Schedule 5   Practical competency units

Appendix 1   Any RPA — Common units

Unit 14   RC1 — Pre- and post-operation actions and procedures for RPAS

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
1	***Launch and landing areas*** Explain considerations in locating and setting-up a launch and recovery area.	[No tolerances]	Areas suitable for aeroplanes and rotorcraft.

2	***Pre-operation actions and procedures***
	(a) obtain, interpret and apply information contained in the RPA operator's documented practices and procedures mentioned in paragraph 101.370 (b) of CASR, including information relating to the following:
	  (i) weather forecasts;
	  (ii) local observations;
	  (iii) NOTAMs;
	  (iv) area approvals;
	  (v) other aeronautical information such as information from ERSA and CASA;
	(b) decide whether the current and forecast weather conditions are suitable for the proposed operation;
	(c) decide whether the RPA's equipment is serviceable for the proposed operation;
	(d) decide whether the aircraft batteries or fuel are the correct kind for
		(a) within a reasonable period of time;
		(b) demonstrating dexterity in handling the RPA.
			(a) activities are performed in accordance with operator's documented practices and procedures;
			(b) type of RPA;
			(c) weather forecast types;
			(d) single or multiple RPA operations in a day;
			(e) location of RPA operations;
			(f) with and without checklists;
			(g) day and night operations;
			(h) electric and liquid-fuel system powered.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	the RPA and are serviceable.		
3	**_Perform pre-flight inspection_** (a) assemble and prepare the RPA for operation; (b) conduct a post-assembly inspection of the RPA; (c) ensure locking and securing devices, covers and bungs for the RPA are removed; (d) complete a pre-operation inspection as set out in the RPA operator's documented practices and procedures; (e) start the RPA's engine or motor in accordance with the RPA operator's documented practices and procedures for the operation of the RPA.	(a) within a reasonable period of time; (b) demonstrating dexterity in handling the RPA; (c) no locking or securing devices, bungs or covers left in place.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of RPA.
4	**_Weight and balance_** (a) ensure aircraft is loaded within limits; (b) ensure that centre of gravity is within limits.	Aircraft loaded within manufacturer/operator limits.	Loading and limits relevant to aircraft type.
5	**_Post-operation actions and procedures_** (a) shut down aircraft in accordance with the operations manual; (b) conduct post-operation inspection and secure the aircraft (if applicable); (c) complete all required post-operation	(a) within a reasonable period of time; (b) demonstrating familiarity with the RPA and the RPA operator's documented practices and procedures; (c) demonstrating dexterity in handling the RPA;	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of RPA; (c) dry and wet weather.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	administration documentation; (d) disassemble aircraft for transport.	(d) all locking or securing devices, bungs or covers are in place.	

Schedule 5   Practical competency units

Appendix 1   Any RPA — Common units (contd.)

Unit 15   RC2 — Energy reserves management for RPAS

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
1	**Plan energy requirements** (a) work out the duration of the flight taking into account operational environment and relevant abnormal or emergency conditions, contingencies; (b) where applicable, calculate or identify the endurance for the RPA with designated reserve.	(a) demonstrating familiarity with the RPA and the RPA operator's documented practices and procedures; (b) the calculated RPA operation endurance for the flight is within +/- 10% or within the reserve limits of the energy source.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) length and type of operation; (c) type of energy source for the RPA; (d) various wind and temperature conditions; (e) variation in operating weight and aircraft configuration.

2	**Manage battery system or systems**
	(a) if the energy source for the RPA is a battery or battery systems:
	  (i) prior to launch, verify the time available for the flight given the current battery charge;
	  (ii) ensure the batteries are secured to the RPA for the operation;
	  (iii) ensure the battery connectors are connected properly and secure for the operation;
		(a) within a reasonable period of time;
		(b) demonstrating familiarity with the RPA;
		(c) demonstrating dexterity in handling the RPA and the batteries;
		(d) the RPA is not operated below the minimum voltage, as stated in the operator's documented practices and procedures;
		(e) not operating above maximum current draw for the RPA systems, as stated in the operator's documented practices and procedures.
			(a) old and new batteries;
			(b) battery connector types;
			(c) types of battery;
			(d) with and without telemetry.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables

	(iv) monitor energy usage during the operation;
	
	   (v) maintain a battery log for the operation;
	
	   (vi) perform battery changes correctly;
	
	(b) if the energy source of the remote pilot station for the RPA is a battery or battery systems — manage the remote pilot station power supply to ensure sufficient energy to complete an operation with a suitable reserve.		

3	**_Recharge battery or batteries_** (a) inspect the battery to ensure it is safe to be recharged; (b) ensure the battery charger is setup correctly for the type of battery; (c) correctly connect and disconnect a battery to the battery charger; (d) perform battery quality and quantity checks after charging; (e) calculate the time it would take to use and recharge a battery for a particular operation; (f) if a battery is unsafe for an operation — recognise that the	(a) within a reasonable period of time; (b) demonstrating familiarity with the RPA; (c) demonstrating care in handling the batteries; (d) battery is charged to the desired level; (e) does not exceed the charging limitations for the batteries.	(a) types of battery; (b) types of chargers; (c) battery management is performed in accordance with operator's documented practices and procedures.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	battery is unsafe for the operation; (g) check that the battery has sufficient charge for storage.		

4	***Manage fuel system (very small and small RPA)***
	
	(a) if the RPA is a very small or small RPA and the energy source for the RPA is liquid fuel:
	
	  (i) calculate fuel required for the flight;
	
	  (ii) identify the quantity of fuel on board the RPA before the operation;
	
	  (iii) ensure the fuel cap or caps are closed and locked before flight;
	
	  (iv) operate the RPA's fuel pumps and engine controls correctly during the operation;
	
	  (v) monitor fuel use during the operation;
	
	(b) ensure the RPA lands at the end of the operation and is recovered with at least the correct amount of reserve fuel;
	
	(c) defuel the aircraft if required for storage or transport.
		(a) within a reasonable period of time;
		
		(b) demonstrating familiarity with the RPA;
		
		(c) demonstrating dexterity in handling the RPA and the batteries:
		
		  (i) for (i), in column 2, fuel calculation is within 10% (but not below);
		
		  (ii) for (ii) in column 2, quantity is within +/- 10% accuracy;
		
		  (iii) for (b) in column 2, calculated reserve is within of 10% actual reserve at end of flight.
			(a) type of RPA;
			
			(b) kind of liquid fuel;
			
			(c) method used to calculate the fuel needed for an operation;
			
			(d) method used to calculate the fuel burn rate;
			
			(e) method used to check fuel quantity on board;
			
			(f) method used to check fuel quality.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
5	**_Refuel RPA (very small and small RPA)_** If the RPA is a very small or small and liquid fuel is the source of the energy for the RPA — before the operation: (a) identify the correct kind of fuel to be used; (b) if the fuel of the RPA must be mixed — mix the fuel correctly; (c) correctly fuel or refuel the RPA; (d) perform a fuel quality check; (e) ensure the RPA's fuel cap is closed and secured after the RPA has been fuelled.	(a) within a reasonable period of time; (b) demonstrating familiarity with the RPA; (c) demonstrating dexterity in handling the RPA and the fuel; (d) safe handling of fuel and equipment.	(a) refuelling procedures according to operator's documented procedures; (b) types of liquid fuels; (c) factors which affect fuel-oil mix ratios.

Schedule 5   Practical competency units

Appendix 1   Any RPA — Common units (contd.)

Unit 16   RC3 — Manage crew, payload and bystanders for RPAS operations

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
1	***Manage bystanders*** (a) ensure that bystanders remain a safe distance away from the operation; (b) ensure bystanders are aware of, and avoid interference with, the operation and the systems controls used in the operation such as the remote pilot station; (c) manage bystander safety in the event of abnormal or emergency situation arising as a result of the operation; (d) demonstrate effective oral communication to bystanders in a clear, effective manner.	Clear and effective communication.	(a) co-operative bystanders; (b) non-cooperative bystanders.
2	***Manage people involved in the operation*** (a) establish and maintain clear communication with crew members, with a particular view to ensuring the safe operation of the RPA; (b) carry-out effective and safe handovers of remote pilot responsibilities before, during and after an RPA operation.	Clear, effective communication.	(a) communication face-to-face; (b) communication over a radio; (c) operations with and without visual observers (spotters).

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
3	*Manage payloads and dangerous goods* (a) manage loading, unloading and security of payload during an operation of the RPA; (b) identify dangerous goods and apply operator procedures to ensure safety of the operation.	(a) within a reasonable period of time; (b) demonstrating familiarity with the RPA; (c) demonstrating dexterity in handling the RPA.	(a) different kinds of payload; (b) internal and external payloads; (c) activities are performed in accordance with operator's documented practices and procedures.

Schedule 5   Practical competency units

Appendix 1   Any RPA — Common units (contd.)

Unit 17   RC4 — Navigation and operation of RPAS

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
1	***Operational "rules"*** (a) operate the RPA in compliance with the requirements relating to operating the RPA mentioned in Part 101 of CASR and this MOS; (b) identify the location and relevant parts of the RPA operator's documented practices and procedures mentioned in paragraph 101.370 (b) of CASR relating to the operation of the RPA.	[No tolerances]	Activities are performed in accordance with the operator's documented practices and procedures.
2	***Operational basics*** (a) describe different traffic patterns of manned aircraft at aerodromes; (b) describe suitable vertical and horizontal separation distances between the RPA and other aircraft; (c) respond and take preventative actions to maintain the safety of the operation during simulated interactions with manned aircraft near aerodromes; (d) explain when an incident or accident report must be	[No tolerances]	(a) traffic patterns at aerodromes; (b) controlled and non-controlled aerodromes; (c) flight separation considerations; (d) types of incident; (e) manual and automated flight.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	submitted in relation to an operation of the RPA.		
3	***Orientation*** (a) interpret a given map or chart in relation to a proposed operation of the RPA and work out its implications for the operation; (b) in relation to any kind of aerodrome (including HLS) — point out the approach and departure paths and movement areas; (c) explain the significance of track and ground speed in relation to an operation of the RPA; (d) state the relevance of height, altitude and elevation in relation to different circumstances in which the RPA is operated.	[No tolerances]	(a) type of map projection; (b) various map scales; (c) digital or paper map; (d) different aerodromes and HLS; (e) at, near and away from aerodromes and HLS.
4	***Use of aeronautical charts*** On a visual navigation chart — identify, without reference to the chart legend: (a) major features, including roads, rivers, lakes; (b) obstacles, spot heights, including elevation or height above terrain;	Quickly identifies major features, obstacles, heights and prescribed airspace boundaries.	Paper and digital maps and charts.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	(c) CTA, CTR, PRDs and aerodrome information; (d) secondary controlled aerodromes; (e) identify airspace boundaries and symbols; (f) interpret other symbols with reference to the chart legend.		
5	*Use of ERSA* Use an ERSA to extract: (a) information for a particular aerodrome or airspace; (b) information and data about PRD areas.	[No tolerances]	[No variables]
6	*Operations preparation* (a) identify the operational documentation required for a planned operation; (b) read and interpret a NOTAM, using NOTAM decode information; (c) obtain and comply with ATC clearances; (d) be aware of "fly neighbourly" areas and environmental protection; (e) read and interpret a local weather forecast and determine whether it would be suitable to operate the RPA for the operation given the forecast; (f) read and interpret an aeronautical weather	(a) all necessary documents identified; (b) understanding of NOTAMs is accurate; (c) makes informed decisions about whether to carry out the operation.	(a) operational documentation; (b) complexity of NOTAM; (c) area approval; (d) type of weather forecast.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	forecast and determine whether it would be suitable to operate the RPA for the operation given the forecast.		

Schedule 5   Practical competency units

Appendix 1   Any RPA — Common units (contd.)

Unit 18   RNT — Non-technical skills for operation of RPAS

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
1	***Maintain effective lookout*** Maintain obstacle and traffic separation using a systematic visual scan technique at a rate determined by location, visibility and terrain.	[No tolerances]	(a) various weather conditions; (b) surrounding terrain and obstacles.
2	***Maintain situational awareness*** (a) collect information to ensure the continued safe operation of the RPA; (b) non-weather hazards to operations (for example, thermal plumes, powerlines, animals).	Makes decisions in a timely manner.	Location of the RPA operation (for example, urban, suburban, park, beach).
3	***Assess situations and make decisions*** (a) identify problems that may affect the safe operation of the RPA; (b) analyse the problems; (c) identify solutions to the problems; (d) assess the solutions and risks of the solutions; (e) decide on a course of action; (f) if appropriate — communicate the proposed course of action; (g) if appropriate — allocate tasks relating to the proposed course of action;	Makes decisions in a timely manner.	Various operational scenarios.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	(h) take actions to achieve optimum outcomes for the operation; (i) monitor progress of the course of action; (j) adjust the course of action to achieve the optimum outcomes for the operation.		
4	*Set priorities and manage tasks* (a) organise workload and priorities to ensure safe operation of the RPA; (b) anticipate events and tasks that may occur during the operation; (c) plan events and tasks for the operation so that the events and task occur sequentially; (d) use technology to reduce workload and improve cognitive and manipulative activities during the operation.	[No tolerances]	[No variables]
5	*Maintain effective communications and interpersonal relationships* (a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the operation; (b) define and explain objectives to stakeholders; (c) recognise hazardous attitudes and mindsets;	[No tolerances]	[No variables]

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables
	(d) demonstrate a level of assertiveness that ensures the optimum completion of the operation.		
6	*Recognise and manage threats* (a) identify environmental or operational threats likely to affect the safety of the operation; (b) identify if competing priorities and demands may represent a threat to the safety of the operation; (c) develop and implement countermeasures to manage threats; (d) during the operation, monitor and assess the progress of the operation to ensure a safe outcome and modify actions accordingly; (e) identify and manage fatigue.	Quickly identifies threats and makes and implements suitable countermeasures in a timely way.	(a) types of threat; (b) types of fire and material hazards; (c) various risk mitigations to minimise threat.
7	*Recognise and manage errors* (a) apply the RPA operator's documented practices and procedures mentioned in regulation 101.370 of CASR; (b) prevent aircraft handling, procedural or communication errors; (c) during the operation, identify errors in the operation of the RPA before the safety of	Minimises the consequences of an error in a timely manner.	Type of errors.

Item	Topic and requirement If operating an RPA, the applicant must be able to…	Tolerances	Range of variables

	the operation is affected;
	
	(d) during the operation, monitor the following to identify potential or actual errors:
	
	  (i) in the RPA systems using a systematic scan technique;
	
	  (ii) caused by the environment in which the RPA is operating;
	
	  (iii) by the other individuals who have been assigned duty.		

8	***Considerations for indoor and underground operations*** Show awareness of risks associated with indoor and underground operations.	[No tolerances]	(a) large and small spaces; (b) different fire hazards; (c) populated and unpopulated spaces.

Unit 19   RAF — Automated flight management systems for RPAS

Item	Topic and requirement If operating an RPA under an automated flight management system, the applicant must be able to…	Tolerances	Range of variables
1	*Pre-operation preparation* (a) check the automated flight management system software is current and up to date; (b) load a flight plan for the automated operation of the RPA.	[No tolerances]	(a) various meteorological conditions; (b) size of operation area; (c) type of RPA.
2	*Automated operation control* (a) demonstrate an automated launch and initial climb of the RPA; (b) modify the pre-programmed flight path while the RPA is in flight; (c) demonstrate an automated approach and landing/recovery of an RPA.	(a) initial climb is made after post-launch checks are complete; (b) modifications made in a reasonable amount of time; (c) the RPA lands within designated/predicted area/limits.	(a) various meteorological conditions; (b) size of operation area; (c) type of RPA.
3	*Emergency procedures* (a) interrupt an automated operation of the RPA and redirect the RPA to a safe point; (b) demonstrate a baulked landing procedure; (c) demonstrate the procedure to terminate the automated operation of the RPA.	(a) error-free and timely reprogramming; (b) the RPA is handled with dexterity and actions performed or simulated in a timely way; (c) for the baulked landing, the aircraft does not descend below a nominated height and maintains a nominated track; (d) safe termination procedure.	(a) various meteorological conditions; (b) simulate operations in urban, suburban and unpopulated areas; (c) type of RPA.

Schedule 5 — Practical competency units

Appendix 2 — Category specific units — Aeroplane category

Unit 20 — RA1 — Ground operations and launch

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
1	***Ground operations taxiing*** When taxiing on the ground or water: (a) perform applicable taxi checks, including instrument checks as required; (b) maintain safe taxi speed and control of the RPA; (c) maintain safe spacing from obstructions, and persons; (d) avoid causing a hazard to another aircraft, objects or persons; (e) apply correct handling techniques to take wind into account; (f) use checklists at appropriate times during ground operations.	(a) demonstrates dexterity with equipment; (b) sets-up the RPA for launch in a timely way; (c) maintains safe control of the RPA at all times.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) distance from obstacles, people and aircraft; (c) with and without checklists; (d) types of undercarriage.
2	***Ground operations — launch*** For hand launching of the RPA: (a) demonstrate the correct way to hold the RPA pre-launch; (b) demonstrate the necessary precautions when hand launching; (c) ensure the flight path for launching the RPA is clear of other aircraft, people and	(a) demonstrates confidence in positioning and handling the RPA; (b) handles the RPA with skill and precision; (c) throwing action is controlled and safe; (d) the RPA is launched safely.	(a) type of RPA; (b) launch location; (c) remote pilot launch or launch by assistant; (d) different launch methods; (e) populated or unpopulated launch areas.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
	other hazards before launch; (d) work out a plan of action, in advance, to ensure the safest outcome in the event of abnormal operation.		
3	***Launch actions*** If performing the launch of an RPA: (a) demonstrate correct launch technique; (b) perform the post-launch checks mentioned in the RPA checklist set out in operator's operations manual; (c) demonstrate smooth application of power and a controlled initial climb.	Initial climb is without major deviations in heading or attitude.	(a) type of RPA; (b) launch location; (c) remote pilot launch and launch by assistant; (d) different launch methods; (e) populated and unpopulated launch areas.

Schedule 5 Practical competency units

Appendix 2 Category specific units — Aeroplane category (contd.)

Unit 21 RA2 — Normal operations

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
1	***Straight and level*** (a) operate the RPA in straight and level flight at the desired altitude; (b) identify and avoid terrain and traffic when operating the RPA.	(a) the RPA to maintain a constant height and heading; (b) the RPA is operated within its performance limitations.	(a) various meteorological conditions.
2	***Climb*** (a) operate the RPA at a constant angle of climb; (b) operate the RPA at a constant rate of climb.	The RPA maintains: (a) an even rate of climb; (b) a constant airspeed; (c) a consistent climb angle.	(a) various meteorological conditions.
3	***Trim*** If required, trim the RPA to maintain the desired flight path for the flight.	Trims the RPA to maintain a constant heading and height for approximately 10 seconds.	(a) various meteorological conditions.
4	***Turns*** (a) operate the RPA to perform turns that are properly co-ordinated; (b) operate the RPA to perform turns that are conducted within a nominated area; (c) operate the RPA so that level turns are at a constant altitude.	(a) the RPA remains within the nominated area; (b) turns are conducted at a constant altitude and radius; (c) the RPA sink/skid is minimised during the turns; (d) completes turn within 15 degrees of stated final heading.	(a) various meteorological conditions.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
5	**_Descent_** (a) descend the RPA at a constant angle of descent; (b) descend the RPA at a constant rate of descent; (c) use lift/drag devices appropriately during the descent of the RPA.	The RPA maintains: (a) an even rate of descent; (b) a constant airspeed; (c) a consistent descent angle; (d) consistent aircraft attitude.	(a) various meteorological conditions.

Schedule 5   **Practical competency units**

Appendix 2   **Category specific units — Aeroplane category (contd.)**

Unit 22   **RA3 — Land/recover RPA**

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables

1	***Recover RPA***
	(a) perform a rectangular circuit, of an appropriate length and width, in which the pilot demonstrates positive control, followed by a straight-line approach to a nominated point and landing;
	(b) allow sufficient space to align the RPA for a stabilised approach to the place at which the RPA will land or be recovered;
	(c) maintain a constant landing position aim point for the RPA;
	(d) if applicable, achieve a smooth, positively-controlled transition from final approach to touchdown, including the following:
	  (i) minimise ballooning during flare;
	  (ii) touchdown at a controlled rate of descent, in the specified touchdown zone;
	  (iii) maintain positive directional control and cross-wind correction after landing, where applicable;
	(e) perform cross-wind landings.
		(a) stable and controlled approach to land;
		(b) lands within the nominated area;
		(c) minimal deviations after landing;
		(d) keeps the RPA within approach area during a cross-wind landing;
		(e) landing speeds within 10% of recommended speed.
			(a) meteorological conditions;
			(b) landing surface type;
			(c) undercarriage type;
			(d) aeroplane landing configuration;
			(e) different recovery methods.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
2	**_Conduct a missed approach_** (a) recognise the conditions when a missed approach should be executed; (b) make the decision to execute a missed approach in a timely way; (c) carry out a missed approach and reposition for landing by doing the following: 　(i) select power, attitude and configuration to safely control the RPA; 　(ii) manoeuvre the RPA clear of the ground and conduct after launch procedures; 　(iii) make allowance for wind velocity during go-around.	(a) maintains the RPA within nominated area; (b) shows dexterity in configuring the RPA for go-around; (c) the RPA does not descend below nominated height.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various meteorological conditions.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables

1	***Enter and recover from stall (if applicable to the RPA)***
	(a) perform pre-manoeuvre checks for stalling the RPA;
	(b) recognise stall signs and symptoms;
	(c) control the RPA by applying the required power and pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner to recover from the following manoeuvres:
	  (i) incipient stall;
	  (ii) stall with full power applied;
	  (iii) stall without power;
	  (iv) stall when climbing, when descending, during an approach to land configuration and when turning;
	(d) perform stall recovery with the RPA as follows:
	  (i) positively reduce angle of attack;
	  (ii) use power available and available height to maximise the aircraft energy state;
		(a) minimal height loss;
		(b) performs recovery procedures in a timely manner;
		(c) control movements are made in a positive and precise manner;
		(d) desired flight path is quickly re-established;
		(e) the RPA performance limits are not exceeded during the stall recovery.
			(a) activities are performed in accordance with operator's documented practices and procedures;
			(b) the RPA at high and low heights.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
	(iii) minimise height loss for simulated low altitude condition; (iv) re-establish desired flight path, and controlled and balanced operation of the RPA.		
2	**_Figure of 8_** Operate the RPA to demonstrate a figure of 8, without loss of height and with the crossover point in front of the operator.	(a) turns are smooth and controlled; (b) turn radius is consistent; (c) height is maintained and sink is minimised during the turns; (d) the crossover point is within 5 m either side of the remote pilot; (e) the figure of 8 loops are of similar size and radius.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) size of flight area; (c) various meteorological conditions.

3	**_Sideslip RPA_** (simulated, or if permitted for the RPA by its manufacturer)
	(a) perform a straight, forward sideslip by:
	  (i) inducing slip to achieve increased rate of descent while maintaining track and airspeed; and
	  (ii) adjusting the rate of descent by coordinating the angle of bank and applied rudder;
	(b) recover the RPA from a sideslip and return it to controlled and balanced flight.
		(a) sideslip is done in a controlled manner;
		
		(b) smooth control inputs, the RPA remains stable during the manoeuvre;
		
		(c) the RPA is transitioned from a sideslip to controlled and balanced flight without delay and with confidence;
		
		(d) flight profile is maintained within the RPA performance limits.
			(a) activities are performed in accordance with operator's documented practices and procedures;
			
			(b) various slip characteristics;
			
			(c) the RPA at high and low heights.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
4	**Control at a distance** (a) within visual line of sight, demonstrate accurate control and navigation at a reasonable distance sufficient to show competency in such control and navigation; (b) within visual line of sight, perform a horizontal rectangular circuit of a reasonable width, and at a reasonable distance, sufficient to show competency in carrying out such a manoeuvre; (c) demonstrate re-orientation of the RPA after it has been re-oriented by the instructor without the student watching.	(a) the RPA maintains a constant height; (b) the RPA turns are smooth; (c) heading corrections are minimised; (d) remote pilot shows coordination when flying the RPA towards him/herself; (e) the RPA is reoriented successfully in a timely way.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various sizes of the RPA; (c) the RPA at high and low heights.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
1	*Manage loss of thrust — launch* (a) correctly identify loss of thrust after the RPA has been launched; (b) apply the highest priority to taking action to control the RPA; (c) maintain control of the RPA; (d) perform initial actions from memory consistent with the operator's documented practices; (e) manoeuvre the RPA to achieve the safest possible outcome; (f) confidently state the actions being performed.	(a) identifies the problem in a timely way; (b) the RPA is configured correctly and in a timely manner for a forced landing; (c) best glide speed maintained; (d) the RPA remains within the nominated area; (e) safe landing achieved, or guaranteed before resuming normal powered flight.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) location of operation; (c) loss of thrust at different stages of flight; (d) various meteorological conditions.
2	*Recover from unusual aircraft attitudes* (a) identify unusual attitude of the RPA during flight — for example, whether it is nose-high or excessively banked; (b) recover the RPA from unusual attitudes and return to controlled and balanced operation.	(a) recovers in a timely manner; (b) uses efficient; control inputs; (c) minimal loss of height; (d) airspeeds are consistent with published aircraft performance information.	(a) location of operation; (b) various meteorological conditions; (c) various combinations of nose attitude and bank angle.

Item	Topic and requirement If operating an RPA that is an aeroplane, the applicant must be able to…	Tolerances	Range of variables
3	**_Loss of control link_** Operate the RPA to demonstrate the loss of link procedures.	(a) identifies the problem in a timely way; (b) timely application of procedures.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various options for loss of command link.
4	**_Other emergency situations_** Perform simulated emergency manoeuvres with the RPA to avoid a collision with another aircraft.	The RPA is manoeuvred correctly, confidently and without delay.	(a) by day and night; (b) various collision angles; (c) operations near and away from remote pilot.

Schedule 5   Practical competency units

Appendix 3   Category specific units — Helicopter (multirotor class) category

Unit 25   RM1 — Control on ground, launch, hover and landing

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
1	***Control multirotor on the ground*** Demonstrate control of the multirotor that is on the ground and has its rotors spinning.	No tipping, moving or sliding of the RPA.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of multirotor; (c) calm and windy conditions.
2	***Launch and hover*** (a) launch the RPA to above eye-level, hover for 10 seconds; (b) perform a full pirouette, and then reverse to stop facing a predetermined direction.	(a) hover must be stable, over a designated point with heading and altitude reasonably constant; (b) post-launch checks completed in accordance with documented procedures; (c) the RPA must complete full circles and stop within 20 degrees of predetermined point.	(a) various meteorological conditions; (b) the RPA automation aids on and off.
3	***Landing*** (a) perform a landing from a height of 10 m directly above the landing point; (b) perform an approach and landing with the RPA moving towards the remote pilot who is operating the RPA; (c) land the RPA from a 45-degree sideways descent;	(a) the RPA must land within the nominated landing area; (b) stable approach to landing; (c) minimal bouncing on touchdown; (d) no damage to the RPA or its payload.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various meteorological conditions; (c) open and confined landing area.

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
	(d) demonstrate a baulked landing procedure to a nominated hold point; (e) within visual line of sight, perform a horizontal rectangular circuit of a reasonable width, and at a reasonable distance, sufficient to show competency in carrying out such a manoeuvre; the manoeuvre itself must include a 45-degree climb and descent on the take-off and final legs of the circuit, and end with a landing; (f) perform a landing in a cross- or tail-wind conditions.		

Schedule 5   Practical competency units

Appendix 3   Category specific units — Helicopter (multirotor class) category (contd.)

Unit 26   RM2 — Normal operations

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
1	***Control multirotor during normal operation*** (a) perform straight and level forwards operation to a 20 m distant marker, hold for 10 seconds and return "tail" first; (b) perform a vertical rectangle, at least 5 m high and 20 m wide, with clockwise and counter clockwise 360-degree pirouettes at each alternate corner; (c) perform a vertical circle, as if inspecting the span of a bridge, turning 180 degrees at the top; (d) perform a figure 8 at a constant altitude with a crossover point in front of the remote pilot and even-sized loops with the nose pointing in the direction of travel; (e) demonstrate flight to the left and right and towards and away from the remote pilot in different orientations.	(a) reasonably straight line out and back; (b) stable hover (heading and height) with minimal drift; (c) vertical circle must have an even radius and be completed at an even speed; (d) constant radius turns; (e) the RPA must come to a complete stop, before changing direction; (f) vertical flight manoeuvres with minimal drift.	(a) various meteorological conditions; (b) size of vertical circle; (c) size of vertical rectangle; (d) size of flat 8; (e) inwards or outwards facing flat 8; (f) with and without the RPA automation aids (for example, without "headless mode").

Schedule 5   Practical competency units

Appendix 3   Category specific units — Helicopter (multirotor class) category (contd.)

Unit 27   RM3 — Advanced manoeuvres

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
1	***Control multirotor in advanced manoeuvres*** (a) perform a straight and level forwards operation to a 100 m distant marker, hover, turn 180 degrees, and fly back nose-in; (b) perform a nose-in turn about the nose; (c) perform a nose-out turn about the "tail"; (d) reorient the RPA from a simulated loss of orientation; (e) perform an 8-point pirouette pausing at each point without GPS hold; (f) perform a 360-degree level turn without GPS hold.	(a) reasonably straight line out and back; (b) consistent height; (c) reorientation of the RPA to be achieved in a timely manner; (d) the RPA must remain at least 100 m away from remote pilot, unless otherwise stated; (e) for the turn about the nose manoeuvre, the nose of the RPA must point generally to the centre of the circle.	(a) various meteorological conditions; (b) with and without RPA automation aids.

Schedule 5   Practical competency units

Appendix 3   Category specific units — Helicopter (multirotor class) category (contd.)

Unit 28   RM4 — Operation in abnormal situations and emergencies

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
1	***Return to home and parachute deployment*** (a) demonstrate the "return-to-home" fail-safe function if such a function is fitted to the RPA; (b) demonstrate or simulate a parachute deployment recovery system if such a system is fitted to the RPA.	(a) the remote pilot carries out the correct procedure, including ensuring that the return path can be flown safely; (b) parachute deployment procedure timely and safe.	(a) various meteorological conditions; (b) various flight modes; (c) various events leading to the need for the safety actions.
2	***Manage abnormal situations*** (a) demonstrate operating the RPA to avoid a vortex ring state; (b) identify conditions likely to lead to a vortex ring state; (c) simulate a recovery from a vortex ring state to a safe landing.	(a) no damage to the RPA; (b) the RPA handled with dexterity; (c) the RPA lands in the nominated area.	Various meteorological conditions.
3	***Control link corruption*** Demonstrate the loss of command and control link procedures in accordance with the RPA operator's documented practices and procedures.	Timely application of procedures.	Activities are performed in accordance with operator's documented practices and procedures.

Item	Topic and requirement If operating an RPA that is a multirotor, the applicant must be able to…	Tolerances	Range of variables
4	**_Safe forced landing and collision avoidance_** Simulate emergency manoeuvres: (a) to avoid a collision with another aircraft; (b) to avoid other risks to the safe operation of the RPA (including bird attack); (c) to land the RPA safely in a confined landing area.	(a) no damage to the RPA; (b) manoeuvres completed with a suitable safety margin.	Activities are performed in accordance with operator's documented practices and procedures.

Schedule 5   Practical competency units

Appendix 4   Category specific units — Helicopter (single rotor class) category

Unit 29   RH1 — Control on ground

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
1	***Start and stop engine or motor*** (a) ensure the RPA is in a suitable location for starting the engine and rotors of the RPA; (b) perform pre-start and start actions for the operation of the RPA; (c) perform shutdown and after-shutdown actions for the operation of the RPA; (d) control blade sailing during start and shutdown of the operation of the RPA by appropriately positioning the RPA and using cyclic pitch; (e) comply with the RPA operator's documented practices and report deviations from the procedures as required under the procedures; (f) manage emergencies appropriately (including simulated emergencies).	(a) start and stop the engine or motor in a timely manner; (b) show dexterity with engine or motor controls; (c) minimal blade sailing during start-up and shutdown; (d) emergency actions taken in a timely way.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of helicopter.
2	***Engage rotor*** (a) if applicable — set the engine or motor RPM within limits before rotor engagement for the RPA for the operation;	(a) engine/motor and rotor systems operated within the RPA performance limits; (b) demonstrates dexterity in handling controls.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of helicopter.

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
	(b) if applicable — engage the rotor correctly for the RPA for the operation; (c) maintain motor or engine RPM within limits during rotor engagement when the RPA is being operated for the operation; (d) if applicable — operate the rotor brake for the RPA correctly during the operation.		
3	*Control main rotor disc and anti-torque system* (a) maintain the correct main rotor disc attitude, RPM and loads during the operation of the RPA; (b) if applicable, set the correct anti-torque trim position to compensate for main rotor torque for the RPA for the operation.	(a) engine/motor and rotor systems operated within the RPA performance limits; (b) demonstrates dexterity in handling controls.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) type of helicopter control systems; (c) calm and windy conditions.

Schedule 5   Practical competency units

Appendix 4   Category specific units — Helicopter (single rotor class) category (contd.)

Unit 30   RH2 — Launch, hover and landing

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
1	***Launch, hover and landing*** (a) launch the RPA to above eye level, hover for 10 seconds; (b) perform a full pirouette, and then reverse to stop facing a predetermined direction; (c) perform a landing from a height of 10 m directly above the landing point; (d) perform an approach and landing with the RPA moving towards the remote pilot who is operating the RPA; (e) perform a landing with the RPA from a 45-degree sideways descent; (f) demonstrate a baulked landing procedure to a nominated hold point; (g) within visual line of sight, perform a horizontal rectangular circuit of a reasonable width, and at a reasonable distance, sufficient to show competency in carrying out such a	(a) hover must be stable with heading and altitude reasonably constant; (b) the RPA must remain over the selected take-off position for at least 10 seconds, with no drift; (c) the RPA must land within 1 metre of the nominated landing position; (d) landing to be controlled with even rate of descent consistent with a safe landing; (e) minimal bouncing on touchdown; (f) no damage to the RPA or its payload; (g) height is consistent during rectangle manoeuvre.	(a) various meteorological conditions.

Item	Topic and requirement	Tolerances	Range of variables
	If operating an RPA that is a single rotor, the applicant must be able to…		
	manoeuvre; the manoeuvre itself must include a 45-degree climb and descent on the take-off and final legs of the circuit, and end with a landing.		

Schedule 5 Practical competency units

Appendix 4 Category specific units — Helicopter (single rotor class) category (contd.)

Unit 31 RH3 — Normal operation

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
1	***Control helicopter in normal operation*** (a) perform straight and level forwards operation to a 20 m distant marker, hold for 10 seconds and return "tail" first; (b) perform a vertical rectangle, at least 5 m high and 20 m wide, with clockwise and counter clockwise 360-degree pirouettes at each alternate corner; (c) perform a vertical circle, as if inspecting the span of a bridge, turning 180 degrees at the top; (d) perform a figure 8 at a constant altitude with a crossover point in front of the remote pilot and even-sized loops with the nose pointing in the direction of travel; (e) demonstrate flight to the left and right and towards and away from the remote pilot in different orientations.	(a) the RPA must some to a complete stop, before changing direction; (b) flight is a reasonably straight line out and back, with minimal drift throughout exercise; (c) vertical circle must have an even radius and be completed at a consistent speed; (d) horizontal flight manoeuvres must be completed at a constant altitude; (e) vertical flight manoeuvres must minimize drift; (f) minimal variations in height, constant radius turns and loops of equal size during the flat 8; (g) for (c), the RPA must be at least 100 m away from the remote pilot; (h) flying must be smooth with few undulations in the flight path.	(a) various meteorological conditions; (b) size of vertical circle; (c) size of vertical rectangle; (d) size of flat 8; (e) inwards or outwards facing flat 8.

Schedule 5   Practical competency units

Appendix 4   Category specific units — Helicopter (single rotor class) category (contd.)

Unit 32   RH4 — Advanced manoeuvres

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
1	***Advanced manoeuvres*** (a) perform a straight and level forwards operation to a 100 m distant marker, hover, turn 180 degrees, and fly back nose-in; (b) perform a nose-in turn about the nose; (c) perform a nose-out turn about the "tail"; (d) reorient the RPA from a simulated loss of orientation; (e) perform an 8-point pirouette pausing at each point in "attitude mode"; (f) perform an upside-down triangle with a 45-degree ascent and descent to and from a minimum height of 5 m; (g) perform a 360-degree level turn in "attitude mode".	(a) each point in the pirouette must be held for at least 2 seconds; (b) keeping a constant height during the pirouette and nose-about turns; (c) for nose-in circle, the nose of the RPA must generally point into the centre of the circle; (d) stable hover (heading and height) with minimal drift; (e) reorientation of the RPA to be achieved in a timely manner; (f) the RPA must be at least 100 m away from remote pilot.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) the RPA at high and low heights.

Schedule 5   Practical competency units

Appendix 4   Category specific units — Helicopter (single rotor class) category (contd.)

Unit 33   RH5 — Operation in abnormal situations and emergencies

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
1	***Return to home*** Demonstrate the "return to home" fail-safe function if such a function is fitted to the RPA.	The RPA must return home to the nominated location via the nominated path.	(a) various meteorological conditions; (b) selected flight mode.
2	***Manage abnormal situations*** (a) identify conditions likely to lead to a vortex ring state; (b) demonstrate operating the RPA to avoid a vortex ring state; (c) simulate a recovery from a vortex ring state to a safe landing; (d) simulate operating the RPA to perform an autorotation to a safe landing; (e) simulate operating the RPA to avoid loss of tail effectiveness; (f) simulate operating the RPA to avoid ground resonance.	(a) no damage to the RPA; (b) the RPA handled with dexterity; (c) the RPA lands in the nominated area.	Various meteorological conditions.
3	***Control link corruption*** Demonstrate the loss of command and control link procedures in accordance with the RPA operator's documented practices and procedures mentioned in paragraph 101.370 (b) of CASR.	Timely application of procedures.	Activities are performed in accordance with operator's documented practices and procedures.

Item	Topic and requirement If operating an RPA that is a single rotor, the applicant must be able to…	Tolerances	Range of variables
4	***Safe forced landing and collision avoidance*** Simulate emergency manoeuvres: (a) to avoid a collision with another aircraft; and to avoid other risks to the safe operation of the RPA (including bird attack); (b) to land the RPA safely in a confined landing area.	(a) no damage to the RPA; (b) manoeuvres completed with a suitable safety margin.	Activities are performed in accordance with operator's documented practices and procedures.

Schedule 5   Practical competency units

Appendix 5   Category specific units — powered-lift category

Unit 34   RP1 — Control on ground, launch, hover and landing

Item	Topic and requirement If operating an RPA that is in the powered-lift category, the applicant must be able to operate the RPA to…	Tolerances	Range of variables
1	***Control the RPA on the ground*** Demonstrate control of the RPA that is on the ground and has its rotors spinning.	(a) no tipping, moving or sliding of the RPA; (b) activities are performed in accordance with the operator's documented practices and procedures.	(a) type of powered-lift; (b) calm and windy conditions.
2	***Launch and hover (if applicable to the RPA)*** Launch the RPA to above eye level, hover for 10 seconds.	(a) hover must be stable with heading and altitude reasonably constant; (b) the RPA must remain over the selected take-off position with no drift; (c) post-launch checks completed.	(a) various meteorological conditions; (b) the RPA automation aids on and off.
3	***Landing*** (a) perform an approach and landing; (b) perform an approach and landing when the RPA is moving towards the remote pilot; (c) perform a landing from approach, when the RPA is in a sideways orientation; (d) demonstrate a baulked landing procedure nominated hold point; (e) demonstrate a landing in cross- or tail-wind conditions.	(a) stable approach to landing; (b) minimal bouncing on touchdown; (c) no damage to the RPA or its payload; (d) the RPA must land within 2 m of the nominated landing position; (e) for the cross- or tail-wind landing, the aircraft is landed within the nominated landing area.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various meteorological conditions; (c) open and confined landing area; (d) the RPA automation aids on and off.

Schedule 5 Practical competency units

Appendix 5 Category specific units — powered-lift category (contd.)

Unit 35 RP2 — Transitional flight

Item	Topic and requirement If operating an RPA that is in the powered-lift category, the applicant must be able to…	Tolerances	Range of variables
1	***Manual transitional flight*** (a) accurately and safely transition the RPA from vertical flight to horizontal flight; (b) accurately and safely transition the RPA from horizontal flight to vertical flight.	(a) the RPA remains at a safe distance from people and obstacles during all manoeuvres; (b) airspeeds maintained within manufacturer's limits for the transitions where applicable.	(a) various meteorological conditions.
2	***Abnormal manual transitional flight*** (a) articulate a suitable and achievable plan to recover the RPA from abnormal transition; (b) recover the RPA from abnormal transition from vertical to horizontal flight; (c) recover the RPA from abnormal transition from horizontal to vertical flight.	(a) implements recovery plan in a timely way; (b) demonstrates dexterity in controlling the aircraft.	(a) various meteorological conditions.
3	***Abnormal automated transitional flight*** (a) articulate suitable and achievable plan to recover the RPA from abnormal transition; (b) monitor transition to ensure safe flight; (c) implement recovery plan to ensure safe outcome.	Implements recovery plan in a timely way.	(a) various meteorological conditions.

Schedule 5   Practical competency units

Appendix 5   Category specific units — powered-lift category (contd.)

Unit 36   RP3 — Climb, cruise and descent

Item	Topic and requirement If operating an RPA that is in the powered-lift category, the applicant must be able to…	Tolerances	Range of variables
1	***Straight and level*** (a) operate the RPA in straight and level flight; (b) identify and avoid simulated terrain, obstacles and traffic when operating the RPA.	(a) the RPA to maintain a constant height and heading; (b) the RPA is operated within its performance limitations.	(a) various meteorological conditions.
2	***Climb*** (a) operate the RPA at a constant angle of climb; (b) operate the RPA at a constant rate of climb.	The RPA maintains: (a) a consistent climb angle; (b) an even rate of climb.	(a) various meteorological conditions.
3	***Trim*** If required, trim the RPA to maintain the desired flight path for the operation.	Trims the RPA to maintain a constant heading and height for approximately 10 seconds.	(a) various meteorological conditions.
4	***Turns*** (a) operate the RPA to perform co-ordinated turns in horizontal flight; (b) operate the RPA to perform turns that are conducted within a nominated area; (c) operate the RPA so that level turns are at a constant altitude; (d) demonstrate pirouettes while in the hover.	(a) the RPA remains within the nominated area; (b) turns are conducted at a constant altitude and radius; (c) the RPA sink/skid is minimised during the turns; (d) completes turn within 15 degrees of stated final heading.	(a) various meteorological conditions.

Item	Topic and requirement	Tolerances	Range of variables
	If operating an RPA that is in the powered-lift category, the applicant must be able to…		
5	**_Descent_** (a) descend the RPA at a constant angle of descent; (b) descend the RPA at a constant rate of descent; (c) use lift/drag devices appropriately during the descent of the RPA.	The RPA maintains: (a) a consistent descent angle; (b) an even rate of descent; (c) consistent attitude.	(a) various meteorological conditions.

Item	Topic and requirement If operating an RPA that is powered-lift category, the applicant must be able to…	Tolerances	Range of variables
1	***Enter and recover from stall in other than vertical flight (if applicable to the RPA)*** (a) perform pre-manoeuvre checks for stalling the RPA; (b) recognise stall signs and symptoms when operating the RPA; (c) recover from the following conditions: 　(i) incipient stall; 　(ii) stall with full power; 　(iii) stall without power; 　(iv) stall during other flight phases; (d) perform stall recovery with the RPA as follows: 　(i) positively reduce angle of attack; 　(ii) use power available and excess height to increase the RPA's energy state; 　(iii) recover using vertical power.	(a) minimal height loss; (b) the RPA performance limits are not exceeded during the stall recovery; (c) performs recovery procedures in a timely manner; (d) control movements are made in a positive and precise manner; (e) desired flight path is quickly re-established.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various stall characteristics; (c) the RPA at high and low heights.
2	***Figure of 8*** Operate the RPA to demonstrate a figure of 8, without loss of height and with the crossover directly in front of the operator and	(a) turns are smooth and balanced; (b) turn radius is consistent;	(a) activities are performed in accordance with operator's documented practices and procedures;

Item	Topic and requirement If operating an RPA that is powered-lift category, the applicant must be able to…	Tolerances	Range of variables
	even-sized loops.	(c) height is maintained and sink is minimised during the turns; (d) the crossover point is within 5 m either side of the remote pilot; (e) the figure of 8 loops are of similar size and radius.	(b) size of flight area; (c) various meteorological conditions.

3	***Sideslip RPA (if permitted for the RPA)***
	(a) perform a straight, forward sideslip by:
	  (i) inducing slip to achieve increased rate of descent while maintaining track and airspeed;
	  (ii) adjusting the rate of descent by coordinating the angle of bank and applied rudder;
	(b) recover the RPA from a sideslip and return it to controlled and balanced flight.
		(a) sideslip is done in a controlled manner;
		(b) smooth control inputs;
		(c) the RPA remains stable during the manoeuvre;
		(d) the RPA is transitioned from a sideslip to controlled and balanced flight without delay and with confidence;
		(e) flight profile is maintained within the RPA performance limits.
			(a) activities are performed in accordance with operator's documented practices and procedures;
			(b) various slip characteristics;
			(c) the RPA at high and low heights.

4	***Control at a distance*** (a) within visual line of sight, demonstrate accurate control and navigation at a reasonable distance sufficient to show competency in such control and navigation; (b) within visual line of sight, perform a horizontal rectangular circuit of a reasonable width, and at a reasonable distance, sufficient to show	(a) the RPA maintains a constant height; (b) the RPA turns are smooth; (c) heading corrections are minimised; (d) remote pilot shows coordination when flying the RPA towards him/herself.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) the RPA at high and low heights.

Item	Topic and requirement If operating an RPA that is powered-lift category, the applicant must be able to…	Tolerances	Range of variables
	competency in carrying out such a manoeuvre; (c) reorient the RPA after a simulated loss of orientation.		

Item	Topic and requirement If operating an RPA that is powered-lift category the applicant must be able to…	Tolerances	Range of variables
1	***Manage loss of thrust in other than vertical flight*** (a) correctly identify loss of thrust after the RPA has been launched; (b) apply the highest priority to taking action to control the RPA; (c) maintain control of the RPA; (d) perform initial actions from memory, consistent with the operator's documented practices and procedures; (e) manoeuvre the RPA to achieve the safest possible outcome; (f) confidently state the actions being performed.	(a) identifies the problem in a timely way; (b) the RPA is configured correctly and in a timely manner for a forced landing; (c) best glide speed maintained; (d) the RPA remains within the nominated area.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) location of operation; (c) loss of thrust at different stages of flight; (d) various meteorological conditions.
2	***Recover from unusual aircraft attitudes in other than vertical flight*** (a) identify unusual attitude of the RPA during an operation, for example, whether it is nose-high or nose-low; (b) recover the RPA from nose-low or excessive bank angle; (c) apply controlled corrective action while maintaining the RPA	(a) recovers in a timely manner; (b) uses efficient control inputs; (c) minimal loss of height; (d) airspeeds are consistent with published aircraft performance information where applicable.	(a) location of operation; (b) various meteorological conditions.

Item	Topic and requirement If operating an RPA that is powered-lift category the applicant must be able to…	Tolerances	Range of variables
	within performance limits.		
3	**Loss of control link** Operate the RPA to demonstrate the lost link procedure.	(a) identifies the problem in a timely way; (b) timely application of procedures.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various options for loss of command link.
4	**Other abnormal situations** (a) perform a safe gliding forced landing of the RPA; (b) land the RPA safely in a confined landing area; (c) perform emergency manoeuvres with the RPA to avoid a simulated collision with another aircraft or obstacle.	(a) no damage to the RPA; (b) manoeuvres completed with a suitable safety margin; (c) the RPA is manoeuvred correctly, confidently and without delay; (d) airspeeds are consistent with any published aircraft performance information.	(a) activities are performed in accordance with operator's documented practices and procedures; (b) various collision angles; (c) operations near and away from remote pilot.
5	**Parachute deployment in vertical flight** Simulate a parachute deployment recovery system if such a system is fitted to the RPA.	Parachute deployment procedures carried out in a timely and safe way.	(a) various meteorological conditions; (b) various flight modes.
6	**Manage abnormal situations** (a) identify conditions that may lead to a vortex ring state; (b) demonstrate operating the RPA to avoid a vortex ring state; (c) demonstrate or simulate recovery from a vortex ring state to a safe landing.	(a) no damage to the RPA; (b) the RPA handled with dexterity; (c) the RPA lands in the nominated area.	Various meteorological conditions.

Schedule 5 Practical competency units

Appendix 6 Any RPA with a liquid-fuel system

Unit 39 REF — Medium or large RPA with liquid-fuel system

Item	Topic and requirement If operating a large or medium RPA with a liquid-fuel system, the applicant must be able to…	Tolerances	Range of variables

1	***Practical operation standards***
	(a) before the operation:
	  (i) conduct fuel checks of the RPA before the RPA is operated;
	  (ii) confirm the required amount of fuel is on board the RPA to complete the operation safely with a reasonable reserve;
	(b) manage engine handling, temperature and oil pressures when the RPA is on the ground and during an operation of the RPA;
	(c) monitor fuel use during an operation of the RPA and manage the RPA to ensure that the RPA does not land without required reserves;
	(d) if available, adjust the fuel mixture when the RPA is on the ground and during an operation of the RPA to achieve stated fuel
		(a) operates engine and the RPA within performance limits as set out in manuals;
		(b) lands with sufficient fuel reserves relative to flight duration;
		(c) manages fuel burn to within expected range;
		(d) takes timely action to remedy engine problems;
		(e) makes calculations accurately and within a reasonable time.
			(a) type of RPA liquid-fuel system;
			(b) activities are performed in accordance with operator's documented practices and procedures.

Item	Topic and requirement If operating a large or medium RPA with a liquid-fuel system, the applicant must be able to…	Tolerances	Range of variables
	burn rates or optimal engine performance; (e) refuel aircraft safely and complete post-fuelling checks; (f) complete operational and technical log; (g) make required calculations, or use system functions, to simulate a diversion from the original planned operation/ destination; (h) remedy simple engine problems; (i) defuel aircraft.		