAM is a Notice to Airmen which is advice to pilots that contains information immediately relevant to flight operations. It is normally published electronically and can be issued at short notice.

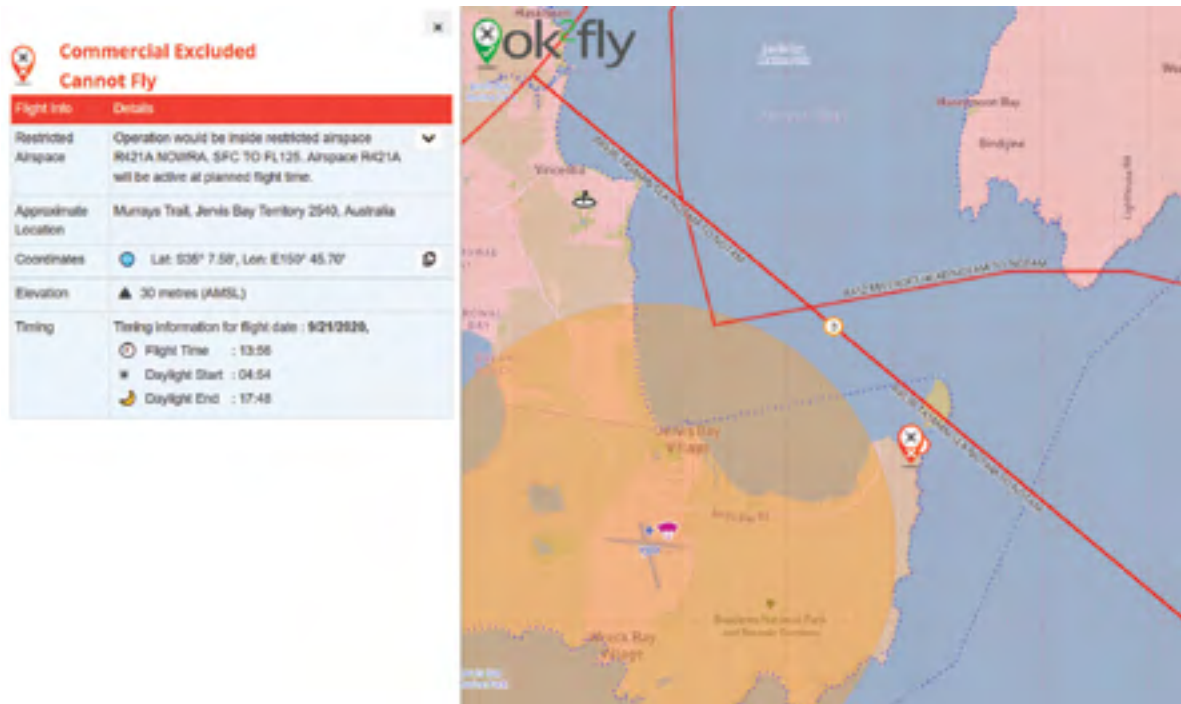
Instead of fixed activation times, some Restricted areas are activated as needed, for example, when the Australian Defence Force is conducting training activities in the area. The times for these areas are published in a NOTAM.

Where a Restricted area can be activated by NOTAM, the Visual Terminal or Navigation Chart illustrating the Restricted area will bear an annotation – NOTAM (see the extract as shown here).

NOTAMs are freely available through Airservices Australia's online [National Aeronautical Information Processing System \(NAIPS\)](#). Alternatively, some CASA-verified drone safety apps show NOTAM information (see Figure 7).



Figure 7: Drone safety app depiction of restricted area activation time by NOTAM




Source: Image courtesy of [ok2fly](#) by AvSoft Australia

Operating excluded RPA in active Restricted airspace

Under the standard operating conditions, an excluded RPA is not permitted to operate in Restricted areas without the permission or approval of the controlling authority for the area.

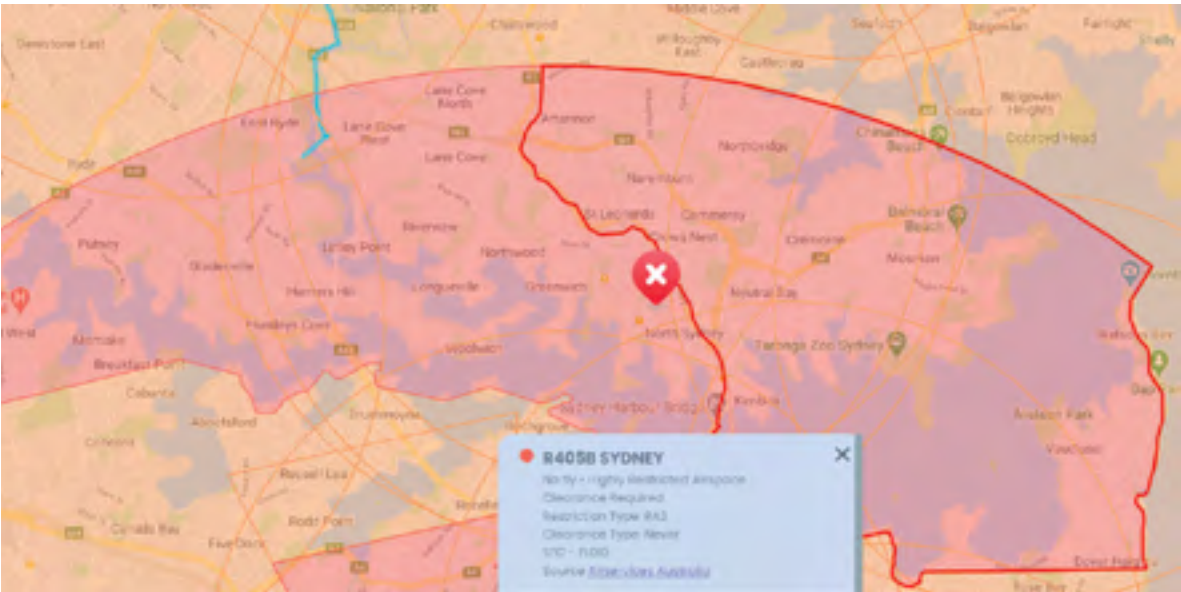
The ERSA lists restricted area categories in the Prohibited Restricted Danger (PRD) section.

<https://www.airservicesaustralia.com/aip/aip.asp>

 Local councils may also have restrictions in place, so it is a good idea to check before you fly.

CASA-verified drone safety apps display information about Restricted areas. See Figure 8 in relation to an area of Sydney, NSW.


Figure 8: Drone safety app depiction of Sydney Harbour Restricted area



Source: Image courtesy of [OpenSky](#) by Wing Aviation



Image | Nico Smit | unsplash.com

 Sydney Harbour has large areas of restricted airspace. CASA permission/ approval is required to fly any drones, RPA, and model aircraft in this area.

Danger areas (AIP-ENR 1.4 - 12)

Danger areas exist where there is activity taking place that may pose an increased risk to aviation safety. These danger areas include activities such as flying training, parachuting, blasting, rifle ranges, firing ranges, high-velocity exhaust plumes, gliding and VFR transit lanes. Unmanned aerial vehicle (UAV) testing areas may also be classified as a danger area.

An excluded RPA is permitted to operate in a danger area; however, the controller should be aware of the activity and evaluate the risk before a flight.

All CASA-verified drone safety apps display the location of danger areas, and some also detail the reason and the hours of activity.



Figure 9: Drone safety app depiction of Danger area associated with parachuting

Image | **Neora Aylon** | unsplash.com



Source: Image courtesy of [ok2fly](#) by AvSoft Australia

Aviation charts (such as VNC) also show danger areas. Details of the activity in the Danger area can also be found in ERSA, see <https://www.airservicesaustralia.com/aip/aip.asp>

Checklist 3 – Before every flight

STEP 1

Is your flight planned in a no-fly zone near non-controlled airspace?

- ☐ **Yes** – do not operate
- ☐ **No** – go to **Step 2**.



STEP 2

Is your flight planned in a no-fly zone near a controlled aerodrome?

- ☐ **Yes** – cannot fly your RPA unless it is a micro RPA and is not operated over the departure and approach path
- ☐ **No** – go to **Step 3**.



STEP 3

Is your flight planned in a no-fly zone near a non-controlled aerodrome?

- ☐ **Yes** – are there any manned aircraft operating in the no-fly zone?
 - › **No** – go to **Step 4**
 - › **Yes** – are you operating wholly indoors?
 - » **No** – do not launch or, if already airborne, land
 - » **Yes** – go to **Step 4**
- ☐ **No** – go to **Step 4**.



STEP 4

Is your flight planned in a Prohibited or Restricted area?

- ☐ **Yes** – is the Prohibited or Restricted area active?
 - › **Yes** – you must not fly your RPA unless permission is obtained from the area's controlling authority.
 - › **No** – go to **Step 5**
- ☐ **No** – go to **Step 5**.

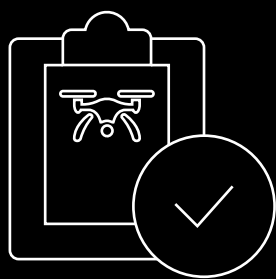


STEP 5

Is your flight planned in a Danger area?

- ☐ **Yes** – you can fly your RPA provided you mitigate the risk, see [Chapter 4](#)
- ☐ **No** – you can fly your RPA. Follow the drone safety rules, see [Chapter 4](#).





CHAPTER 4: DURING EVERY FLIGHT

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One RPA at a time (CASR 101.238)

You must not operate more than one RPA at a time.

Maximum operating height

(CASR 101.085)

The maximum height a micro or excluded RPA can be flown is 120 m (400 ft) above ground or sea level (see Figure 10).

 120 m (400 ft) is about the height of a 35-storey building or the length of a football field.

Manned aircraft do not usually operate below 150 m (500 ft) AGL unless they are near an aerodrome or performing some form of aerial work such as an emergency service operation (ESO). Operating RPA 120 m (400 ft) AGL and below, aims to provide a buffer between RPA and manned aircraft.

Figure 10: Conform with surface contours to remain 400 ft AGL

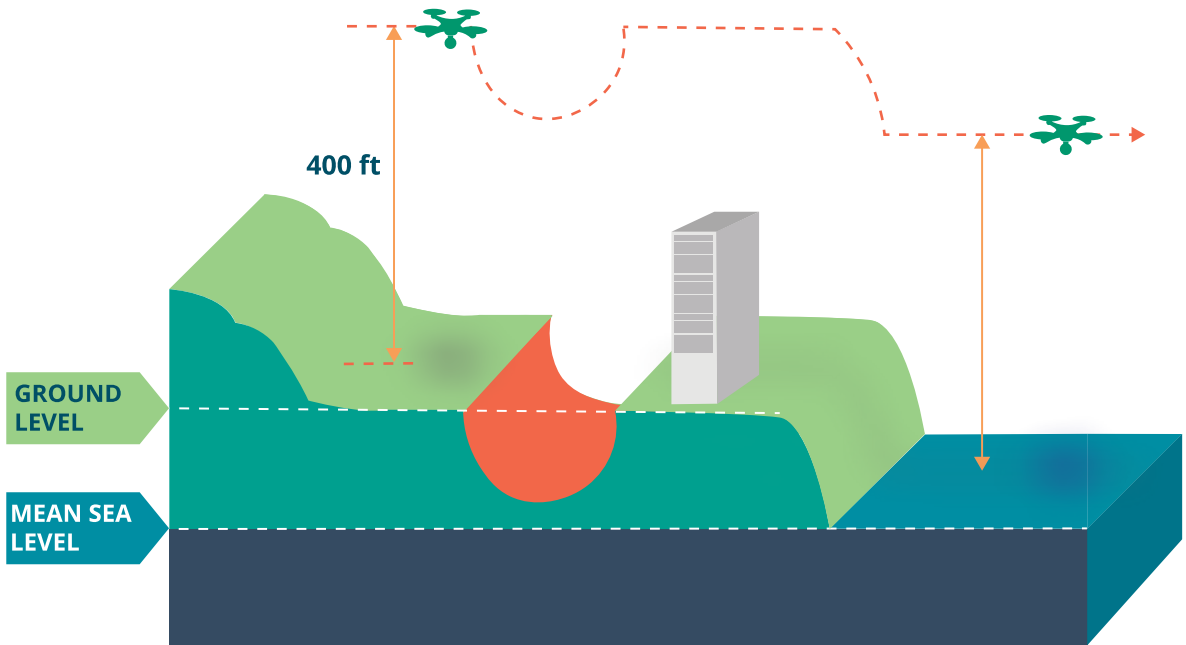


Image | Neil Palmer | CIAT


 It is your responsibility to know the height of the RPA AGL at all times during a flight. Most RPA operating in Australia do not have sensors to provide the operator with an indication of height. Unless the operating area is completely flat, the RPA height will only be accurate when the RPA is over its initialisation position.



Image | **Jonathan Lampel** | unsplash.com

Weather limitations (CASR 101.095)

You must not operate an RPA in cloud, thick fog, at night or whenever you do not have at least 5 km visibility without an approval. You must operate an RPA only when you can see the RPA with your own eyes.

Operating in cloud, mist, fog, rain, dust, smoke can reduce:

- › your ability to maintain visual line of sight
- › your ability to see and avoid other aircraft and or obstacles.

Wind and temperature

All RPA can be affected by wind, temperature, and other environmental factors. Many RPA are not designed to be flown in moisture, snow, sleet or rain. An RPA should only be operated within its manufacturer's documented limits.



Operating an RPA outside the manufacturer's recommended limits increases risk of failure.

Daylight

All RPA must be operated only during the daytime.



Day means the time between Morning Civil Twilight and Evening Civil Twilight. Civil twilight times can be obtained from [Geoscience Australia](#).

The easiest way to ensure that the RPA is operated by day is not to operate after sunset or before sunrise.

Visual line of sight (VLOS)

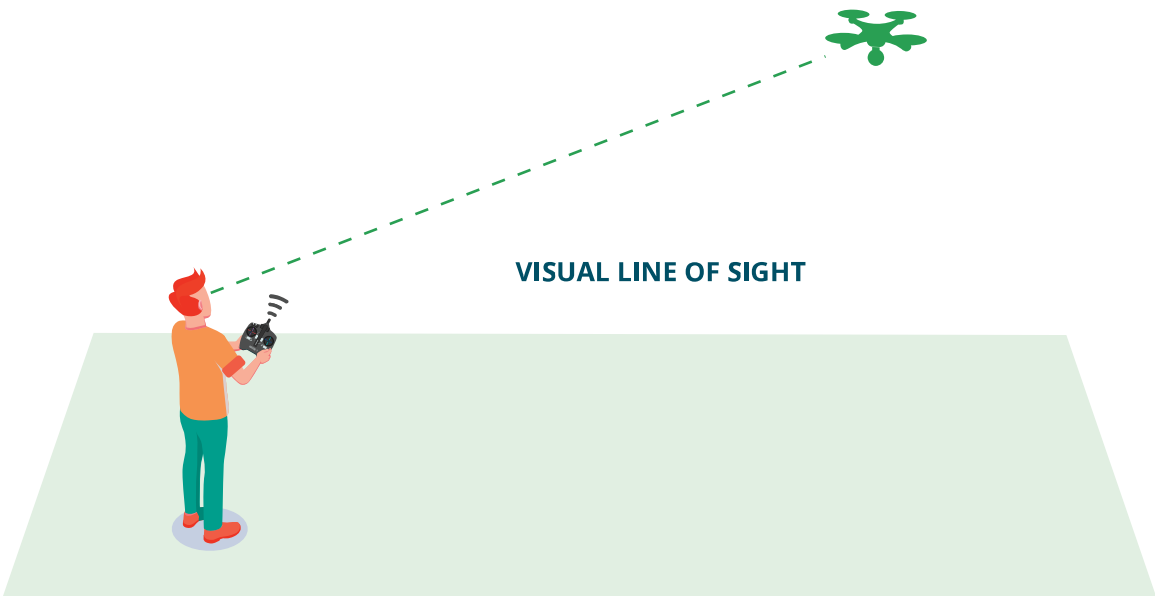
(CASR 101.073)

An RPA must be operated within the visual line of sight of the person controlling the RPA (see Figure 11). You must always be able to see, orient and navigate the RPA with your own eyes and not view it through a device. You may use prescription glasses, contact lenses or sunglasses while operating an RPA.



You must not operate the RPA from a position where an obstacle may block your view of the RPA. You must not operate an RPA using first-person view (FPV) through a camera mounted in the RPA, projected either onto a computer screen, monitor or FPV goggles.

Figure 11: Unaided visual line of sight



Populous area (CASR101.025; 101.280)

A populous area is anywhere a person's life, safety or property is at risk if your RPA should fail, collide or crash, for example, a crowded beach, the neighbour's property, a busy road with pedestrians and road traffic. You must not operate an RPA over populous areas (see Figure 12).

Figure 12: Simplistic representation of populous area

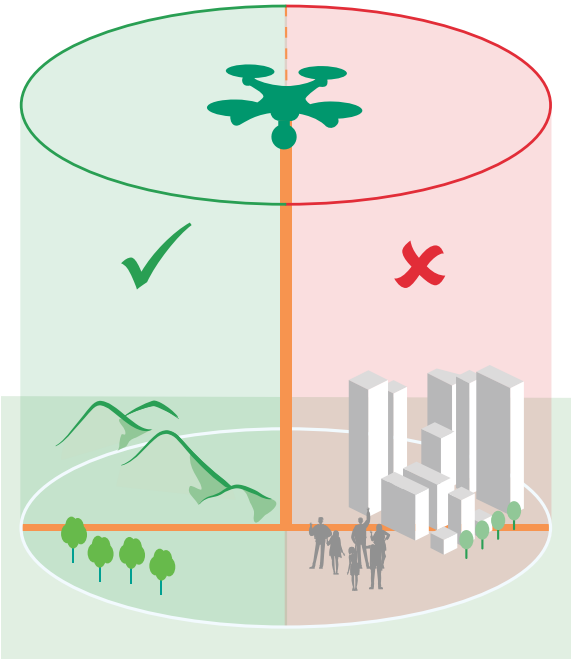


Image | Jay Wennington | unsplash.com

Operations near people

(CASR 101.245 (8))

You must not operate an RPA closer than 30 m (100 ft) to a person, unless that person is assisting you or has duties essential to the operation of your RPA. You must not operate an excluded RPA in a populous area (see Figure 13).

Keeping at least 30 m (100 ft) from people provides a buffer zone in case you lose control of the RPA or there is a system failure. This area is also referred to as an exclusion zone. The 30 m (100 ft) exclusion zone must be measured from the point on the ground directly beneath the RPA.

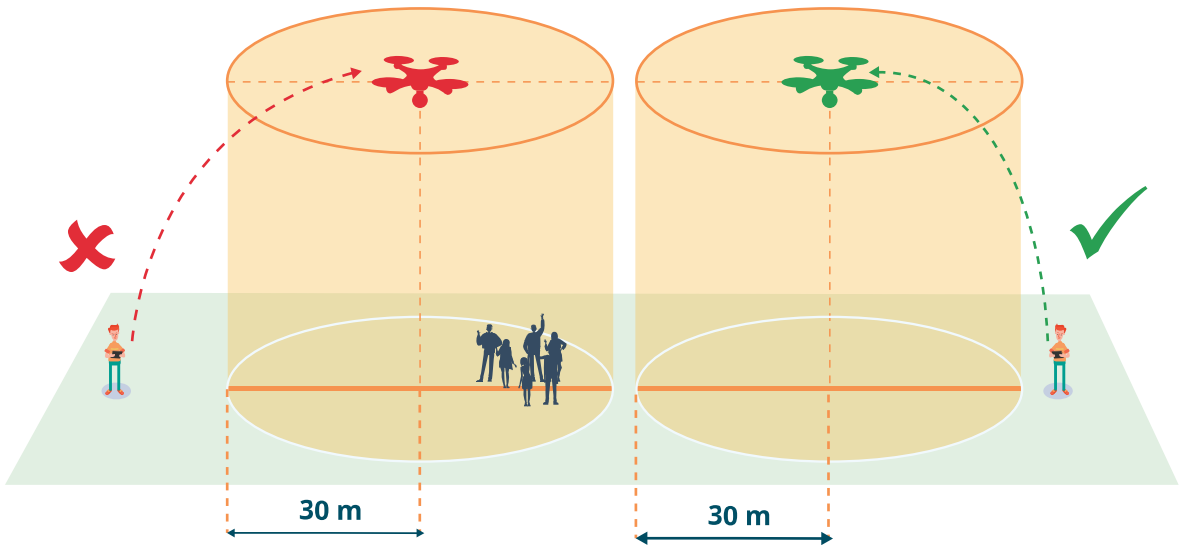
Dropping objects from an RPA (CASR 101.090)

You are permitted to drop or discharge an object from an RPA; however, it may only be done if you do not create a hazard to another aircraft, person or property.



If you do drop an object, you should consider the weight and size and the potential for it to drift. The performance and safety of the RPA may also be affected by the additional weight.

Figure 13: The 30 m rule



Operating with care and skill

(CASR 101.055)

You must ensure the RPA is not operated in a way that creates a hazard to another aircraft, person or property.

An RPA can be dangerous, particularly if it is not operated with care and skill. What is hazardous will depend on the circumstances and the controller should always consider the risk the RPA may pose to aircraft, people and property in the vicinity.

Keeping clear of public safety operations (CASR 101.238)

RPA must not be operated over or near an area of a public safety or emergency operation. This includes operations such as:

- › firefighting
- › law enforcement
- › emergency medical services
- › search and rescue.

During public safety and emergency operations such as firefighting, both manned and remotely piloted aircraft are often used. In such situations, these aircraft cannot operate if there is a risk of collision with an unknown RPA. A collision between even a very small RPA and a manned aircraft has the potential to be catastrophic. Where there is a benefit, a person in charge of conducting a public safety or emergency operation may give permission for you to operate your RPA in the same area.



Permission is generally only given in exceptional circumstances and only to RePL holders operating under a ReOC who have established procedures and protocols in place with the public safety or emergency response agency.

Autonomous RPA operations

(CASR 101.097)

Autonomous operation of an RPA is not permitted. You must be able to control the RPA during all stages of flight.

Automation—as opposed to autonomy—can improve the quality, accuracy and precision of an RPA operation. This means operating to a pre-programmed flight plan or utilising subject tracking is permitted. However, you must ensure that you can always immediately override the automation and resume control of the RPA.



You should never put your radio control transmitter down or leave your remote pilot station during flight.

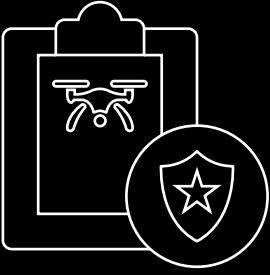


Image | Robdownunder | flickr.com

Checklist 4 – During every flight

If you cannot comply with the checklist items below, you must not take off or if already airborne you must safely land.

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Fly only one RPA at a time
<input type="checkbox"/>	<input type="checkbox"/>	Do not operate your RPA in an autonomous mode
<input type="checkbox"/>	<input type="checkbox"/>	Remain at or below 120 m (400 ft) AGL
<input type="checkbox"/>	<input type="checkbox"/>	Fly during daylight only
<input type="checkbox"/>	<input type="checkbox"/>	Fly in good visibility (5 km)
<input type="checkbox"/>	<input type="checkbox"/>	Fly clear of cloud
<input type="checkbox"/>	<input type="checkbox"/>	Always keep your drone in sight
<input type="checkbox"/>	<input type="checkbox"/>	Stay clear of populous areas
<input type="checkbox"/>	<input type="checkbox"/>	Stay at least 30 m (100 ft) clear of people
<input type="checkbox"/>	<input type="checkbox"/>	Ensure you do not fly over people
<input type="checkbox"/>	<input type="checkbox"/>	Do not create a hazard to other aircraft persons or property <ul style="list-style-type: none">› when flying› in the event your drone malfunctions› when dropping things.
<input type="checkbox"/>	<input type="checkbox"/>	Keep clear of the following public safety operations <ul style="list-style-type: none">› firefighting› law enforcement› emergency medical services› search and rescue.
<input type="checkbox"/>	<input type="checkbox"/>	Operate within the manufacturer’s meteorological and other limitations



CHAPTER 5: ENFORCEMENT PROVISIONS



Image | Duncan Grant | Civil Aviation Safety Authority

Operation of an RPA in contravention of the *Airspace Act 2007* and the *Civil Aviation Act 1988*, and the various pieces of subordinate legislation such as the Civil Aviation Safety Regulations (CASRs) and the Part 101 Manual of Standards can have significant penalties, including in some instances, terms of imprisonment. Most of the aviation laws that apply to RPA are strict liability offences carrying fines of up to \$10 500.



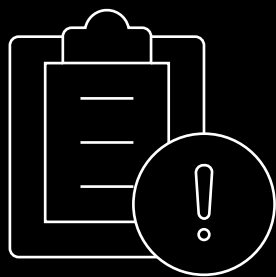
A strict liability offence is one where there is no need for CASA to prove the operator intended to break the rule, the act of breaking the rule is sufficient for the offence to be committed, but there is a defence of honest and reasonable mistake of fact available.

Depending on the severity of the contravention, CASA may:

- › issue an infringement notice to pay a penalty
- › take administrative action such as suspending or cancelling your accreditation
- › compel the operator to enter into enforceable voluntary undertakings
- › refer a matter for criminal prosecution.



Not only can a contravention be expensive, but it can also result in a prohibition on future involvement with RPA.



CHAPTER 6: OTHER RELEVANT CONSIDERATIONS

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The CASR Part 101 contains the rules relating to aviation safety for the operations of RPA and model aircraft. There are other rules an RPA operator should be aware of before operating. This section briefly details some of the other rules as well as some of the non-operational rules relating to aviation safety.



The controller is responsible for complying with all rules that may apply to the operation of RPA.

Reporting of Incidents and Accidents (TSIA Pt.3)

Certain incidents and accidents, known as immediately reportable and routine reportable matters, must be reported to the Australian Transport Safety Bureau (ATSB).



The ATSB's function is to improve safety and public confidence in aviation, rail and marine transport through accident investigation, data analysis and safety awareness. The ATSB does not apportion blame.

Immediately Reportable Matters

An immediately reportable matter is a serious safety matter including accidents involving death, serious injury, or significant damage to the RPA. Immediately reportable matters may include where a person is seriously injured by an RPA, a collision with another aircraft (including another RPA), where the RPA has been seriously damaged, or other matters where it may be necessary for the ATSB to attend the operational area immediately to collect evidence for safety analysis.

If any of these occur, the ATSB must be contacted by phone as soon as reasonably practicable, with a follow up written report submitted within 72 hours.



As soon as reasonably practicable means at the first opportunity after you have completed your emergency procedures and the Emergency Services have been informed (where required).

Routinely Reportable Matters

A routinely reportable matter is something that has not had a serious outcome and does not require an immediate report but could have impacted the safety of aviation. Routinely reportable matters may include a non-serious injury to a person, a near-miss with another aircraft (including another RPA), an issue controlling the RPA such as a loss of control, non-serious damage to the RPA, or other matters where aviation safety could be enhanced by the ATSB collecting the incident data.

If any of these matters occur, a written report should be submitted, within 72 hours.

Who is required to make a report?

Any member of the RPA crew who become aware of a reportable matter must make a report unless they reasonably believe that another person has or will be making a report. Generally, it is the controller or owner of the RPA who makes the report to the ATSB.

Details on how to make a report about an incident or accident can be found on the [ATSB website](#).

The ATSB has a 24/7 toll-free telephone number: **1800 011 034**

Operations in National and State Parks (and Forests)

Each State and Territory has rules about RPA operations in national parks and forests. These rules differ from State to State but generally prohibit RPA from operating without consent from the park's controlling authority. Before you fly, you should check the local State or Territory laws.



Generally, any commercial or business activity carried out in connection with a National or State park requires a formal approval from the park's controlling authority in the form of a lease, licence, permit or consent.

If an RPA is flown over a National or State park, consent is generally required from the park's controlling authority.

Operating near wildlife

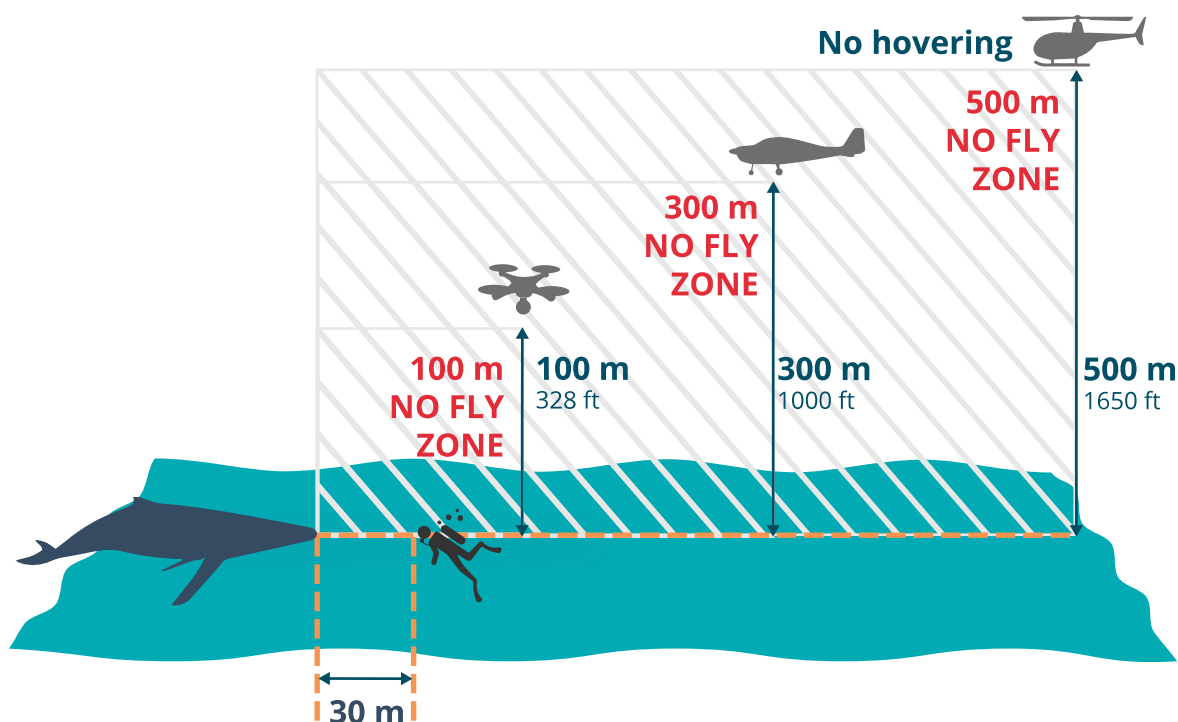
Some States have specific rules about operating RPA near wildlife, including minimum distances and limitations on the direction in which wildlife can be approached. Penalties may apply, so check the local laws before you fly.

The NSW Government states that drones must not be flown within 100 m of marine mammals (see Figure 14). Breaking these rules can incur a fine of up to \$110 000. More information is available on the [NSW Government website](#).



Image | Duncan Grant | grantdesign.com

Figure 14: Height restrictions for aircraft in the vicinity of whales, dolphins, and dugongs



Source: based on [NSW Department of Planning, Industry and Environment](#) by [Grant Design](#)

Using RPA for chemical application

Some States and Territories have rules about the aerial application of pesticides, fertilisers or other chemicals using RPA. These rules can include additional licensing requirements, spray quality and equipment standards. Before you fly, check the local State or Territory laws.

The [Australian Pesticides and Veterinary Medicines Authority \(APVMA\)](#) also has information about the regulation of agricultural chemicals and spray drift management in aerial application.

Privacy

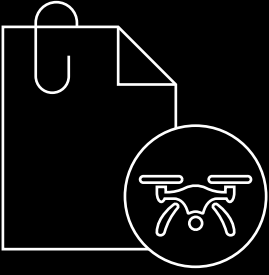
A range of privacy laws can apply to RPA operations. These differ by State and Territory, the type of RPA activity and size of the operator's organisation.

In some cases, an RPA activity may be considered a criminal offence. This can include activities where an RPA is used to record a person conducting a private act without their consent or the RPA is used as a surveillance device.

The [Office of the Australian Information Commissioner \(OAIC\)](#) has more information about some of the privacy rules that apply.

Insurance requirements

There are no aviation rules that require the owner or operator of an RPA to hold public liability insurance. However, an operator may be exposed to potentially large financial liability should something be damaged, or someone be injured by an RPA you operate. You should consider obtaining liability insurance for your operations. Also, most landowners and administrators, such as the various State park administrators, will not give a permit to operate an RPA unless they have sighted an insurance certificate.



CHAPTER 7: APPENDICES AND REFERENCES

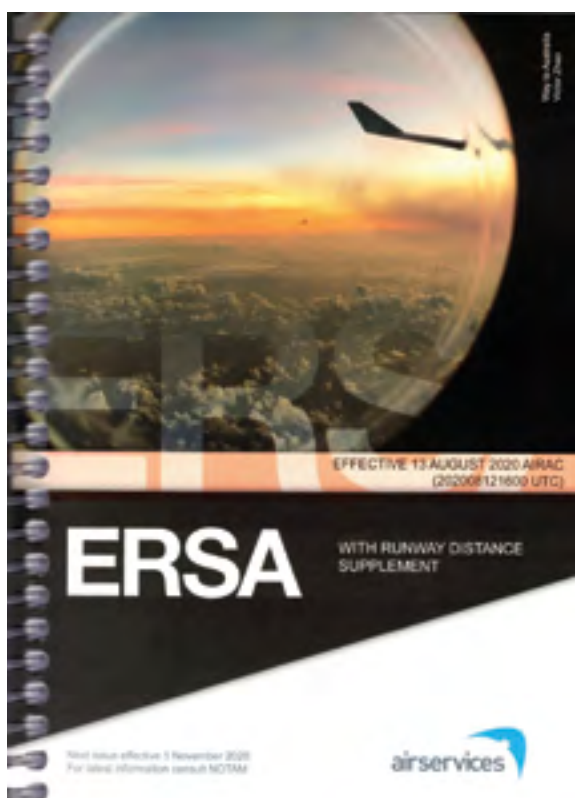
Appendix A: Aviation charts and publications	40
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Appendix A: Aviation charts and publications

Airservices Australia is the Commonwealth Corporate Entity that provides Australia's air navigation services. Airservices Australia publishes aviation maps and other relevant publications. The majority of the publications are available for free from Airservices' website: (<https://www.airservicesaustralia.com/aip/>).

En Route Supplement Australia (ERSA)

Refer to: <https://www.airservicesaustralia.com/aip/aip.asp>



ERSA-PRD operations

The ERSA is part of the Aeronautical Information Package (AIP) and contains details of:

- › Prohibited, Restricted and Danger areas including standard activation times, refer <https://www.airservicesaustralia.com/aip/aip.asp>
- › aerodrome details for all registered and certified aerodromes in Australia as well as details on many uncertified aerodromes
- › meteorological information service availability.



times in ERSA are published in Coordinated Universal Time (UTC), meaning they must be converted to the relevant Australian time zone.

The ERSA-PRD extracts show that if you wished to operate in the Restricted area designated R430A, categorised RA2, it might be permitted subject to approval by the controlling authority - CSIRO Tidbinbilla who can be contacted on 02 6201 7940.



Restricted airspace extract from ERSA
PRD-5

PRD AREA		05 NOV 2020			PRD - 4
IDENT	STATUS	LIMIT	HOUR	AUTHORITY	ACTIVITY
R409B	RA3	3000 - 6000	NOTAM	(112) Rurex Pty Ltd	SURFACE FIRING RANGE
R415	RA3	SFC - 1900	NOTAM	(17) RAAF BCP Wagga	MILITARY NON-FLYING
R420F(NWX)	RA1	FL125 - FL300	NOTAM	(4) FLTCDR 453SQN NOWRA	MILITARY FLYING
R421A(NWX)	RA1	SFC - FL125	NOTAM	(4) FLTCDR 453SQN NOWRA	MILITARY FLYING
R421B(NWX)	RA1	2500 - FL125	NOTAM	(4) FLTCDR 453SQN NOWRA	MILITARY FLYING
R424	RA3	SFC - 3500	H24	(8) CRPCU	RADIO TELESCOPE
R430A	RA2	SFC - 3500	H24	(95) CSIRO Tidbinbilla	RADIATION HAZARD
R430B	RA2	3500 - 4500	H24	(95) CSIRO Tidbinbilla	RADIATION HAZARD

Controlling authority contact detail
extract from ERSA PRD-14

(93)	08 8951 2025 or 08 8951 2010 or 0416 266 135 or 08 8951 2000
(94)	02 8782 2535
(95)	CSIRO Tidbinbilla Control Room 02 6201 7940
(96)	1300 765 033
(97)	07 4844 4000

Visual Terminal Chart (VTC)

The Visual Terminal Chart (VTC) is an aviation chart which can show airspace and aerodrome information including the location of Danger areas, Restricted areas, controlled airspace, overlying controlled airspace areas and aeronautical radio frequencies.

VTCs are available for aerodromes listed here:

<https://www.airservicesaustralia.com/aip/aip.asp?pg=60&vdate=21MAY2020§=VTC&ver=1>

In this example – overlying controlled airspace is shown in purple tint to the North East of Tamworth. At these locations, you may not be able to operate up to 120 m (400 ft) AGL.



Visual Navigation Chart (VNC)

The Visual Navigation Chart (VNC) is an aviation chart which shows similar things to the VTC.

VNC are available for the following aerodromes/ areas:

<https://www.airservicesaustralia.com/aip/aip.asp?pg=60&vdate=21MAY2020§=VNC&ver=1>

AIP

The Aeronautical Information Publication (AIP) has useful information regarding aeronautical radio operation, airspace and meteorology. It can be accessed as part of the Aeronautical Information Package at <https://www.airservicesaustralia.com/aip/aip.asp>



Locations of controlled aerodromes

- all Australian capital city aerodromes are controlled
- there are other controlled aerodromes near the larger regional centres, and these can be found by referring to the Visual Terminal Charts (VTC) and noting the areas marked as CTR (Control Zones)
- a VTC will also show the lateral and vertical dimensions of a CTR, refer: <https://www.airservicesaustralia.com/aip/aip.asp?pg=60&vdate=21MAY2020§=VTC&ver=1>



You should assume an aerodrome is controlled unless you can positively establish otherwise.

Controlled aerodromes operate at specific times. Controlled aerodromes hours of operation are published in the AIP ERSA.

Aerodrome hours of operation

Example: The ERSA entry for Tamworth (YSTW) below states:

Tamworth tower (TWR) operates between 2100-1015 UTC from Monday to Friday and from 2200 to 0530 Saturday-Sunday. To obtain local time (in this case Eastern Standard Time (EST) add 10 hrs to the UTC times. This means that only between 0700 and 2115 (EST) Monday to Friday, and between 0830 and 1530 EST Saturday-Sunday is Tamworth’s aerodrome and airspace controlled. Take careful note that the tower hours of operation (TWR HR) may change at short notice. You should therefore check the status of the aerodrome and its airspace by listening to the Aerodrome Terminal Information Service (ATIS) on the VHF radio frequency 123.8 MHz or by telephoning 02 6764 5288.

See <https://www.airservicesaustralia.com/aip/aip.asp>

ATS COMMUNICATIONS FACILITIES		
FIA	BRISBANE CENTRE	127.1 Circuit Area (Outside TWR HR)
ATIS	TAMWORTH	116.0 123.8 (2)
SMC	TW GROUND/DELIVERY	121.9 (3)
TWR	TAMWORTH TOWER (F)	118.25 (4) 119.4
(1)	Phone 6764 5271;	
(2)	or Phone 02 6764 5288	
(3)	Taxi clearance required on all TWY;	
(4)	HJ only.	

AIP Australia		13 AUG 2020
1.	TWR HR: 2100-1015 UTC MON-FRI, 2200-0530 UTC SAT-SUN. (1HR earlier)	
2.	Tamworth TWR provides combined TWR and APP CTL services within Class 4.500FT AMSL and BLW DRG TWR HR. CTC TWR for a clearance.	
3.	TWR HR may change at short notice, check status of airspace with ATS or Td	
4.	Outside TWR HR, Tamworth Class D airspace 4.500FT AMSL and BLW and	
	airspace BLW AD05 becomes Class G.	

Appendix B: No-fly zone around aerodromes

(CASR 101.075, Part 101 MOS Ch.4 & Ch.9)

Movement area

A movement area means that part of an aerodrome used for the surface movement of aircraft including manoeuvring areas and aprons.

Broadly speaking this includes the runways, taxiways, engine run-up bays and parking aprons in and around passenger terminals or maintenance facilities. However movement areas are not easy to determine from aerodrome charts (where they exist). To be conservative you should assume a movement area may exist at an aerodrome perimeter.

Figure 15: Plan view depicting the area within 5.5 km (3 NM) of a movement area

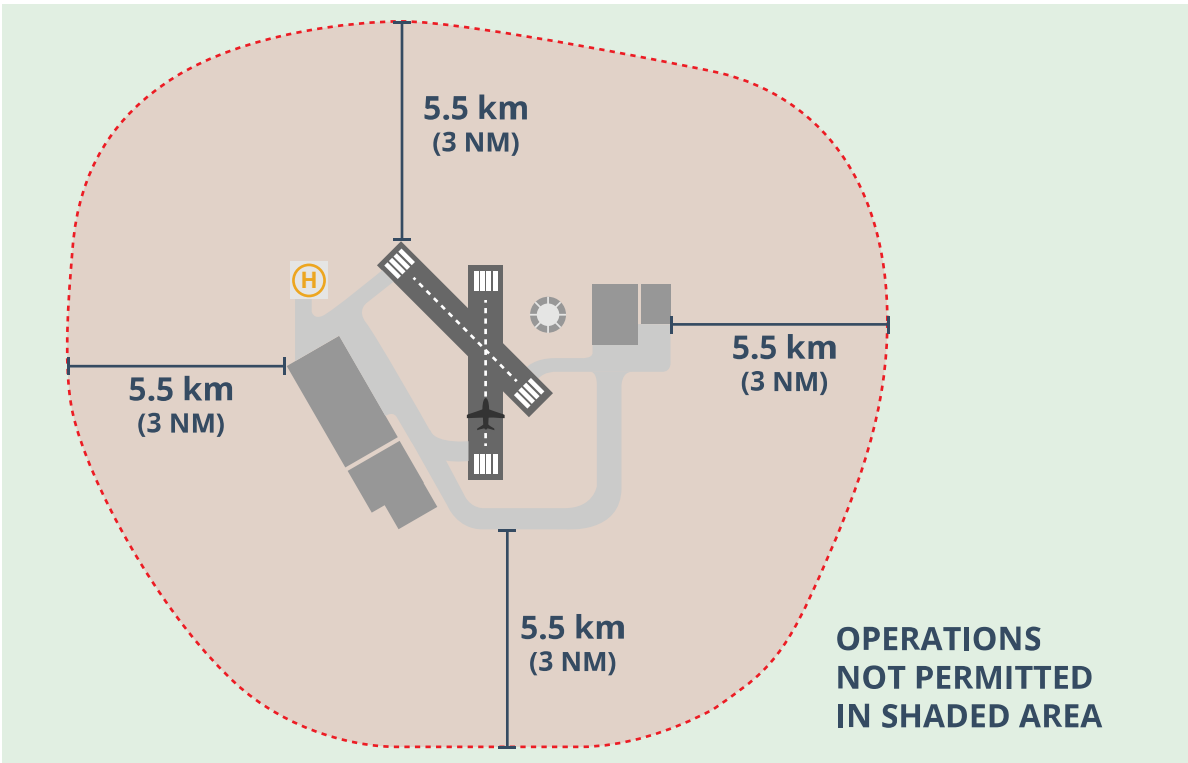
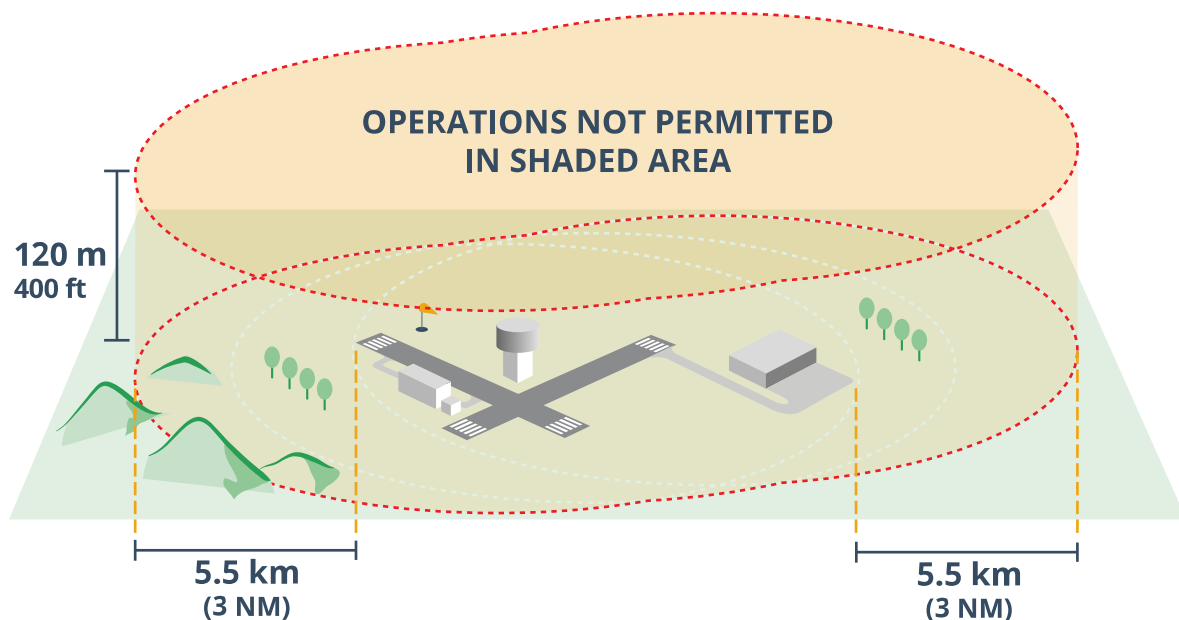


Figure 16: 3D view of the area within 5.5 km (3 NM) of a movement area



No-fly zone around aerodromes

Departure and approach path for an aerodrome (refer Figure 17)

- › the area above the runway or runway strip surfaces to 400 ft AGL, depicted in red or
- › the area from surface level up to 400 ft AGL on the departure/approach paths depicted in red as no-fly, even though it may be more than 3 NM from a movement area, or
- › the area between 150 ft and 400 ft AGL but within the elliptical area depicted in orange, or
- › the area from 300 ft to 400 ft AGL between 7 km and 8.5 km from the end of the runway strip, with an initial splay width of 3.85 km and a final splay width of 4.65 km, depicted with crosshatching (for controlled aerodromes only)

Figure 17: Approach and departure path for an aerodrome

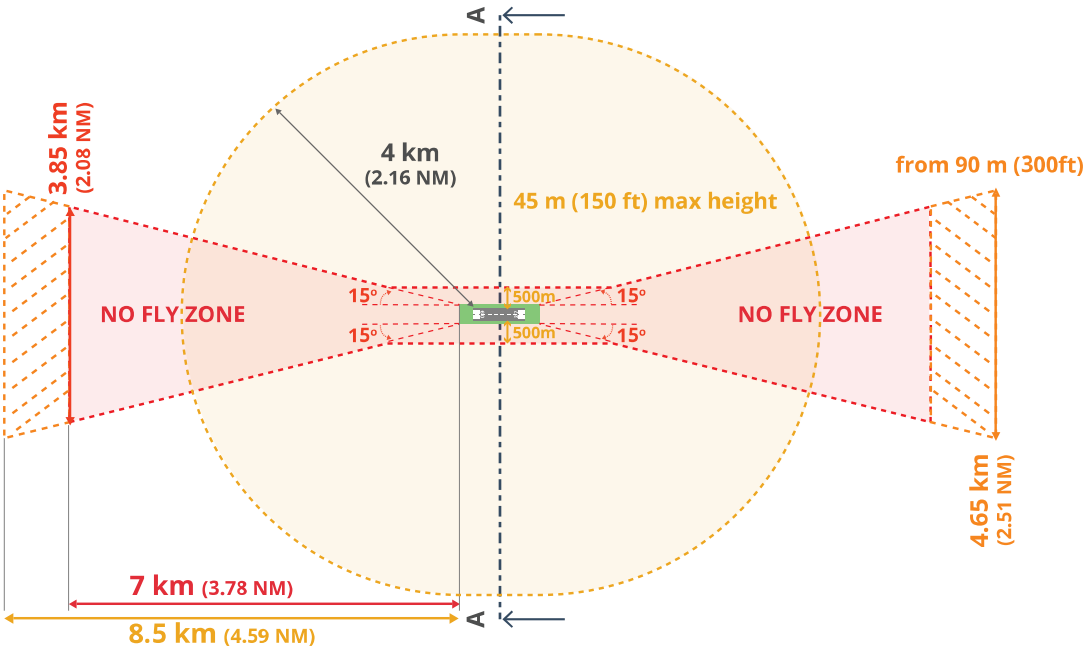
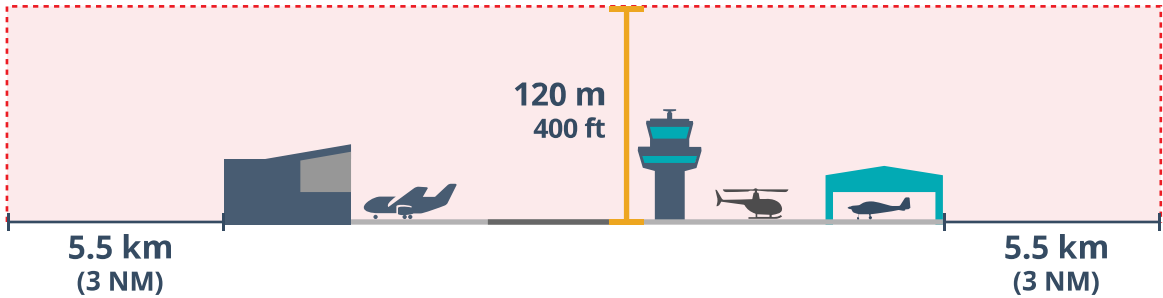


Figure 18: Profile of the no-fly zone through section A-A for Excluded category RPA around an aerodrome



Acronyms

AGL	Above Ground Level
AIP	Aeronautical Information Publication
ATSB	Australian Transport Safety Bureau
CAA	<i>Civil Aviation Act 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
CTAF	Common Traffic Advisory Frequency
ERSA	En Route Supplement Australia
MOS	Part 101 Manual of Standards (<i>Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019</i>)
NOTAM	Notice to Airmen
PEG	Plain English Guide
RA	Restricted Airspace
ReOC	Remotely Piloted Aircraft Operator's Certificate
RePL	Remote Pilot Licence
RPA	Remotely Piloted Aircraft
SOC	Standard Operating Conditions
TSIA	Transport Safety Investigation Act 2003
VLOS	Visual Line of Sight
VMC	Visual Meteorological Conditions

Units

ft	feet
g	grams
m	metres
kg	kilograms
km	kilometres
NM	nautical miles





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