



SUMMARY OF PROPOSED CHANGE



Changes to air traffic control standards for parallel runway operations

Manual of Standards Part 172 Amendment Instrument 2019 (No. 1)

Date	April 2019
Project number	AS 14/23
File ref	D19/103212

Introduction

CASA is proposing to amend the Part 172 Manual of Standards (MOS) to introduce new ICAO standards for operations to parallel runways.

Part 172 of the *Civil Aviation Safety Regulations 1998 (CASR)* sets out the requirements for air traffic service (ATS) providers in Australia.

Effective since 2002, Part 172 was among the first CASRs to be introduced.

Division 172.C.2 of CASR sets the applicable standards for air traffic services (ATS) in Australia as:

- the standards in the Part 172 Manual of Standards (the MOS)
 - the standards in ICAO Annex 11
 - the provisions in ICAO Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) (ICAO Doc 4444)
- or
- Regional supplementary procedures (ICAO Doc 7030).

Where there is a contradiction between the applicable standards documents — regulation 172.085 of CASR gives precedence to the MOS.

ATS standards evolve over time as operational and technical capabilities are introduced or when required by safety considerations. For these reasons, the MOS has been amended 8 times since it was first introduced in 2002.

Purpose and scope of the proposed amendments

Parallel runways enable busy aerodromes to efficiently and safely handle large numbers of aircraft movements. To ensure the safety of aircraft when operating in close proximity as occurs during parallel runway operations, there are international standards for minimum lateral displacement between parallel runways. There are also standards for associated flight guidance and monitoring equipment, operations, and pilot/controller training.

ICAO first introduced standards for operations to parallel runways in 1995. When the MOS was originally drafted in 2000, the ICAO standard was replicated within the MOS. Under the CASR regulatory arrangement, the MOS entry became the only relevant standard in Australia for operations to parallel runways.

Of relevance for this consultation, the original ICAO and current MOS requirements for operations to parallel runways, in every case, require instrument landing system (ILS) for final approach guidance and for air traffic control (ATC) to manually vector all arriving aircraft onto final approach.

Under optimal conditions, ILS provides reliable and accurate final guidance. However, the quality and accuracy of ILS guidance signals can be adversely affected by movement of aircraft and vehicles in the vicinity of the ILS transmitting equipment. Adverse effects include path bending and even total loss of guidance.

To mitigate these effects, ATC must restrict aircraft movements in the vicinity of ILS transmitting equipment, including holding taxiing aircraft clear of ILS installations and managing departures so that ILS installations are not overflowed while arriving aircraft are within the critical distances

from touchdown. These ATC restrictions have a cumulative adverse effect on traffic movement capability at aerodromes and add to controller workload.

Since the original standards were implemented, several technological advancements have occurred that have changed this situation.

GNSS landing system (GLS) is now available - providing precision 3D guidance at least the equivalent of ILS, but with the significant advantage of not requiring the level of signal protection as is necessary for ILS.

GLS was introduced at Sydney in 2005. Due to its superior guidance stability in all conditions, it has become the precision guidance of choice for many airlines. However, the current MOS standards prevent its use for operations to parallel runways in other than visual meteorological conditions.

Many aircraft now have Required Navigation Performance (RNP) equipment capable of precision 3D guidance from the en-route phase through to final approach. These RNP capabilities potentially offer significant environmental and operating benefits through reduced noise and fuel consumption. However, again, the current MOS prevents their use for operations to parallel runways because it requires ATC to manually vector aircraft onto final approach in all situations.

In November 2018, ICAO introduced changes to PANS-ATM concerning parallel approach operations. The changes, among others, allow ILS, *as well as* GLS, RNP AR and Approach Procedures with Vertical Guidance (APV) to be utilised for final approach guidance. Further, in addition to vectoring, ATC may also clear aircraft to intercept final approach for a parallel approach operation using a published arrival and approach procedure.

Anticipating the change, Airservices wrote to CASA in October 2018 requesting an amendment to the MOS to enable the new ICAO standards.

Considering the request and Section 11 of the Civil Aviation Act 1988 which provides that CASA is required to perform its functions in a manner consistent with Australia's obligations under international agreements relating to the safety of air navigation, CASA proposes to remove the several existing standards within the MOS that override the new ICAO standards. By taking this action, under the hierarchy in Division 172.C.2 of CASR, the provisions in PANS-ATM section 6.7 (Operations on parallel or near-parallel runways) will be the applicable standard for such operations in Australia.

Annex A to this Summary of Proposed Change (SPC) details the affected MOS provisions on the topic, the equivalent ICAO standard, and a description of any significant differences.

The proposed amendment is structured to become binding on 8 November 2019, but allows an ATS provider to 'opt in' prior to that date if they tell CASA in writing that they intend to do so.

Annex B to this SPC contains draft 'Manual of Standards Part 172 Amendment Instrument 2019 (No. 1)'.

Please note: CASA is not proposing to amend the existing MOS standards for *Independent Parallel Visual Approaches*, *Dependent Parallel Visual Approaches*, or *Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)* – Subsections 10.4.5, 10.4.6 and 10.4.8 respectively.

Previous consultations

In 2013, CASA amended the MOS section 10.4.2 standards for independent parallel approaches in IMC. The amendment was specifically to omit the prescriptive scan rate and azimuth accuracy requirements for an ATS surveillance system used by ATC for these approaches, and instead require the use of any surveillance system demonstrably suitable, by technical and safety assessment, for such approach operations.

Impact on industry

The changes proposed under this amendment do not alter any existing flight paths or flight procedures; or movement limits at aerodromes to which they apply - particularly Sydney - Kingsford Smith Airport. Unless separate change action (consultation, safety assessment etc) is completed for changes to flight paths or movement limits, the only change brought about by this amendment is to allow GLS, RNP-AR or APV to be used instead of ILS for final approach guidance.

The changes provide flexibility to optimise flight paths and approach procedures in the future. Again, this is strictly subject to separate and specific change action.

Accordingly, CASA considers the changes on their own as having no adverse impact on local communities in the vicinity of aerodromes.

For aircraft operators, the changes are negligible to favourable - depending on the operator's preference or capability to utilise flight guidance methods other than ILS. For operators preferring, or only able, to utilise ILS – the change is negligible and ILS will continue to be utilised for operations to parallel runways. For operators able to and preferring to use GLS (and potentially in the future — RNP-AR or APV) for flight guidance, the change is favourable.

For ATS providers, the ICAO standards have some minor technical differences compared to the existing MOS standards. If the ATS provider does not implement the additional approach or flight guidance capabilities, there will be the following new requirements:

- ATC would need to vector aircraft so that they are established on the approach track final approach course or track, in level flight for at least 2.0 NM prior to intercepting the glide path.
 - This differs from the existing standard which merely requires aircraft to be cleared to descend to the appropriate glide path intercept altitude soon enough to provide a *period of level flight* to dissipate excess speed.
- There would no longer be a requirement for ATC to ensure a minimum of 1 000 ft vertical separation or 2 NM surveillance separation between aircraft on adjacent localiser until the higher aircraft reaches the ILS PRM glide path intercept point
 - There is no equivalent standard in PANS-ATM.
- In event of a missed approach, ATC would have to monitor the approach until the aircraft is at least 1NM beyond the departure end of runway (DER)
 - The current standard only requires monitoring until the aircraft is 0.5NM beyond the DER.
- The current standard allows monitoring to be discontinued:
 - for runways separated by 1 525 m or less — if the aircraft reports the approach lights in sight

- for runways separated by more than 1 525 m (not applicable at Sydney), the aircraft is 1 NM or less from the runway threshold
- In both cases, PANS-ATM has no equivalent provision.

For the ATS provider, these differences require changes to the operational documentation (particularly for Sydney ATC) and differences training for affected controllers. However, Airservices Australia wrote to CASA specifically requesting the changes covered by this consultation. Therefore, CASA considers the implementation issues as already known and deemed unlikely to cause a negative operational impact.

Safety risk analysis

The new ICAO standards for operations on parallel or near parallel runways were developed over a period of several years by an international panel of experts. Changes were subject to ICAO's safety scrutiny and consultation with the global aviation community. Accordingly, CASA has accepted the design safety of the new ICAO procedures for operations on parallel or near parallel runways.

Unless the ATS provider implements aspects of the new standards additional to those already in use, CASA also accepts the operating and safety design of the existing parallel runway operations at Sydney and does not expect anticipate any further safety risk analysis.

CASA expects the ATS provider to apply its approved safety management system processes for any implementation of the new standards additional to those already in use.

Regulation impact statement

CASA will consider the responses to this Summary of Proposed Change and submit a Preliminary Assessment to the Office of Best Practice Regulation (OBPR) outlining the impact of the proposed amendments. CASA will prepare a Regulation Impact Statement if required by the OBPR.

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 MOS Part 172 amendments should be submitted through the online response form by close of business 1 May 2019.