5LNC Challenges in Australia

10 June 2025

Topics

- **5LNC Duplication Update**
- **Shortage of Pronounceable 5LNCs**
- **Importance of Independent Checks**
- **Western Sydney Airport Case Study**
- **Key Takeaways**
- **Open Discussion**

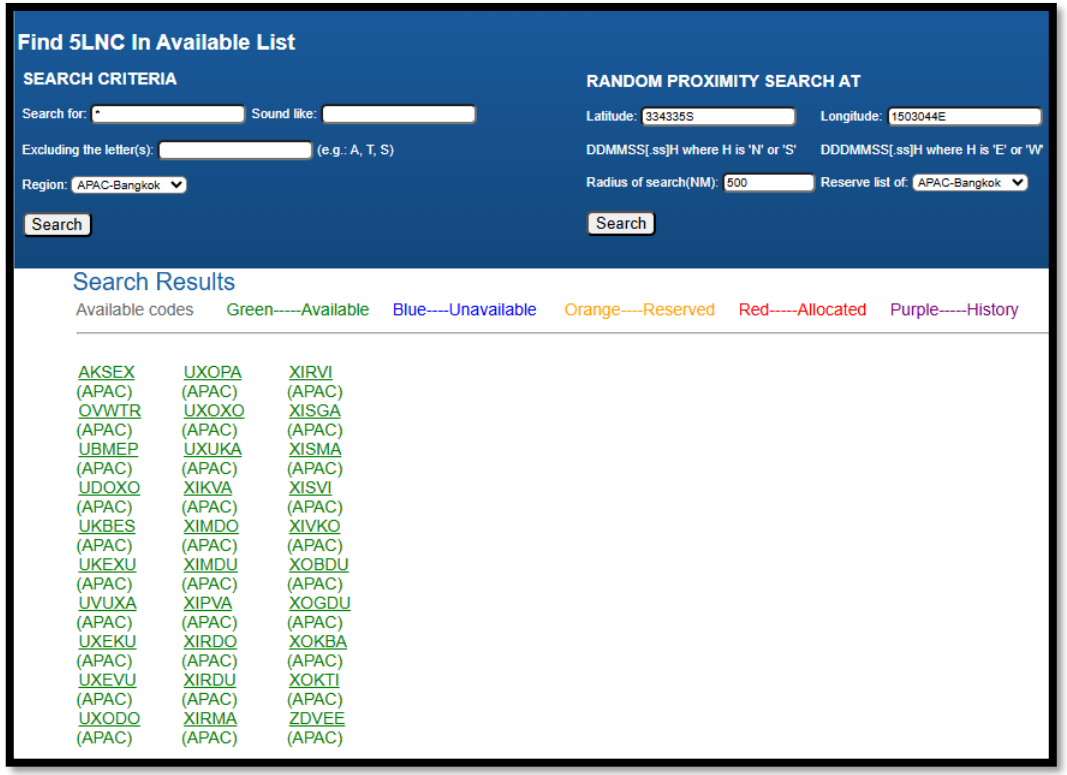
5LNC Duplication Resolution

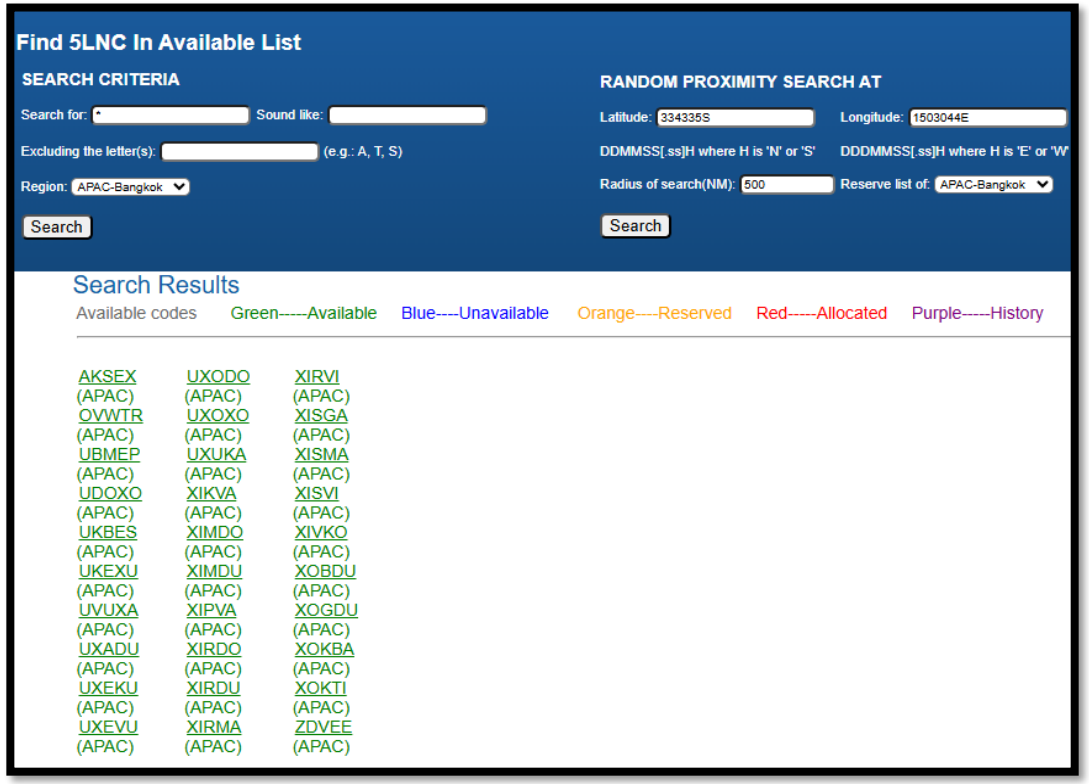
- Australia, like many states in the APAC region, has significantly progressed the replacement of duplicated ICAO waypoints in the past 2 years.
- 604 out of the 784 ICAO 5LNC duplicated waypoints have been replaced.
- Australia's progress on replacing the outstanding 180 duplicated waypoints has unfortunately slowed down considerably due to 2 main reasons:
  - Limited availability of suitable replacement IDENTs
  - Pushback from industry participants on the replacement of critical legacy SID and STAR points. The sentiment is that these points are used very frequently and are commonly known by all airspace users. It is envisaged that the risk of replacing these well-known points with less pronounceable non-duplicated IDENTs exceeds the current operational risk.

Has this also been experienced by other states whilst carrying out ICAO duplication waypoint resolution?

Shortage of Pronounceable 5LNCs

Most of the available identifiers start with the letter "X" (see below screenshot) which is considered ambiguous and non-pronounceable in Australia. Refreshing the available list presents barely any new IDENTs which suggests that these are the last available IDENTs.





Australia has successfully used unpronounceable 5LNC IDENTs as center-fixes of airspace arcs. These points are not pronounced operationally but enable ENR charts and Airspace definitions to be simplified and uncluttered. Example: WPT UXUTI replaced the NOWRA TACAN as the center fix for the YMMM/YBBB FIR.

Importance of Independent Checks

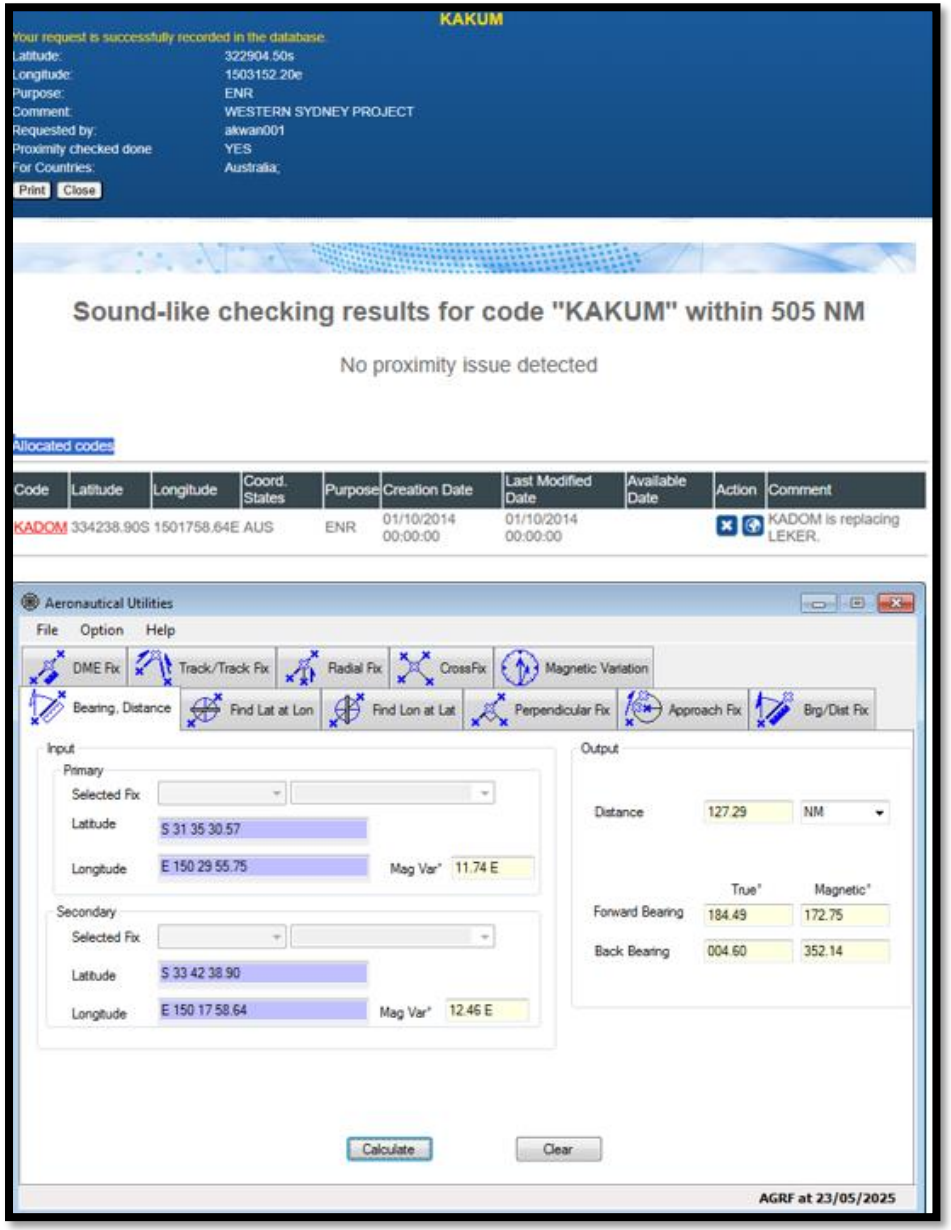
As per Annex 11 para 3.1 - 3.5, it is the data manager's responsibility to ensure 5LNCs are unique, unambiguous and pronounceable.

The ICARD proximity tool should form part of a rigorous independent checking process to ensure that false negative returns are identified.

The Australian AIS uses a combination of ICARD/SKYVECTOR/Australian AERODB and JEPPs file to identify potential issues.

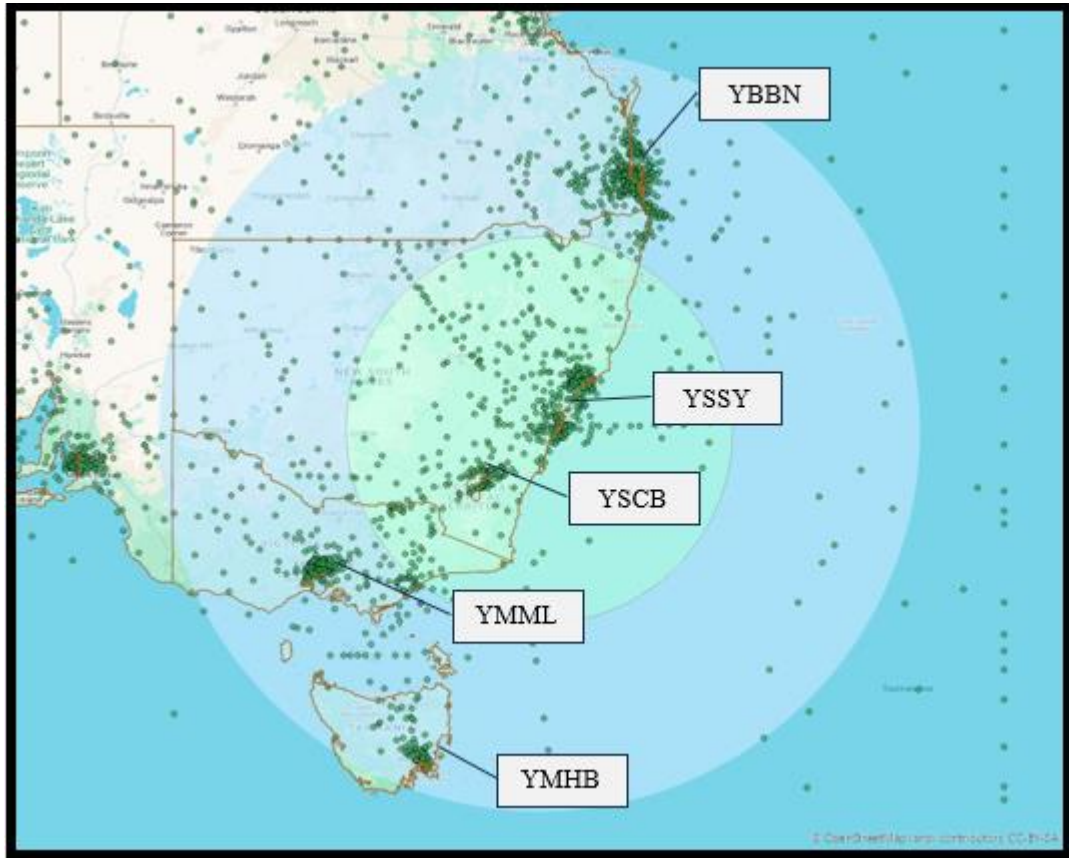
The chosen IDENTS are then further assessed and endorsed by the relevant ATC Procedure SMEs (This assessment involves consultation with ATC groups to identify potential conflicts)

Are there other measures that are being employed by APAC states?



Western Sydney Airport Case Study – The Challenge

- Western Sydney International Airport is planned to be operation in mid-2026. Over the past few months our airspace and flight procedure design team have been redesigning the Sydney airspace.
- Required 198 5LNC waypoints in the most ICAO 5LNC dense area in Australia and as such presented the AIS team with a significant challenge.



Western Sydney Airport Case Study - The Challenge

Initial 5LNC requirements from WSIA Airspace Designers

Waypoint Use	Number Required
Enroute	47
Terminal	151

At that time, the rule set in Australia was to apply a 500NM proximity radius check to all 5LNC reservations regardless of waypoint use. This was a historical measure to enable airspace designers to use any 5LNC waypoint for either ENR or TERM purposes.

Western Sydney Airport Case Study – Desktop Exercise

AIS performed a desktop exercise to evaluate if the required 5LNC waypoints could be sourced.

At this early design phase, the coordinates of 163 of the 198 new waypoints were known.

AIS randomly assigned available IDENTs from the available pool to the confirmed coordinates and carried out proximity checks @ 500NM and 300NM proximity radii, yielding the following results.

Proximity Radius	Run 1 (# WPT passing proximity check)	Run 2 (# WPT passing proximity check)
500 NM	28	23
300 NM	77	73

The average pass rate for 500NM was 17% and at 300NM it was 46%.

Our conclusion was that it would not be possible to source 169 new 5LNC IDENTs in the Sydney basin if 500NM proximity radius was applied.

Western Sydney Airport Case Study – The Solutions

Following the outcome of the desktop exercise, the following measures were put in place to satisfy the waypoint requirement for the WSIA airspace redesign.

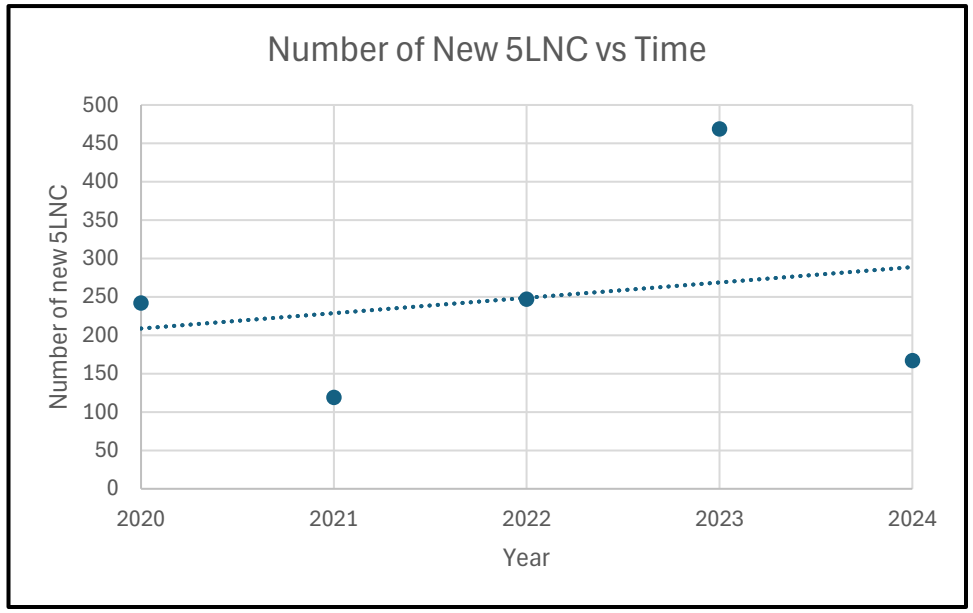
- Local procedures amended to require 500NM radius proximity checks for ENR WPT and 250NM radius proximity checks for TERM WPT. This is in line with current ICAO SARPS.
- AIS started the reservation process of ENR waypoints as early as possible (FEB 2024). This afforded both the ICAO Regional office time to process the requests and AIS to carry out the required additional proximity checks and ATC consultation.
- AIS championed the adoption of the ICAO Regional office's suggestion to maximise the use of alphanumeric designators on SIDs and STARs.

These measures yielded a very successful outcome.

Waypoint Use	Number Required	Number Reserved
Enroute	47	47
Terminal 5LNC	52	52
Terminal 5ANNC	99	N/A

Closing Comments

Australia's demand for 5LNC is trending up as depicted in the below graph. With major upgrades to several aerodromes planned in the coming years, we expect this high demand to remain.



A multi-facetted approach aimed at reducing the number of required 5LNC and increasing the availability of suitable 5LNC is required.

Co-operation and co-ordination between APAC states and the ICAO Regional Office is paramount.

Deepest thanks to the ICAO Regional Office for their ongoing support with processing 5LNC requests

Thank you for your time and attention.