



# SUMMARY OF PROPOSAL



## Part 101 (Unmanned aircraft and rockets) Manual of Standards 2018

Part 101 Manual of Standards Instrument 2018

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## Introduction

Part 101 of CASR, containing the regulations pertaining to RPAS operations, was amended in March 2016. The revised rules came into effect in October 2016. Among other things, the amendment inserted into the regulations a head of power to create a third level of legislation (subordinate to the Civil Aviation Act 1988 and the regulations themselves) in the form of a manual of standards (MOS).

Prior to issuing any MOS, CASA is required to publish a draft to allow the wider community to comment. This consultation package is published for the purposes of community consultation in accordance with Civil Aviation Safety Regulation (CASR) 11.280.

In May 2015, CASA's Chief Executive Officer and Director of Aviation Safety issued Directive 1 of 2015<sup>1</sup>, setting out CASA's policy for the development and application of aviation safety regulations. In part, this Directive provides that the regulations:

- are necessary to address known or likely safety risks
- provide for the most efficient allocation of Industry and CASA resources
- be clear and concise
- where appropriate, be aligned with international standards and drafted in outcome-based terms.

To meet these obligations, CASA needs the benefit of your knowledge as a stakeholder in respect of remotely piloted aircraft systems (RPAS) operations. Comments are also sought from every sector of the community, including the general public, government instrumentalities and particularly all sectors of the aviation industry, whether as an aviator, aviation consumer and/or provider of related products and services.

This consultation package sets out the proposed standards for the relevant regulations in Part 101 of CASR. Your feedback will make a valuable contribution to our policy decision-making process and help to inform future regulatory change.

## Purpose and scope of the proposed amendments

A manual of standards (MOS) is comprised of detailed technical material and requirements, including specifications and standards that complement those set out in the CASR. A MOS contains standards that are authorised by a regulation—it is not advisory material.

CASA is authorised, by the *Civil Aviation Act 1988* (the Act) and CASR, to draft and make a MOS when a clear requirement exists to specify standards that, for the purposes of clarity and effective administration, should not be contained within the Act or the regulations. For example, a MOS should be considered if the standards are (i) technical (ii) voluminous and/or (iii) subject to frequent amendment. Given that RPAS operations are a relatively new and rapidly developing, highly-technical sector of aviation, a MOS is the ideal legislative instrument to promulgate detailed standards for industry.

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<sup>1</sup> Development and Application of Risk-Based and Cost-Effective Aviation Safety Regulations. – DAS Directive 01/2015.

The revised Part 101 of CASR, the chief governing rules for unmanned aircraft operations, contains several provisions governing the content of the MOS. It comprises standards for remote pilot training and training organisations; requirements for RPAS operations in controlled and prescribed non-controlled airspace; and recordkeeping and notification requirements for RPAS operators generally. The content of the MOS must be linked to these enabling regulations, or more generic provisions in the regulations.

## Previous consultations

CASA conducted consultation on the initial version of the draft MOS in 2015 through a working group of the former UAS Sub-committee, a supporting committee to the former Standards Consultative Committee (SCC). The training syllabus for the Remote Pilot Licence (RePL) in the draft MOS was informed by this consultation, but most of the rest of the document has not previously been formally consulted.

CASA conducted internal consultation prior to the release of this package and within the industry sector via a new Technical Working Group consisting of representatives from CASA and the RPAS industry (see Appendix A for membership of this group).

CASA also distributed drafts of the training syllabus to all certified RPAS training organisations in 2016. Training organisations were very supportive of CASA's intended direction in terms of the development of training standards.

The drone discussion paper and survey – *Review of RPAS operations (DP 17080S)* – conducted in August and September last year, has no bearing on the MOS. Issues arising out of that process will be addressed through regulatory changes to Part 101, probably in the first half of 2019. Similarly, any recommendations falling out of from the Senate's Rural and Regional Affairs and Transport References Committee's inquiry into the '*regulatory requirements that impact on the safe use of Remotely Piloted Aircraft Systems, Unmanned Aerial Systems and associated systems*' will be considered for the future amendment, unless considered urgent by the government and enabled by the current regulations.

## Content and rationale

The draft MOS includes the following content:

- Aeronautical knowledge theory standards for *ab initio* RePL applicants, including a directory of required knowledge units.
- Theory examination standards and a knowledge deficiency process.
- Aeronautical knowledge course requirements for RPAS training organisations.
- Practical operation standards for RePL applicants, including topics, tolerances, ranges of variables and a directory of practical competency units.
- Practical operation course requirements for RPAS training organisations, including standards for RPAS instructors.
- Flight test standards.
- Aeronautical knowledge theory and practical operation standards for converting or upgrading a RePL.
- Restricted (No-fly) zones around controlled aerodromes.
- Prescribed areas in non-controlled airspace in which RPAS operations are limited.
- Standards for extended visual line of sight operations (EVLOS).

- Recordkeeping requirements for RPA Operator Certificate (ReOC) holders.
- Notification requirements for ReOC holders.
- Notification requirements for excluded RPA operators.
- Placeholders for future standards (i.e., non-RePL training, night operations and operations close to people).

With regard to the RePL training syllabus, the MOS will standardise the required training through theory and practical competencies tailored for both RPAS generally and for specific categories of RPA. The training course requirements will also make for a more robust and consistent theory examination process and promote high-level standards of practical training across the sector (eg, by setting standards for instructors).

Schedules 2 and 3 of the MOS list the units of knowledge and practical competencies for various RePL categories. Schedules 3 and 4 provide the detailed syllabus standards. The MOS will also define clear paths for upgrading (eg, from small RPA to medium and large RPA) or for adding categories of RPA to a RePL. More detailed information on the structure and use of the MOS will be published by CASA prior to implementation.

The inclusion of the restricted (no-fly) zones around controlled aerodromes (currently in guidance material) will bring legislative weight to the policy and remove any doubts about the extent of these areas and their applicability to RPAS operations. For non-controlled aerodromes, the MOS adopts the requirements currently set-out in CASA instrument 96/17, *Direction – Operation of certain unmanned aircraft*.

Extended visual line of sight (EVLOS) operations will be operationalised by the MOS. This will facilitate flight of an RPA beyond the visual line of sight of the remote pilot, in limited circumstances, using observers to keep the airspace around the aircraft in sight and to help manage the risks of the operation. Remote pilots and ReOC holders will need to meet the standards in the relevant part of the MOS to carry out EVLOS operations and be pre-approved by CASA.

The keeping of accurate operational, staff and aircraft records is essential to the ongoing safety of RPAS operations. The MOS will formalise recordkeeping requirements, covering risk management, operations and aircraft maintenance procedures. The MOS also contains abbreviated recordkeeping standards for excluded RPA operators.

The section relating to notification requirements applies primarily to excluded RPA operators, but also includes the changes that ReOC holders must report to CASA.

## Policy assessment

### Policy position

The draft MOS details CASA's informed and considered policy for RPAS operations, including standards for training operations and general administration by operators. Through this consultation process, CASA welcomes industry and public comment in respect of further development of the standards.

The draft MOS both formalises current policy and provides a safer, robust set of standards for industry. When implemented, the MOS will standardise some of the current conditions on RPAS operator certificates, providing a benchmark for operators and for CASA surveillance and auditing purposes.

## Impacts

### Impact on RPAS industry

*Aeronautical theory standards for ab-initio RePL applicants, including a directory of required knowledge units; aeronautical theory examination standards, including a knowledge deficiency process; practical operation standards for RePL applicants, including topics, tolerances, ranges of variables and a directory of practical operation units; and flight test standards:*

- The MOS introduces a tailor-made syllabus for remote pilot training. It supersedes the original syllabus published by the Transport and Logistics Industries Skills Council (TLISC) beginning in the early 2000s and updated in recent times. The new syllabus is more relevant than the older syllabus, aiming to ensure that remote pilot training provides the necessary information and skills to ensure RPAS operations are safe for both the wider aviation industry and the public at large. The syllabus is also designed to improve professionalism in the RPAS industry, particularly as operations and equipment become more complex and remote pilots move on from simple visual-line-of-sight flying (e.g., into extended visual line of sight operations).
- Delivery of the new syllabus will most likely entail additional training time, in the order of 1 to 2 days. This additional time will probably increase costs for an applicant for a remote pilot licence. However, CASA believes that the resultant improvement in the quality of remote pilots warrants the change in the interests of ongoing safety for the wider aviation industry and the public generally.

*Aeronautical theory and practical operation standards for converting or upgrading a RePL:*

- These provisions provide simple avenues for remote pilots who wish to become qualified on different categories of RPA and/or larger aircraft without having to complete an entire *ab initio* course of training. Some of this training will be deliverable by general RPAS operators (eg, an operator who wants to move a remote pilot to a new model of a similar aircraft, or one that exceeds the remote pilot's < 7 kg restriction).
- The provisions deliver flexibility for remote pilots who want to upgrade or convert (from one category to another) their licences, while ensuring that high standards of training are maintained with respect to the new qualification.

*Aeronautical theory course requirements for RPAS training organisations and practical operation course requirements for RPAS training organisations, including standards for RPAS instructors:*

- These provisions, including minimum standards for remote pilot instructors, the structure and security of examination papers and the keeping of training records, are like current requirements in individual training organisation's operations procedures manuals. Including them in the MOS provides consistency and clarity and should improve safety outcomes through better training and oversight by CASA of training operations.
- The provisions may increase costs for some operators. Suitable facilities, security arrangements, additional interactive training time and instructor qualifications may be needed where they are not already in place.

*Restricted (no-fly) zones around controlled aerodromes and prescribed areas in non-controlled airspace in which RPAS operations are limited:*

- These restrictions are designed to ensure protection for manned aviation near controlled and non-controlled aerodromes. The no-fly zones apply to controlled aerodromes, while the prescribed areas are relevant to operations in non-controlled airspace adjacent to controlled aerodromes and around non-controlled aerodromes, including helicopter landing sites. Exceptions are provided for certain operators who can meet strict conditions.
- Publishing the airspace restrictions in the MOS, particularly for controlled aerodromes, removes ambiguity around the current policy set out in guidance material. As a result, CASA will in some cases need to issue general or specific permissions to operators to fly in the zones.
- For non-controlled aerodromes, the MOS reflects and codifies the requirements currently in CASA Instrument 96/17 for operations within 3 Nm of an aerodrome.
- For ReOC holders, CASA expects to issue generic approvals that will allow routine operations near controlled and a sub-set of non-controlled aerodromes, subject to conditions. This will mean that operators will no longer have to pay or wait for one-off approvals to fly near aerodromes, while at the same time maintaining protection for manned operations.
- Ongoing area approvals for recreational flying (eg, for model flying clubs) will ensure that these operations can continue without additional costs or regulatory burdens.

*Standards for extended visual line of sight operations (EVLOS):*

- EVLOS operations are a restricted form of beyond visual line of sight operations.
- Formalising the requirements for extended visual line of sight operations will allow many operators to expand their operations while preserving safety for manned aircraft and passengers.
- EVLOS operators use visual observers to expand the area of operations. The observers scan the airspace around the position of the RPA for other aircraft and provide information and instructions to the remote pilot to avoid collisions.
- Due to the added complexity of EVLOS flights, only ReOC holders can be approved to conduct such operations.

*Recordkeeping requirements for RPA Operator Certificate (ReOC) holders; notification requirements for ReOC holders; notification requirements for excluded RPA operators:*

- These provisions standardise the recordkeeping requirements for operators and align notification rules for Excluded RPA operators.
- Detailed recordkeeping helps operators manage their businesses while providing a practical audit chain for CASA surveillance. Operators currently meet recordkeeping requirements by operating in accordance with their operations manuals. Operators manuals are based on CASA's sample manual which includes a similar number of (although less comprehensive) recordkeeping requirements to that set-out in the draft MOS.
- The provisions are structured to allow operators to record much of the operational information in a single form. The cost impact of these requirements should be minimal given that they largely reflect current practice.

- Standardising and aligning notification provisions for different groups of Excluded RPA operators merely formalises the current policy and has nil cost or additional time implications for operators.

### **Impact on other areas of the aviation industry**

There are no negative impacts on the wider aviation industry. Current safety levels will be enhanced by a more knowledgeable and skilled remote pilot cohort.

### **Impact on CASA**

For CASA internal stakeholders only—the Policy and Regulation team in RPAS Branch seeks your comments on the likely impact on other areas of CASA, its staff and systems.

### **Implementation and transition**

Based on feedback received during this consultation process, CASA will work with industry to ensure that adequate implementation and transition timeframes are provided. CASA has set a tentative date of the fourth quarter of 2018 to make the proposed rules, some of which will come into effect by the second quarter of 2019.

CASA proposes a transition period of six months for the training aspects of the MOS to ensure that industry has sufficient time to transition to the new requirements. It is likely that other sections of the MOS may commence sooner to facilitate RPAS operations by industry. Please note that timeframes may change depending on the date that the draft rules are signed, registered and implemented by CASA.

### **Post-implementation review**

CASA will monitor and review the new rules on an ongoing basis during the transition phase. Thereafter, CASA will conduct post-implementation monitoring and reviews as required. CASA will also continue work on other proposed changes to the Part 101 regulations to better support RPAS operations as the industry develops.

### **Regulation impact statement**

CASA has submitted a Preliminary Impact Assessment to the Office of Best Practice Regulation (OBPR) and will prepare a Regulation Impact Statement if required.

### **Closing date for comment**

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate. Comments on the draft Part 101 Manual of Standards should be submitted through the online response form by close of business 18 November 2018.

## **Appendix A**

### **Membership of the CASA Technical Working Group (June 2018)**



## A.1 List of TWG members June 2018

<b>Clive Adams</b> – VIZIONX Consulting	<b>Terry Martin</b> – Queensland University of Technology	<b>John Morrison</b> – Morrison Aerial Robotics
<b>Wayne Condon</b> – UAV Training Australia	<b>Will Stamatopoulos</b> AusALPA/In Motion Aero	<b>Luke Aspinall</b> – Heliwest
<b>Paul Dewar</b> – UASci Ltd	<b>Dan Minton</b> – Australian Industry Standards	<b>Greg Tyrrell</b> – Australian Association for Unmanned Systems (AAUS)
<b>Robert Dicker</b> – Honourable Company of Air Pilots	<b>Stuart Jones</b> – Cobham Aviation Services, Special Missions	<b>Joe Urli</b> – Australian Certified UAV Operators