

Civil Aviation Safety Regulations 1998

CASA 20/22 — Determination for Part 101 Manual of Standards (Modified Licensing Standards for Advancing RPA Technology, and Other Matters) Amendment Instrument 2022 (No. 1)

Statement of reasons for making the Determination

Purpose

This Determination is for the proposed *Part 101 Manual of Standards (Modified Licensing Standards for Advancing RPA Technology, and Other Matters) Amendment Instrument 2022 (No. 1)* (the **MOS amendment**).

Legislation

Subsection 9 (1) of the *Civil Aviation Act 1988* (the **Act**) provides that CASA has the function of conducting the safety regulation, in accordance with the Act and the regulations, of civil air operations in Australian territory and of the operation of Australian aircraft outside Australian territory. Section 98 of the Act empowers the Governor-General to make regulations for the Act and the safety of air navigation.

Under regulation 11.280 in Subpart 11.J of the *Civil Aviation Safety Regulations 1998 (CASR)*, if CASA intends to issue a Manual of Standards (a **MOS**) CASA must publish a notice of its intention to do so on the internet. This requirement equally applies to an amendment of a MOS.

The purpose of such publication is to facilitate consultation with, and seek comments from, interested parties. The notice must describe the draft MOS or MOS amendment, how it may be obtained, how comments on it may be made and lodged, and the time frame within which such comments may be lodged (to be not less than 28 days from posting on the internet unless subregulation 11.280 (4) of CASR applies). Under regulation 11.290 of CASR, before issuing the final MOS, CASA must consider any comments received, and may consult with any person on issues arising from those comments. Under subregulation 11.295 (1) of CASR, a failure to comply with the procedures in Subpart 11.J of CASR does not affect the validity of the MOS in question.

However, under paragraphs 11.275 (1) (a) and (d) of CASR, CASA is not obliged to comply with the publication requirements of regulation 11.280 before issuing a MOS or a MOS amendment **if** the Director of Aviation Safety (the **Director**) determines that the MOS is, respectively:

- (a) necessary as soon as practicable in the interests of aviation safety; or
- (b) of a minor or machinery nature that does not substantially alter existing arrangements under the Part 101 MOS or otherwise.

Under subregulation 11.275 (2) of CASR, if the Director does make such a Determination (the **Determination**), CASA must publish the Determination, and a statement of reasons for it, on the internet within 28 days after making the Determination.

Why the proposed MOS amendment is of a minor or machinery nature

The Principal MOS

The *Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019* (the **principal MOS**) was the first issue of a MOS in relation to unmanned aircraft and rockets (including kites, fireworks, unmanned tethered and free balloons). The power to issue the MOS was conferred on CASA by the *Civil Aviation Legislation Amendment (Part 101) Regulation 2016*.

The MOS prescribed a range of miscellaneous matters in relation to the safety and regulatory oversight of remotely piloted aircraft (**RPA**), including training and competency standards for a remote pilot licence (**RePL**).

In particular, the MOS prescribed requirements for:

- RPA training courses in the aeronautical knowledge and practical competencies required for the issue of a RePL
- RPA training organisations to deliver RPA training courses and assess applicants
- the flight testing of applicants for a RePL.

Items 4 and 5 of the Table in regulation 101.022 in Part 101 of CASR, define medium and large RPA as follows:

4	medium RPA	(a) an RPA with a gross weight of more than 25 kg, but not more than 150 kg; or (b) a remotely piloted airship with an envelope capacity of not more than 100 m ³ .
5	large RPA	(a) a remotely piloted aeroplane with a gross weight of more than 150 kg; or (b) a remotely piloted powered parachute with a gross weight of more than 150 kg; or (c) a remotely piloted rotorcraft with a gross weight of more than 150 kg; or (d) a remotely piloted powered-lift aircraft with a gross weight of more than 150 kg; or (e) a remotely piloted airship with an envelope capacity of more than 100 m ³ .

Commercial and scientific developments in RPA

Commercial and scientific developments in RPA technology, design, and functionality, in particular affecting the autonomy and safety system design of medium RPA and large RPA — that is RPA of more than 25 kg gross weight — are advancing rapidly, and in many cases unpredictably, for these categories of RPA. Commercial enterprises and public utility organisations continue to deploy these advanced remotely controlled aircraft into more diverse activities where unconventional functionality is required.

These developments, while not yet so radical as to be beyond the reach or relevance of the overall content of the principal MOS, are in practice outstripping, in unforeseen and unpredictable ways, aspects of the fixed training and flight testing syllabi established in 2019 for a person to qualify for an RePL to fly such an RPA.

This is progressively giving rise to the need for, in effect, unique training and testing, and practical competencies and standards, for unique forms of RePL that are limited to highly-specific RPA, performing highly-specific functions.

For example, fixed flight RPA, designed to be, in effect, incapable of deviation from their programmed trajectory and flight termination, might be deployed for mapping, surveying, exploration or search and rescue operations. For the purposes of training and flight testing, the applicant for a RePL for this highly-specialised form of remote unmanned aviation will not be able to satisfy certain manoeuvrability standards and competencies prescribed in the MOS for the category of RPA, while otherwise being capable of satisfying other more relevant practical competency standards.

In this example, the imposition of, and insistence upon, certain manoeuvrability standards and competencies would, in fact, create unsafe conditions for trainers and controllers during training. However, the absence of compliance with these requirements will not adversely affect an acceptable level aviation safety, or may be mitigated by the imposition of other requirements not normally required.

CASA disapplication approval mechanism

In order to ensure the delivery of appropriate RePL training courses for emerging technology in the development and manufacture of medium RPA and large RPA, CASA has used the MOS amendment to create alternative RePL training course requirements. These new requirements enable CASA to approve modified combinations of practical competency units and standards. These approvals would disapply certain MOS practical units of competency which it would otherwise be impossible or impracticable for particular RPA to meet, and would substitute other practical training standards to compensate.

This mechanism will allow continuing technological developments in RPA autonomy and safety system design, and consequential broader commercial functionality and deployment, by enabling licence applicants to qualify for RePLs, or to upgrade existing RePLs that are specifically focused on a particular medium or large RPA, its functionality and its limitations.

Paragraph 11.275 (1) (a) of CASR

The imposition of, and insistence upon, certain manoeuvrability standards and competencies would, in fact, create unsafe conditions for trainers and controllers during training. However, the absence of compliance with these requirements will not adversely affect an acceptable level aviation safety, or may be mitigated by the imposition of other requirements not normally required.

It is necessary, therefore, that the MOS amendment be issued as soon as practicable in the interests of aviation safety because any effort by RPA training organisations to deliver training courses that meet the existing RePL, or RePL upgrade, training standards for the relevant medium or large RPA are liable to create unsafe training, operating, and flying practices, with no offsetting safety benefits.

Paragraph 11.275 (1) (d) of CASR

In addition to this, the number of medium and large RPA that would currently, or in the near future, require modified training courses, remains small, although it is increasing. Nevertheless, based on the current modest impact that the disapplication approval process will have, it may be said that, as a matter of practice, the proposed MOS amendment does not substantially alter the existing arrangements.

Rather, it will allow those arrangements to continue to apply in a more flexible way to avoid the unnecessary ineligibility of certain candidates to train and test for a RePL, and the effective inability of trainers to deliver relevant courses. The applicants would otherwise be, in effect, disqualified because of the inherent limitations, or specific functionalities, of the RPA for which, exclusively, they sought a RePL.

It is considered that the reasons for non-consultation under the paragraphs of subregulation 11.275 (1) are not mutually exclusive. Despite the disjunctive “or” in the paragraphs, the reasons may be accumulative. (For a hypothetical example, provisions which are misunderstood may give rise to pressing safety concerns but may be remedied by minor or machinery amendments intended merely to clarify.)

Aviation safety

An acceptable level of aviation safety will be preserved because CASA approvals will still require relevant and applicable safety standards and competencies to be satisfied.

It is determined, therefore, that the proposed MOS amendment is necessary in the interests of aviation safety, and of a minor or machinery nature for the purposes of paragraphs 11.275 (1) (a) and (d) of CASR.

Appendix 2 of the Explanatory Statement, which accompanies the proposed MOS amendment and can be found on the Federal Register of Legislation, sets out a detailed explanation of each amendment in the MOS amendment.

Determination

The Determination is a determination by the Director that the proposed MOS amendment is:

- (a) necessary as soon as practicable in the interests of aviation safety; and
- (b) of a minor or machinery nature that does not substantially alter existing arrangements under the Part 101 MOS or otherwise.

Legislative Instruments Act 2003

The Determination is not a legislative instrument.

Consultation

Consultation is not required for a Determination.

While there is no express obligation to consult on the MOS amendment that is the subject of this Determination, there has been informal consultation with the relevant aviation industry both before and in the course of preparation of the MOS amendment. Feedback was received from various such sources arguing that there was a pressing need, as a matter of priority, to address CASA’s lack of a specialised RePL licensing powers for advancing RPA technology which was being impeded by the lack of flexibility in the principal MOS to encompass such new technology in the medium and large RPA commercial categories.

Commencement, making, and post facto consultation

The Determination commences on the date of signature. (The MOS amendment commences on the day after it is registered.)

The Determination has been made by the Director in accordance with paragraphs 11.275 (1) (a) and (d) of CASR.

The Determination was made before the MOS amendment was made. Both the Determination and this Statement of Reasons are published on the CASA website within 28 days after the Determination is made in accordance with subregulation 11.275 (2) of CASR.

Under subregulation 11.295 of CASR, if CASA issues a MOS (other than on the basis of a determination under paragraph 11.275(1)(a)) without complying with the prior consultation procedures, CASA must, within 28 days after issuing the MOS, publish a notice of consultation in relation to the MOS as if it were a notice of intention to consult on the MOS, and thereby seek comments on the MOS as made. CASA will do this.