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Wing Aviation Pty Ltd

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Response to the Government's Consultation on ADS-B mandate

Wing welcomes the opportunity to provide feedback on the *Potential future expansion of the Automatic Dependent Surveillance–Broadcast (ADS-B) mandate in Australia*.

Wing believes that the seamless integration of UAS into the national airspace demands a focused strategy on both safety and efficiency. Wing supports a dual-pronged strategy: first, requiring e-conspicuity for all crewed aircraft, and second, mandating ADS-B In for uncrewed aircraft (UA) conducting Beyond Visual Line of Sight (BVLOS) operations.

1. Support for a Crewed Aircraft E-Conspicuity Mandate

Wing strongly supports the proposed mandate for crewed aircraft equipage of ADS-B Out. The ubiquitous adoption of e-conspicuity for crewed aviation is an essential requirement to efficiently and safely manage uncrewed-crewed aircraft deconfliction in non-segregated airspace. This is the key enabler to drone integration.

The consultation's proposed models are a positive step. While Wing believes a general mandate for all crewed aircraft would ultimately be most effective for UA-to-crewed aircraft deconfliction, we support mandating e-conspicuity for crewed aircraft around Regular Public Transport (RPT) aerodromes as a positive near-term step forward. This approach mirrors the highly successful use of Mode-C Veil airspace in the United States, an area requiring all crewed aircraft near major airports to be equipped with an ADS-B Out. This model has proven effective in unlocking scaled drone delivery operations in complex environments like the Dallas-Fort Worth area, where multiple UA operators safely co-exist alongside crewed traffic from several major international airports.

Crewed aircraft e-conspicuity solutions should allow using either ADS-B Out equipment, or approved low-cost, low-power equivalent e-conspicuity technologies. The advent of low-cost, low-power technologies allows for ease of adoption by the crewed aviation community. Australia has long recognised the importance of electronic conspicuity, with CASA and the government supporting various initiatives and trials over recent years, such as the ADS-B rebate scheme, providing a clear and well-supported pathway for participation and equipage.

Implementing this mandate is not just a technical safety step; it is the key to unlocking profound societal and economic benefits for Australia. As detailed in a 2023 Accenture report, scaled drone delivery has the potential to remove 2.0 billion vehicle kilometres from Australian roads by 2033, resulting in over 320 fewer serious accidents, and eliminating 238,000 tonnes of

greenhouse gas emissions. For businesses and households, this translates into billions of dollars in economic activity and savings.[1]

Given these significant potential national benefits, we advocate for an accelerated adoption date for crewed aircraft e-conspicuity mandate (e.g., 2027), rather than the proposed 2028 timeline. A faster mandate is a key enabler and critical step to pave the way for a future where crewed and uncrewed aircraft can safely and efficiently share the skies, unlocking these possibilities for transportation, logistics, and countless other applications.

2. Support for ADS-B In for BVLOS Drones

Wing supports the proposal to mandate ADS-B In for BVLOS UAS operators. With crewed aircraft broadcasting their position, they maintain the right of way and UAS with ADS-B In can detect and avoid any potential conflict. This ensures the UA can meet its responsibility to remain deconflicted with crewed aircraft and does not pose a hazard to crewed aircraft. Wing supports the flexibility, allowing operators to utilise either ground-based or onboard ADS-B In receivers to meet this requirement.

This approach is a foundational component of Wing's operational safety system. Our primary DAA capability relies on a ground-based ADS-B In to detect ADS-B Out signals from crewed aircraft. This capability has been safely used since the beginning of our operations in Australia in 2018 and has supported over 500,000 residential deliveries on three continents. Its use has been approved by major global aviation authorities—including Australia's Civil Aviation Safety Authority (CASA), the UK's Civil Aviation Authority (CAA), and the US Federal Aviation Administration (FAA).

As an additional layer of safety, Wing has also developed an on-board DAA system, which utilizes an ADS-B In receiver. This on-board system acts as a redundant, tactical backup. It has also been approved by the FAA and is deployed in our operations in the United States.

3. ADS-B Out Mandate for Drones

Wing does not support an ADS-B Out mandate for drones. We support the paper's conclusion that this would create significant unintended consequences.

[1] *Flying into the Future: The Potential Benefits of Drone Delivery in Australia'* (January 2023), Report by Accenture

- **Frequency Saturation:** The vast disparity between the projected volume of drones and crewed aircraft would indeed create an unmanageable data deluge for pilots and ATC. The sheer volume of broadcasts would overwhelm cockpit displays and ATC systems, raising concerns about 1090 MHz congestion and jeopardising safe aircraft operation.

- **SWaP Constraints:** ADS-B is a poor fit for drones due to size, weight, and power (SWaP) constraints, which make a universal mandate challenging for the UAS industry.

Wing supports the established principle that UAS must give way to cooperative crewed aircraft equipped with ADS-B or other e-conspicuity, a principle aligned with global best practices, such as those proposed by the FAA in its BVLOS rulemaking.

Wing asserts that when appropriate right-of-way rules and comprehensive crewed aircraft e-conspicuity are in place, mandating ADS-B Out from drones provides no added safety benefit. In fact, such a scenario risks introducing the above mentioned distractions, as the pilot of a crewed aircraft should not be burdened with additional, unnecessary actions. Unpredictable actions from crewed pilots could further hinder the effectiveness of UA Detect and Avoid (DAA), ultimately compromising overall safety benefits achieved through e-conspicuity of crewed aircraft.

Wing acknowledges that the paper does not propose a blanket mandate but reasonably, in alignment with the stated goal of excluding low-risk delivery drones to prevent channel saturation, excludes small drones (under 25kg, per Part 101) flying below 400 ft AGL. However, following the risk-based approach and given the lower likelihood of crewed aircraft operating below 400 ft AGL, Wing sees that this exclusion should be extended to all drones operating at low altitudes and operations that are not under ATC positive control. Instead, separation between UA and crewed aircraft can be assured by prioritizing the UA's ADS-B In capability to detect and avoid broadcasting crewed aircraft.