RPAS Beyond visual line of sight (BVLOS) outside of controlled airspace (OCTA) - Aeronautical Knowledge Standards

Item	Aeronautical knowledge topics	
1	**Reserved**	
2	**Privileges and limitations**	
	2.1	Describe the privileges and limitations of a BVLOS OCTA rating for a CASA remote pilot licence (RePL) holder.
	2.2	Demonstrate an understanding of what is required for a remotely piloted aircraft operator's certificate (ReOC) operation to conduct a BVLOS operation.
	2.3	Demonstrate an understanding of how a BVLOS approval relates to other instruments of approval and documents.
	2.4	State limitations for the conduct of a BVLOS flight under Part 101 of the *Civil Aviation Safety Regulations 1998*.
3	**Supporting documents and information**	
	3.1	Demonstrate an understanding of official sources of information that support BVLOS operations.
	3.2	Extract information from relevant aeronautical information sources.
	3.3	Interpret information from aeronautical information sources for their applicability to BVLOS operations.
4	**RPA instruments, radios, and equipment**	
	4.1	Demonstrate an understanding of navigation equipment that should be installed and serviceable for conducting a BVLOS flight.
	4.2	Describe how the following remotely piloted aircraft (RPA) systems (RPAS) work in the context of a BVLOS operation: a) RPA automation b) altimetry instruments and their limitations c) C2/C3 link technologies d) geo fence e) aeronautical VHF communications f) surveillance equipment/technologies g) instruments, telemetry, and display systems.
	4.3	Describe the effects of: a) distance and obstacles between the transmitter and receiver on the quality of the C2/C3 link b) electromagnetic interference from various sources on the strength and quality of the C2/C3 link signal c) environmental factors such as weather, dust, precipitation, and cloud on system performance.
	4.4	Describe how an RPA's performance is affected by changes in: a) weight b) loading and balance c) ambient conditions.

Item	Aeronautical knowledge topics	
5	**Meteorology relevant to BVLOS operations**	
	5.1	Demonstrate awareness of how meteorological conditions affect crewed aviation for both visual flight rules (VFR) and instrument flight rules (IFR) operations.
	5.2	Demonstrate ability to obtain, interpret and apply meteorological reports and forecasts for operations when the RPAS is co-located with the remote pilot and when the RPAS is at distance from the remote pilot.
	5.3	Demonstrate awareness of how weather patterns and surface pressure can change over distance and how this will affect the BVLOS operation.
	5.4	Describe flying conditions and the dangers likely to be associated with any phenomenon listed in the *Manual of aviation meteorology* from the Bureau of Meteorology (BOM).
	5.5	Describe flying conditions and the dangers of airframe icing, hail, microbursts, wind shear, turbulence enroute, when experienced in conjunction with certain cloud types, precipitation, temperature, and wind.
6	**BVLOS operations – general**	
	6.1	Demonstrate understanding of enroute navigation, including navigation to prevent loss of situational awareness of RPA location.
	6.2	State the rules applicable to RPA regarding operating at or near aerodromes, aircraft landing areas and helicopter landing sites.
	6.3	Determine if a flight may proceed based on route, aircraft equipment, power/fuel available and equipment.
	6.4	Explain how lowest safe altitude (LSALT) affects crewed aircraft planning and operations for the purpose of deconflicting between crewed and remotely piloted aircraft.
	6.5	Accurately define LSALT for a route, area, and aerodrome from relevant charts.
	6.6	Describe strategic planning methods to deconflict RPAS from other traffic, terrain, and obstacles.
	6.7	Identify local, area and aerodrome height above sea level (QNH) for the purposes of deconflicting vertically against other traffic.
	6.8	Demonstrate ability to obtain, interpret and plan for operations in proximity to prohibited, restricted and danger (PRD) areas.
	6.9	Demonstrate an understanding of aerodrome instrument approach and departure procedures for crewed aircraft.
	6.10	Demonstrate an understanding of rules relating to direction of travel of crewed aircraft height and altitudes for the purpose of deconflicting between crewed and remotely piloted aircraft.

Item	Aeronautical knowledge topics	
7	**Operations outside of controlled airspace (OCTA)**	
	7.1	Describe the considerations a remote pilot should identify for each of the following components of a flight profile for day and night operations in Class G airspace and at non-controlled aerodromes when deconflicting against crewed aircraft: a) take-off and departure b) climb c) enroute d) descent and arrival e) aerodrome approach and circuit procedures, including for aircraft with different performance capabilities f) taxi and airport ground operations.
	7.2	Demonstrate knowledge of radio procedures in Class G airspace and at non-controlled aerodromes.
	7.3	Demonstrate knowledge of procedures for deconfliction from a crewed aircraft suffering abnormal operations and/or emergencies in Class G airspace and at non-controlled aerodromes.
8	**Reserved**	
9	**Navigation with global navigation satellite systems (GNSS)**	
	9.1	Explain the principles of operation, performance, and limitations of GNSS.
	9.2	Describe GNSS errors and the source of these errors.
	9.3	Explain the need and process for GNSS integrity and continuity checking.
	9.4	Explain the principles of operation of ground-based augmentation system (GBAS) and satellite-based augmentation system (SBAS) systems to improve accuracy and system robustness.
10	**Human factors relevant to BVLOS operations**	
	10.1	Describe limitations humans have in using systems with differing designs of: a) ground station aircraft controls b) data entry methodologies c) interpretation of flight and map display information d) warnings, cautions and routine messages.
	10.2	Describe how human performance (and thus flight safety) is affected by: a) fatigue b) monotonous monitoring of RPAS.
	10.3	Recognise human behaviours that can both positively and negatively affect the safety of the flight, to include: a) threat and error management b) crew resource management, maintain effective communications c) situational awareness d) decision making e) automation induced complacency.