AUSTRALIAN AIRPORTS ASSOCIATION

Joint Submission to ACMA consultation on "Additional assurance measures for the coexistence of wireless broadband services and radio altimeters"

Introduction

Thank you for the opportunity to provide a submission in response to ACMA's consultation on "Additional assurance measures for the coexistence of wireless broadband services and radio altimeters." This is a joint submission from the Australian Airports Association, the Australian Airline Pilots' Association, Canberra Airport, Brisbane Airport, and Boeing Australia.

The Issue

The interim mitigations for coexistence between radio altimeters, operating in the 4200 - 4400 MHz band, and wireless broadband systems, operating in the 3700 - 4000 MHz band, will expire in March 2026. These measures were intended to provide time for the aviation sector to improve radio altimeter resilience through equipment upgrades, operational controls and regulatory action and include the following limits on 5G deployments above 3.7 GHz near these airports:

- Total Radiated Power (TRP) limit of 48 dBm/5 MHz
- EIRP density limit of 65 dBm/MHz (specified in 5 MHz bandwidth)
- The transmitter of a 5G base station antenna system must restrict both fixed mechanical tilt and fixed electrical tilt components such that both are directed towards the horizon or below
- The transmitter should, as much as is practicable, avoid the formation of grating lobes in the antenna array
- Within these airports, the actual protected areas are defined by the identified runways and associated geometries set out in Appendix G of RALI MS47

These measures have been applied to the following 19 select airports identified by CASA as being subject to low-visibility approaches with radio altimeter-dependent procedures:

Avalon (VIC)
Adelaide (SA)
Alice Springs (NT)
Ballina (NSW)
Brisbane (QLD)
Broome (WA)

Cairns (QLD)
Canberra (ACT)
Darwin (NT)
Gold Coast (QLD)
Hamilton Island (QLD)
Melbourne (VIC)
Mount Isa (QLD)
Norfolk Island
Perth (WA)
Sunshine Coast (QLD)
Sydney (NSW)
Townsville (QLD)
Wellcamp (QLD)

Of these airports, CASA has identified the following where, in addition to the above, aircraft operators using specified instrument approach procedures (ILS Cat II/III and SA ILS Cat I/II) must ensure that their aircraft's radio altimeters meet the tolerance requirements outlined in the FAA's guidance document AD 2023-10-02 (aeroplanes) and AD 2023-11-07 (helicopters) by 31 March 2026:

Canberra (ACT)
Melbourne (VIC)
Perth (WA)
Sydney (NSW)
Western Sydney International Airport (NSW) (anticipated)

With the interim measures expiring on 31 March 2026, the ACMA consultation paper proposes an approach similar in concept to that adopted in the United States, in which wireless broadband base stations near airports would continue to limit power, but on a voluntary basis from 1 April 2026 onwards. The switch to a voluntary arrangement is contingent upon Australian and affected international aircraft operators upgrading their radio altimeters to meet, in accordance with CASA's guidance, the FAA's airworthiness directives AD 2023 10-02 (aeroplanes) and AD 2023-11-07 (helicopters) by 31 March 2026.

According to ACMA's consultation paper, CASA consulted on mandating the FAA's 2023 AD requirements from the end date of the interim mitigations in July 2025, though the outcomes of this consultation have not yet been released.
While ACMA has noted that the proposed post-March 2026 voluntary arrangements are similar in concept to those in the United States, there remains a key point of difference. In the US, even when aircraft have been fitted with radio altimeters compliant with AD 2023-10-02, aircraft must still often operate under a specific Alternative Method of Compliance that determines which runways and approaches are cleared for safe radio altimeter operation.

FAA Proposed Rule – Requirements for Interference-Tolerant Radio Altimeter Systems

Following the publication of ACMA's consultation paper in December 2025, the FAA published a proposed rule that will result in a future airworthiness directive establishing a new performance

standard for 5G-tolerant aircraft radio altimeters. While this has been influenced in part by developments in the United States regarding additional spectrum use in adjacent bands, the FAA's proposed rule includes analysis indicating that radio altimeters approved under the FAA's 2023 AD framework may still be vulnerable to interference in certain 5G operating environments, particularly as additional spectrum is introduced in neighbouring bands. The FAA has also cited ongoing operational reports and technical studies highlighting the need for a more robust long-term interference tolerance standard.

The FAA notes that a next-generation avionics standard for radio altimeters that can adequately withstand neighbouring 5G frequencies is currently under development with RTCA and is not expected to be published until early 2027. Only following the finalisation of this new standard will the FAA be in a position to publish new radio altimeter airworthiness directives and enable the manufacture and certification of compliant radio altimeters. The FAA has indicated that achieving widespread equipage across US-registered and international fleets will take many years beyond the mid-2020s.

We understand that major airlines have upgraded their radio altimeters to meet the FAA's AD 2023-10-02 guidance; however, there are reports that smaller commercial operators may not have done so. Similarly, much of the general aviation fleet may not be well positioned in this regard. Radio altimeters support a wide range of safety-critical systems beyond low-visibility autoland, including ground proximity warning systems, terrain awareness, wind shear detection, flight control protections, and rotorcraft hover and offshore operations. Many of these functions are active in visual meteorological conditions and across diverse aircraft categories, meaning the safety implications extend beyond large transport aircraft and beyond poor-weather scenarios.

ACMA's interim measures were explicitly designed as a temporary risk control while improvements in radio altimeter resilience were developed internationally. However, the FAA's January 2026 proposal confirms that a new generation of interference-tolerant altimeter standards is still under development and not expected to be available before 2027. This indicates that the global transition to equipment inherently resilient to adjacent-band 5G emissions remains incomplete, and that removing mandatory transmitter-side protections in March 2026 would precede the availability of the very aircraft-side mitigations the transition assumed.

Recommendations

We are therefore concerned that, once the current mandatory mitigations on telecommunications deployments expire on 31 March 2026, a significant residual and unmanaged risk will remain. The FAA's latest proposal underscores that even with upgraded radio altimeters, safe operations depend on aircraft being exposed only to a bounded aggregate radiofrequency interference environment, and that this assumption relies on continued control of spurious emissions from 5G base stations. A transition to voluntary measures in Australia would represent a step away from that safety model at the same time the primary global aviation regulator is formalising a more structured and enduring interference framework.

In light of the evolving international regulatory position and the continued dependence of aircraft systems on reliable radio altimeter performance, we respectfully submit that the following safety principles should underpin Australia's post-March 2026 arrangements:

1. **Spurious emission controls must remain enforceable, not voluntary.**
   The FAA's current rulemaking explicitly treats spurious emissions from base stations as a safety-relevant factor in the long-term coexistence model. Voluntary compliance does not provide the certainty required for aviation safety assurance. Spectrum licence and area-wide licence instruments, and fixed-licence conditions for highly localised services, should therefore be considered. The addition of verification requirements such as certification evidence and/or audit testing for sites in protection areas may also be warranted. For active antenna systems, it would be beneficial to specify measurement and aggregation rules so that TRP compliance is not ambiguous.

2. **Risk must be assessed in terms of the aggregate RF environment at the aircraft, not only individual transmitter limits.**
   A safety framework based solely on transmitter specifications may not fully represent real-world exposure. Multiple base stations, beamforming antennas, reflections and terrain can combine to create exposure levels different from those assumed in single-site compliance calculations. This could be addressed by adding a receiver-side, power flux density (PFD)-based objective for approach paths, even if existing fundamental-emissions frameworks are otherwise retained. This would more closely mirror the FAA's approach, where the proposed minimum radio altimeter tolerance is defined as a PFD at the aircraft antenna across multiple frequency ranges and applies from 0 to 500 feet above ground level.

3. **Protections must remain in place until interference-tolerant altimeter standards are operationally deployed across the fleet.**
   International standards work remains underway, and equipage timelines across commercial, regional, rotorcraft and general aviation sectors are uncertain.

4. **All aircraft categories and operations must be considered.**
   Helicopters, regional aircraft, business aviation, aeromedical, offshore and general aviation operators often use aerodromes outside major capital city airports and may not benefit from aircraft-specific mitigation programs.

5. **A monitoring and rapid-response mechanism should be established.**
   Any post-2026 framework should include processes for reporting suspected interference events, investigating them and implementing prompt mitigations if required.

Conclusion

We support the continued rollout of advanced telecommunications infrastructure to meet Australia's connectivity and economic needs. However, the safe coexistence of 5G services and aviation systems must be grounded in a regulatory framework that reflects current technical knowledge, international developments, and the continuing reliance of aircraft systems on radio altimeter performance.

The FAA's recent rulemaking activity demonstrates that the global aviation safety community does

not yet regard the issue as resolved, and that long-term coexistence depends on both improved aircraft system resilience and continued management of emissions from wireless networks. In this context, moving from mandatory to voluntary transmitter-side controls in March 2026 risks creating a regulatory gap at a time when the international safety framework is becoming more, not less, structured.

We therefore encourage ACMA, in consultation with CASA and other aviation stakeholders, to adopt a precautionary and evidence-based approach to post-March 2026 arrangements. Ideally, this is one that maintains enforceable protections, considers the aggregate radiofrequency environment experienced by aircraft, and ensures that all sectors of aviation are appropriately covered until interference-tolerant radio altimeter standards are demonstrably in widespread operational service.

We appreciate ACMA's continued engagement with the aviation community on this complex and evolving issue.

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