



Australian Government
Civil Aviation Safety Authority

Instrument number CASA 05/09

I, MICHAEL DAVID QUINN, Deputy Chief Executive Officer, Operations, a delegate of CASA, make this instrument under regulation 179A of the *Civil Aviation Regulations 1988*.

A handwritten signature in black ink, appearing to read 'Mick Quinn', written over a circular stamp or seal.

Mick Quinn
Deputy Chief Executive Officer
Operations

12 January 2009

Instructions — use of RNAV (GNSS) approaches by RNP-capable aircraft

1 Duration

This instrument:

- (a) commences on the day after it is registered; and
- (b) stops having effect at the end of January 2011.

2 Application

This instrument applies to the conduct of RNAV (GNSS) approaches by **Qantas Airways Limited**, Aviation Reference Number 216147 using Airbus A380 aircraft with an RNP-capable RNAV system.

3 Instructions

I issue the instructions in Schedule 1.

4 Definitions

In this instrument:

AFM means the aircraft flight manual.

approved navigation database means a navigation database on a medium approved by the manufacturer of the aircraft as suitable for use with the aircraft.

FAF means final approach fix.

FCOM means the flight crew operations manual.

FLS means the FMS landing system, a function that provides the flight crew with cockpit guidance to fly a non-precision approach in an ILS look-alike way.

FMA means flight mode annunciator.

FMS means the aircraft's flight management system.

GNSS means the Global Navigation Satellite System, a satellite navigation system used by a pilot on board an aircraft to determine position from satellite data.

GPS means the United States Government satellite navigation system known as the Global Positioning System.

LSALT means lowest safe altitude.

MSA means minimum safe altitude.

navigation database means electronic data such as waypoints, altitudes, constraints and similar details as coded and entered into the FMS from time to time.

operator means Qantas Airways Limited (**Qantas**), Aviation Reference Number 216147.

RNAV (GNSS) approach means an area navigation instrument approach procedure.

RNP means the required navigation performance as displayed to the pilot in command by the FMS.

RNP-capable RNAV system means an area navigation system, fitted to an aircraft, which the AFM states is capable of meeting RNP 0.3 requirements.

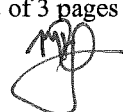
Schedule 1 Instructions

1 Use of RNP capability for RNAV (GNSS) approaches

The pilot in command of an aircraft operating under the I.F.R. may use an RNP-capable RNAV system in accordance with these instructions as a non-precision approach I.F.R. navigation aid for a published RNAV (GNSS) approach procedure, including a related missed approach procedure.

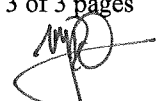
2 Requirements

- (1) The AFM must contain a statement that the aircraft is capable of meeting the RNP 0.3 requirements.
- (2) The operator must maintain and validate the FMS navigation database in accordance with the manufacturer's procedures.
- (3) The operator must:
 - (a) have a means of predicting the availability and integrity of GPS satellites;
and
 - (b) make the relevant information available to flight crews before flight.
- (4) Subject to these instructions, the pilot in command must ensure that RNAV (GNSS) approaches are flown in accordance with the procedures published in the FCOM and other Qantas A380 operations manuals and instructions.
- (5) RNAV (GNSS) must not be used to satisfy any of the requirements for alternate aerodrome planning.
- (6) RNAV (GNSS) must not be used as a navigation reference for flight below the LSALT or MSA, except in accordance with an RNAV (GNSS) approach.
- (7) RNAV (GNSS) approach charts must be verified by the operator before use.



3 Procedures

- (1) The pilot in command must ensure that RNAV (GNSS) approaches are flown in accordance with authorised instrument approach procedures validated by the operator.
 - (2) The pilot in command must use, wherever practicable, a managed approach instead of a selected approach. The pilot in command must ensure that all approach chart altitude requirements are complied with.
 - (3) If the pilot in command elects to fly the aircraft using the FLS function, he or she must check that:
 - (a) the slope of the FLS beam is no less than the slope depicted on the RNAV (GNSS) approach chart; and
 - (b) the course of the FLS beam is the same as the course depicted on the RNAV (GNSS) approach chart; and
 - (c) the anchor point of the FLS beam is at the runway threshold, if continued use of the FLS deviation scales for advisory purposes is to be used below the MDA; and
 - (d) F-APP is displayed on the FMA.
 - (4) The pilot in command must ensure that a vertical approach path remains above the vertical limitations published in the approach chart.
 - (5) The pilot in command must discontinue an RNAV (GNSS) approach if an RNP of 0.3 or less cannot be maintained from the FAF, or if the vertical flight path cannot be maintained above the vertical limitations published in the approach chart.
-



Explanatory Statement

Civil Aviation Regulations 1988

Instructions — use of RNAV (GNSS) approaches by RNP-capable aircraft

Legislation

Section 98 of the *Civil Aviation Act 1988* (the *Act*) provides that the Governor-General may make regulations for the Act and in relation to the safety of air navigation.

Under subregulation 179A (1) of the *Civil Aviation Regulations 1988* (**CAR 1988**), CASA may issue instructions in relation to Instrument Flight Rules (**I.F.R.**) flights specifying the method by which an aircraft is to be navigated and how a positive position fix is to be obtained.

ICAO rule changes

It is Australian aviation policy that instrument flight procedures should conform to the International Civil Aviation Organisation (**ICAO**) design rules (ICAO Document 8168, commonly referred to as PANS-OPS). **RNAV (GNSS) approach** means an area navigation instrument approach procedure. Approximately 450 RNAV (GNSS) approaches designed in accordance with PANS-OPS have been commissioned at 260 aerodromes across Australia. Those procedures are designed to be flown by aircraft equipped with self-contained GPS receivers.

However, most modern Australian turbo-jet airline aircraft are equipped with computerised flight management systems (**FMS**) that are more sophisticated than the Global Navigation Satellite System (**GNSS**) navigation equipment. Such aircraft use GNSS positioning to update multiple inertial reference systems (**IRS**) employing self-contained laser guided gyroscopes. These navigation systems are designed to comply with Required Navigation Performance (**RNP**) standards, and the operating procedures and cockpit displays are related to the RNP capability of the aircraft rather than to a specific GNSS receiver used by other less sophisticated aircraft.

On 25 November 2004, ICAO amended the criteria for RNP approach procedure design to reduce the obstacle clearance widths for RNP procedures. For aircraft capable of RNP 0.30, the new ICAO criteria require a lesser obstacle clearance area than is the case for aircraft using the “basic” GNSS receivers on which current RNAV (GNSS) approach procedures are based. Consequently, all existing RNAV (GNSS) approach procedures can now be flown by RNP 0.30-capable aircraft without further analysis or design of the instrument approach procedure for each type of aircraft.

The instrument, therefore, contains procedures to allow for the conduct of RNAV (GNSS) approaches by Qantas Airways Limited (**Qantas**) in Airbus A380 aircraft capable of RNP 0.30 performance (the **specified aircraft**). The RNP capability of an aircraft is specified in the aircraft’s flight manual (**AFM**) and displayed to the flight crew by the FMS.

RNAV (GNSS) approach procedures provide improvements in safety by allowing runway-aligned straight-in approaches, the use of automated flight systems, and vertical navigation. The instrument allows RNP 0.30-capable aircraft to use existing RNAV approach

procedures, thereby providing straight-in approach capability at almost every runway in Australia. This offers a significant safety benefit to those operations.

Conditions and procedures

The instrument sets out the conditions to be satisfied by Qantas and its specified aircraft for the approval to apply, and the procedures to be followed, during an RNAV (GNSS) approach.

For example, the AFM must expressly state that the aircraft is capable of meeting the requirements of RNP 0.30. RNAV must not be used to satisfy the requirements of alternate aerodrome planning, or used as a navigation reference for certain flights. The aircraft must be operated in accordance with the manufacturer's instructions. Although not required to be expressly stated, as a matter of law the flight crew must also comply with the relevant instrument rating requirements under Civil Aviation Order 40.2.1, and with the approved tests and checks under the training and checking organisation requirements in regulation 217 of CAR 1988.

Under the procedures, the pilot in command must ensure that RNAV (GNSS) approaches are flown in accordance with authorised instrument approach procedures validated by the operator. The pilot in command must ensure that a vertical approach path remains above the vertical limitations published in the approach chart. The pilot in command must discontinue the approach if an RNP of 0.3 cannot be maintained from the final approach fix.

Legislative Instruments Act

Subregulation 179A (3A) of CAR 1988 declares instructions to be a disallowable instrument. Under subparagraph 6 (d) (i) of the *Legislative Instruments Act 2003* (the *LIA*), an instrument is a legislative instrument for section 5 of the LIA if it is declared to be a disallowable instrument in legislation in force before the commencement of the LIA. The instructions are, therefore, a legislative instrument and are subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

Consultation

Consultation under section 17 of the LIA has not been undertaken in this case. The instrument is closely resembles the instruments issued for the same purpose to Qantas in respect of Boeing 737-800 aircraft (CASA 398/08) and Airbus A330 aircraft (CASA 89/07) requirements. In accordance with the ICAO standard, a similar instrument would be issued to any operator whose relevant aircraft can meet these exacting standards of navigation performance and are expressly endorsed as such by their manufacturer.

The instrument commences on the day after it is registered and stops having effect at the end of January 2011.

The instrument has been made by a delegate of CASA under subregulation 7 (1) of CAR 1988.

[Instrument number CASA 05/09]