



Australian Government  
Civil Aviation Safety Authority

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# Preliminary Airspace Review Of Dubbo, NSW

March 2018

CIVIL AVIATION SAFETY AUTHORITY

*safe skies for all*

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1.0	Final	March 2018

## 1 EXECUTIVE SUMMARY

1.1 The *Airspace Act 2007* (Act)<sup>1</sup> provides the Civil Aviation Safety Authority (CASA) with the authority to administer and regulate Australian-administered airspace and obligates CASA to conduct regular reviews of the existing classifications of Australian-administered airspace. The Office of Airspace Regulation (OAR) conducted a Preliminary Airspace Review (the Review) of the airspace arrangements and classifications in the vicinity of Dubbo Airport (Dubbo) to determine if the airspace remains fit for purpose.

1.2 This review applies the CASA regulatory philosophy which considers the primacy of air safety but also takes account of all relevant considerations including cost.

1.3 An assessment of airspace incidents and feedback from stakeholders concluded there were no risks that required changes to the existing airspace architecture around Dubbo. However, the review has noted that further education and training programs focussed on procedures and the importance of pilot to pilot communication may be beneficial to airspace users and improve the safety of air navigation around Dubbo.

1.4 There has been an increase in aircraft movements at Dubbo following the steady introduction of additional passenger transport (PT)<sup>2</sup> capacity over the past few years. The Dubbo Airport Masterplan<sup>3</sup> forecasts PT aircraft movements from 2018 to 2020 to remain approximately at the current capacity.

1.5 Stakeholder feedback is primarily focussed on improving efficiency and shared use of the airspace in the vicinity of Dubbo.

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<sup>1</sup> A full list of acronyms and abbreviations used within this report can be found at Annex A.

<sup>2</sup> For the purposes of this study, PT services can be defined as activities involving regular public transport and all non-freight-only charter operations.

<sup>3</sup> Aircraft movement forecasts for Dubbo Airport contained within Dubbo City Regional Airport Master Plan 2015 – 2036.

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## 2 INTRODUCTION

2.1 Under Section 11 and 12 of the *Airspace Act 2007* (Act), the Civil Aviation Safety Authority (CASA) has responsibility for the administration and regulation of Australian-administered airspace. In carrying out these responsibilities CASA must give primacy to aviation safety and must:

- foster efficient use of Australian-administered airspace,
- foster equitable access to that airspace for all users of that airspace,
- take into account national security, and
- take into account protection of the environment.

2.2 CASA conducted a review of airspace in the vicinity of Dubbo in June 2009<sup>4</sup>. Recent increases in passenger transport movements identified the need for the Office of Airspace Regulation (OAR) to conduct this preliminary airspace review to ensure that the airspace architecture remains appropriate for the operations within the area.

### 2.3 Purpose

2.3.1 The purpose of the Preliminary Airspace Review of Dubbo was to analyse airspace activity, consult with airspace users/stakeholders and assess incident data to determine if there were any risks to the safety of air navigation around Dubbo that would require changes to the existing airspace architecture.

### 2.4 Process

2.4.1 The review process included:

- analysis of aircraft movement data;
- analysis of aircraft incident data provided by the Australian Transport Safety Bureau (ATSB) and Airservices Australia (Airservices);
- analysis of the nature of aircraft operations in the area;
- assessment of any issues related to airspace efficiency or airspace access;
- assessment of the appropriateness of the Air Traffic Services (ATS) and procedures within the review area;
- identification of any threats or risks to the safety of air navigation;
- assessment of the suitability of the existing airspace architecture;
- feedback from stakeholders and airport management;
- feedback from specialist staff within CASA; and
- identification of any threats or risks to the safety of aircraft operations.

### 2.5 Scope

2.5.1 The scope of this review is limited to airspace within 20 nautical miles (nm) of Dubbo below 8,500 feet (ft) above mean sea level (AMSL). The review did not assess operational matters or infrastructure issues. Some feedback was provided by the CASA Stakeholder Engagement Division following the aviation safety seminar (April 2017).

## 3 BACKGROUND

### 3.1 Overview of Australian airspace classifications

3.1.1 Australian airspace classifications accord with Annex 11 of the International Civil Aviation Organization (ICAO) and include Class A, C, D, E, and G depending on the level of service required to safely and effectively manage aviation activity. Class B and Class F airspace is not currently used in Australia. Each class of airspace determines the type and nature of aviation operations permitted in that airspace. Annex B provides details of the classes of airspace used in Australia.

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<sup>4</sup> The report is available on the CASA website <https://www.casa.gov.au/files/dubboreviewpdf>

3.1.2 Dubbo aerodrome is located within Class G airspace and is designated as an uncontrolled aerodrome where Common Traffic Advisory Frequency (CTAF) procedures apply. Class E airspace with a Lower Level (LL) of Flight Level (FL) 125 is above the aerodrome, stepping up to a LL of FL 180 in the airspace adjacent to the aerodrome. Class A airspace is established above FL 245 (see Figure 1).

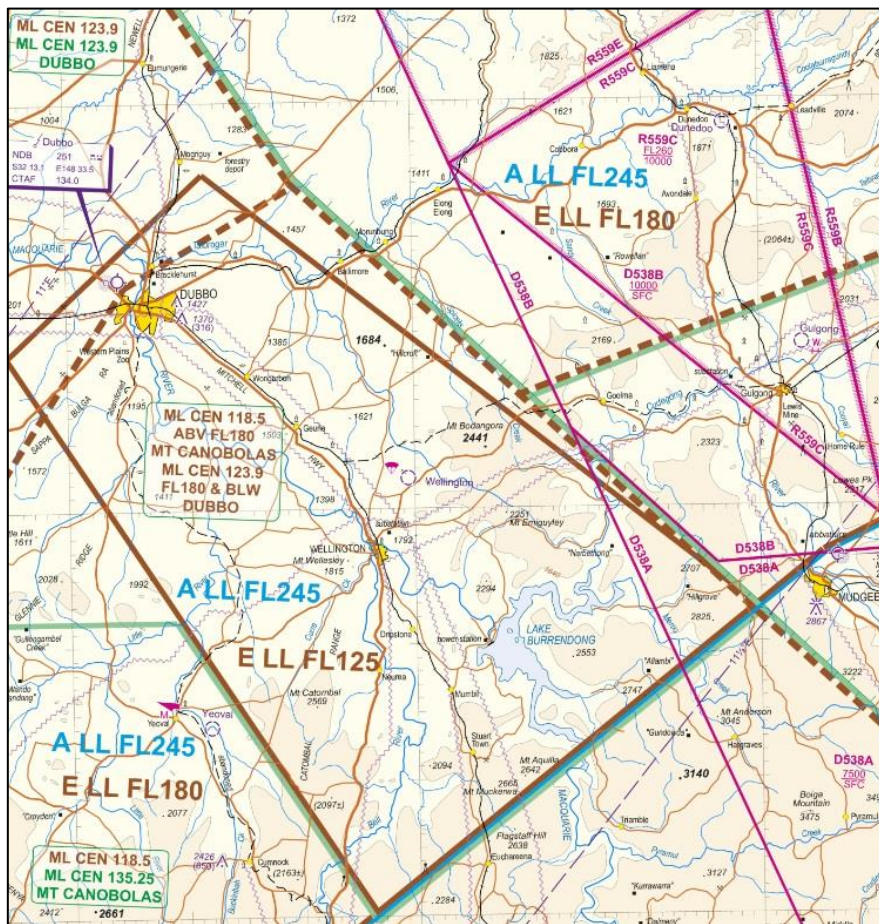


Figure 1: Extract of Newcastle Visual Navigation Chart (VNC)  
(Airservices: Effective date 25 May 2017).

3.1.3 There are a number Restricted Areas (RAs) and Danger Areas (DAs) adjacent to the Dubbo review area. Department of Defence is the controlling authority or nominated contact for these areas. These areas have not been considered in this review given they are located outside the review area.

## 3.2 Aerodrome

3.2.1 Dubbo is a certified aerodrome located five kilometres North West of Dubbo on the Mitchell Highway (see Figure 2). The aerodrome supports regular passenger transport services between Dubbo, Sydney, Newcastle, Canberra, Brisbane, Melbourne and other western ports such as Cobar and Broken Hill. Passenger transport (PT) operators include Regional Express (REX), QantasLink, Aero Pelican (Pelican) and JetGo.

3.2.2 Dubbo is one of busier regional aerodromes in Australia with approximately 40 PT flights per day. The aerodrome is also home to a charter flight organisation called Airlink which also provides the PT services on behalf of REX.

3.2.3 Dubbo is the regional headquarters for the Royal Flying Doctor Service (RFDS) and supports general aviation, flight training and airfreight operations.



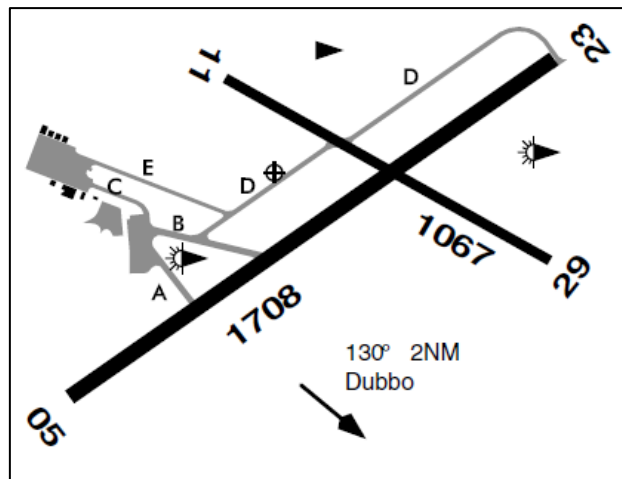


Figure 2: Extract of En Route Supplement Australia (ERSA)  
(Airservices: Effective date 25 May 2017).

### 3.3 Air Navigation Service Providers in the vicinity of Dubbo

3.3.1 Dubbo is used by visual flight rules (VFR) and instrument flight rules (IFR) aircraft and is an uncontrolled aerodrome subject to CTAF procedures in accordance with Civil Aviation Regulation (CAR) 166. ATS in the controlled airspace above Dubbo are provided by Airservices from the Melbourne ATS Centre. All aircraft within Class G airspace around Dubbo are required to communicate using the CTAF 134.0 to enhance situational awareness and reduce the risk of a mid-air collision. An Aerodrome Frequency Response Unit (AFRU) provides confirmation to pilots that they are on the correct radio frequency.

### 3.4 Surveillance

3.4.1 Airservices has no radar coverage in the vicinity of Dubbo below 5,000 ft AMSL. The Automatic Dependent Surveillance-Broadcast (ADS-B) area of coverage does not extend below 5,000 ft AMSL in the vicinity of Dubbo. Therefore, there is no surveillance coverage of any kind below 5,000 ft AMSL around Dubbo. There is limited and inconsistent ADS-B coverage to the south west of Dubbo at 10,000 ft AMSL. Reliable surveillance coverage is only available over Dubbo above FL150. The OAR determined that there is currently no safety justification or risk to the safety of air navigation around Dubbo below FL150 that justifies the need for additional surveillance coverage.

### 3.5 Dubbo aircraft movements

3.5.1 Total aircraft movements at Dubbo increased from 20,530 in March 2016 to 23,503 in March 2017 (14% growth) growing a further 1,400 to an annualised result of 24,968 in September 2017. The growth has primarily resulted from an increase in PT services. The OAR will monitor this trend in aircraft movements to ensure there are no future risks to the safety of air navigation that result from increasing volume or complexity if aviation activity. However, the Dubbo Airport Masterplan<sup>5</sup> forecasts minimal growth in aircraft movements until 2020.

### 3.6 Air navigation procedures

3.6.1 Airservices manages IFR aircraft operating in the vicinity of Dubbo inside Class E airspace above FL125. These services are provided by Melbourne ATS Centre. An IFR aircraft in Class E is separated from other IFR aircraft and are also provided with a traffic information service as far as practicable on VFR traffic. All aircraft require a VHF radio and must have a transponder. However, VFR aircraft do not require a clearance from air traffic control to enter Class E airspace. Aircraft operating in Class G airspace in the vicinity of

<sup>5</sup> Aircraft movement forecasts for Dubbo Airport contained within Dubbo City Regional Airport Master Plan 2015 - 2036

Dubbo must do so in accordance with CAR166, “operations in the vicinity of an uncontrolled aerodrome”.

## 4 AVIATION INCIDENTS

### 4.1 Summary of incidents

4.1.1 This review has determined there were 240 incidents in the review area between 1 January 2010 and 1 January 2017 (see Table 1) and 14 (5.7%) were categorised as airspace related.

4.1.2 The 14 airspace related incidents were categorised as follows:

- Errors in pilot procedures,
- Failures in see and avoid procedures, and
- Communication failures.

4.1.3 Analysis of airspace incidents revealed that most incidents were caused by human error and mainly related to pilots not using the correct frequency. The analysis also identified issues generated by poor airmanship where pilots failed to communicate their intentions resulting in runway incursions or other aircraft having to take avoiding action.

Year	2010	2011	2012	2013	2014	2015	2016	
Airspace	1	2	2	1	3	3	2	14
Infrastructure	1	0	0	0	0	0	0	1
Consequential Events	1	0	0	0	0	0	0	1
Technical	7	2	8	4	6	4	5	36
Environment	16	13	18	22	17	14	26	126
Operational	5	10	7	5	6	6	9	48
Fuel Related	0	1	0	0	0	0	0	1
Powerplant/ Propulsion	0	0	3	1	5	2	2	13
Totals	31	28	38	33	37	29	44	240

Table 1: Dubbo Accident, Serious Incidents and Incidents.

## 5 KEY ISSUES AND FINDINGS

5.1 **Issue:** Aircraft operators raised concern about alleged incorrect position reporting by some PT operators in order to manage the circuit traffic and obtain priority.

5.2 **Finding:** Local airspace users will give priority to PT aircraft if possible and safe to do so. There was no evidence of this practice and the issue was not widely reported.

5.3 **Outcome:** This practice is not supported by the PT operators and they will ensure that it does not happen.

5.4 **Issue:** Some local operators indicated that there were occasions where aircraft were using the incorrect frequency (126.7 instead of the Dubbo discrete CTAF).

5.5 **Finding:** The OAR was unable to find any evidence of this issue but sufficient feedback from local operators supported the view that there were occasions when aircraft were using the wrong frequency.

5.6 **Outcome:** CASA safety education provide safety seminars and information sessions to improve pilot awareness about radio communication and frequency selection in the vicinity of an uncontrolled aerodrome.

5.7 **Issue:** The close proximity of Dubbo to Narromine aerodrome generated some concern that situational awareness is being impaired due to the separate frequencies at each location.



5.8 **Finding:** The option of developing a broadcast area with one frequency to cover both locations was considered but lacked support due to concerns over frequency congestion given Narromine often hosts sports aviation and gliding events adjacent to the Dubbo CTAF.

5.9 REX has established a local procedure to ensure they are vertically well clear of aircraft in the vicinity of Narromine when departing Dubbo.

5.10 **Outcome:** Local operators at Dubbo and Narromine should ensure that operators at each location are aware of the potential for aircraft to be operating on different frequencies in close proximity to each other and should consider the limitations of 'see and avoid'. Airspace users at both locations should conduct regular airspace user meetings and attend the CASA safety seminars to identify and discuss risks caused by close proximity aerodromes and procedures. ERSA entries should include a notice to all operators at Dubbo and Narromine about the proximity of each aerodrome and publish any local procedures that may reduce risks to airspace users.

5.11 **Issue:** The OAR airspace modelling analysis highlighted a potential risk to the safety of air navigation, when aircraft operating within Class G airspace in the vicinity of the area navigation (RNAV) initial fixes to runway 05/23 at Dubbo may come into conflict with an aircraft flying the approach.

5.12 **Finding:** An airspace separation incident between a descending PT aircraft and an unidentified aircraft under the circumstances described above was reported to the ATSB. Whilst scant detail only was available the incident highlighted the potential risks to aircraft operating in Class G airspace adjacent to the CTAF in the vicinity of instrument approach waypoints and fixes.

5.13 **Outcome:** Operators at Dubbo should ensure that they are aware of the potential for aircraft to be operating on different frequencies in close proximity to each other and should consider the limitations of 'see and avoid'. Airspace users should conduct regular airspace user meetings and attend the CASA safety seminars to identify and discuss these potential risks. ERSA entries should include a notice to all operators about the issue and publish any local procedures that may reduce risks to airspace users.

5.14 **Issue:** The RNAV approaches into Narromine and Dubbo overlap each other and aircraft each approach may be operating in close proximity to each other on separate frequencies.

5.15 **Finding:** The runway 29 RNAV approach into Narromine has not been published, therefore the issue no longer exists.

## 6 CONCLUSION

6.1 CASA has conducted an analysis of aircraft movements and incidents in the vicinity of Dubbo and concluded that the existing airspace architecture is fit for purpose. Feedback from airspace users around Dubbo indicated that an improvement in airmanship and frequency management would enhance situational awareness and safety in the region for all airspace users.

6.2 CASA will continue to provide education and safety information seminars at Dubbo to improve awareness by all airspace users about operations in the vicinity of a non-controlled aerodrome and to enhance awareness of issues related to the close proximity of Narromine aerodrome. There was insufficient support for the establishment of a broadcast area using a dedicated frequency to cover Dubbo and Narromine airspace users.

## ANNEX A – ACRONYMS AND ABBREVIATIONS

Acronym/abbreviation	Explanation
Act	<i>Airspace Act 2007</i>
ADS-B	Automatic Dependent Surveillance - Broadcast
Airservices	Airservices Australia
ALA	Aircraft landing area
ALARP	As Low As Reasonably Practicable
AMSL	above mean sea level
ANSP	Air navigation service provider
ASA	Aviation Safety Advisor
ASIR	Aviation Safety Incident Report
ATC	Air Traffic Control
ATS	Air Traffic Services
ATSB	Australian Transport Safety Bureau
CASA	Civil Aviation Safety Authority
CTA	Control Area
CTAF	Common Traffic Advisory Frequency
DA	Danger Area
Defence	Department of Defence
Dubbo	Dubbo Airport
ERSA	En Route Supplement Australia
ft	feet
FL	Flight Level
GA	general aviation
H24	24 Hours per day
ICAO	International Civil Aviation Organization
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
kt	knots
Narromine	Narromine Aerodrome
nm	nautical miles
OAR	Office of Airspace Regulation
PT	passenger transport
QRIR	Quarterly Risk Indicator Review
RAAF	Royal Australian Air Force
RA	Restricted Area
RAPAC	Regional Airspace and Procedures Advisory Committee
RNAV	Area Navigation
SEG	Stakeholder Engagement Group
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNC	Visual Navigation Chart
VTC	Visual Terminal Chart

## ANNEX B – AUSTRALIAN AIRSPACE STRUCTURE

Class	Description	Summary of Services/Procedures/Rules
<b>A</b>	All airspace above Flight Level (FL) 180 (east coast) or FL 245	Instrument Flight Rules (IFR) only. All aircraft require a clearance from Air Traffic Control (ATC) and are separated by ATC. Continuous two-way radio and transponder required. No speed limitation.
<b>B</b>	Not currently used in Australia.	
<b>C</b>	In control zones (CTRs) of defined dimensions and control area steps generally associated with controlled aerodromes	All aircraft require a clearance from ATC to enter airspace. All aircraft require continuous two-way radio and transponder. IFR separated from IFR, VFR and Special VFR (SVFR) by ATC with no speed limitation for IFR operations. VFR receives traffic information on other VFR but is not separated from each other by ATC. SVFR are separated from SVFR when visibility (VIS) is less than visual meteorological conditions (VMC). VFR and SVFR speed limited to 250 knots (kt) indicated air speed (IAS) below 10,000 feet (ft) Above Mean Sea Level (AMSL)*.
<b>D</b>	Towered locations such as Bankstown, Parafield, Archerfield, Parafield and Alice Springs.	All aircraft require a clearance from ATC to enter airspace. For VFR flights this may be in an abbreviated form. As in Class C airspace all aircraft are separated on take-off and landing. All aircraft require continuous two-way radio and are speed limited to 200 kt IAS at or below 2,500 ft within 4 NM of the primary Class D aerodrome and 250 kt IAS in the remaining Class D airspace**.IFR are separated from IFR, SVFR, and are provided with traffic information on all VFR. VFR receives traffic on all other aircraft but are not separated by ATC. SVFR are separated from SVFR when VIS is less than VMC.
<b>E</b>	Controlled airspace not covered in classifications above	All aircraft require continuous two-way radio and transponder. All aircraft are speed limited to 250 kt IAS below 10,000 ft AMSL*, IFR require a clearance from ATC to enter airspace and are separated from IFR by ATC, and provided with traffic information as far as practicable on VFR. VFR does not require a clearance from ATC to enter airspace and are provided with a Flight Information Service (FIS). On request and ATC workload permitting, a Surveillance Information Service (SIS) is available within surveillance coverage.
<b>F</b>	Not currently used in Australia.	
<b>G</b>	Non-controlled	Clearance from ATC to enter airspace not required. All aircraft are speed limited to 250 kt IAS below 10,000 ft AMSL*. IFR require continuous two-way radio and receive a FIS, including traffic information on other IFR. VFR receive a FIS. On request and ATC workload permitting, a SIS is available within surveillance coverage. VHF radio required above 5,000 ft AMSL and at aerodromes where carriage and use of radio is required.

\* Not applicable to military aircraft.

\*\*If traffic conditions permit, ATC may approve a pilot's request to exceed the 200 kt speed limit to a maximum limit of 250 kt unless the pilot informs ATC a higher minimum speed is required.

## ANNEX C – REFERENCES

- Aeronautical Information Publication – May 2017
- *Airspace Act 2007*
- Airspace Regulations 2007
- Australian Airspace Policy Statement – 2015
- DAP East – Effective 25 May 2017
- Designated Airspace Handbook – May 2017
- En route Supplement Australia – March 2017
- Dubbo City Regional Airport Master Plan 2015 - 2036