REGULATORY ANALYSIS & INTERPRETATION SERIES

Risk Proportionality in Practice: Micro RPA Under a ReOC

Steve Griffin

Uncrewed Approvals

January 2026 | Version 1.0

UNCREWED APPROVALS

This paper is offered as a constructive contribution to regulatory dialogue within the Australian RPAS sector.

Publication Details

Title:

Risk Proportionality in Practice: Micro RPA Under a ReOC

Series:

Regulatory Analysis & Interpretation

Author:

Steve Griffin

Organisation:

Uncrewed Approvals

Publication Date:

January 2026

Version:

1.0

Disclaimer

TABLE OF CONTENTS

Executive Summary

Australia's regulatory framework for remotely piloted aircraft systems (RPAS) has been recognised for its early adoption and structured oversight. Within that framework, micro RPA — generally defined as aircraft under 250 grams — are treated differently from larger platforms, reflecting their originally limited capability and lower perceived risk profile at the time of regulatory development.

Technological capability has since advanced.

Modern micro RPA now offer stabilised flight control, high-resolution imaging, geofencing, automated recovery functions and, in some models, obstacle awareness systems. In certain operational contexts, these aircraft may represent the lowest kinetic energy and lowest impact-risk platforms available to professional operators.

As the RPAS sector matures, it is appropriate to examine whether the current regulatory treatment of micro RPA remains fully aligned with risk exposure and governance structures.

Under existing settings, micro RPA are excluded from operation under a Remote Operator's Certificate (ReOC) framework in circumstances where heavier aircraft may be operated within a structured organisational approval model. This creates a potential proportionality tension: in some scenarios, the smallest and lowest-energy aircraft may not be available within the highest level of organisational oversight.

This paper does not advocate deregulation or reduced accountability. Rather, it considers whether incremental refinement could better align:

- Risk exposure with regulatory treatment
- Platform selection with lowest-risk operational outcomes
- Organisational governance structures with technological capability

The objective is proportional alignment. Risk-based regulation seeks to ensure that oversight effort and regulatory settings correspond to the actual safety exposure presented by an activity. Where technological evolution alters that exposure, periodic structural reflection may be appropriate.

Micro RPA provide a useful case study in this regard. Their increasing capability, combined with inherently low kinetic energy, raises the question of whether current categorical distinctions continue to optimise safety outcomes within certified organisational environments.

Any potential refinement would need to preserve accountability, maintain clear safety thresholds and operate within a structured governance framework. The issue is not expanded operational permissiveness, but calibrated consistency.

By examining micro RPA through a risk-proportional lens, Australia can reinforce its commitment to evidence-based, scalable and contemporary RPAS regulation.

This paper explores the technological evolution of micro RPA, identifies areas of structural tension within the current framework, and outlines measured pathways for consideration.

1 Original Regulatory Intent

When micro RPA were first addressed within Australia's regulatory framework, their technological capability was limited. These aircraft were typically characterised by:

- Short flight endurance
- Basic stabilisation
- Limited imaging quality
- Minimal automation safeguards

Given their small mass and constrained functionality, micro RPA were treated as presenting comparatively low kinetic energy and reduced third-party impact risk. Excluding them from certain certification and organisational approval structures provided regulatory simplicity while maintaining a clear demarcation between certified commercial operations and lower-risk activities.

In the technological context at the time, this approach was logical and proportionate. Regulatory categories reflected both physical risk characteristics and operational capability.

However, regulatory categories are necessarily static instruments, while technology evolves dynamically.

2 Technological Evolution of Micro RPA

The capability of contemporary micro RPA has changed materially.

Modern sub-250 gram platforms frequently incorporate:

- Multi-axis stabilisation systems
- Precision satellite navigation
- Geofencing and altitude limitations
- Automated return-to-home functions
- High-resolution optical sensors
- Software-based flight restrictions

In certain models, obstacle detection and avoidance features further enhance situational safeguards.

Importantly, these advancements have occurred without significant increases in mass. As a result, micro RPA now combine:

- Very low kinetic energy potential
- Improved stability
- Enhanced control precision
- Predictable automated behaviour

The risk profile of these aircraft is therefore distinct from both early micro platforms and larger contemporary RPAS.

3 Risk Hierarchy and Energy Considerations

Risk-based regulation relies in part on understanding exposure severity. Aircraft mass and velocity directly influence kinetic energy and potential injury severity in ground impact scenarios.

A simplified comparison illustrates the principle:

- A 249 g aircraft presents significantly lower kinetic energy than a 2 kg aircraft.
- A 2 kg aircraft presents materially lower energy than a 7 kg aircraft.

While risk is not determined by mass alone — operational environment, system redundancy and pilot conduct all influence exposure — impact potential remains a foundational safety consideration.

In certain scenarios, particularly those involving potential third-party proximity, the smallest available platform may represent the lowest energy option capable of achieving the operational objective.

The proportionality question is therefore not whether micro RPA are risk-free, but whether their inherently lower energy profile should be reflected more consistently within governance structures.

4 Structural Tension Within the Current Framework

Under current settings, micro RPA are generally not operated under a ReOC framework in contexts where heavier aircraft may be used within structured organisational oversight.

This creates a structural tension:

- Larger aircraft, presenting greater kinetic energy, may operate within a certified organisational system with documented safety management, Chief Remote Pilot oversight and formal accountability.
- Smaller aircraft, presenting lower kinetic energy, may be excluded from that same structured governance pathway.

The result is not necessarily reduced safety. However, it may limit the ability of certified operators to select the lowest-risk platform within an approved organisational environment.

The issue is one of proportional alignment between risk exposure and governance architecture.

Over or Near People Considerations

Operations over or near people represent one of the most sensitive regulatory domains. Safety thresholds in this area appropriately reflect the need to minimise injury risk to uninvolved persons.

In some circumstances, heavier RPAS operating over or near people require additional mitigation measures such as:

- Parachute recovery systems
- Detailed operational safety cases
- Defined exclusion zones

Micro RPA, by virtue of their lower mass and reduced energy, may present a smaller injury envelope in comparable loss-of-control scenarios.

The current regulatory treatment may, in certain contexts, constrain operators from selecting the smallest practicable aircraft within a certified governance structure.

The proportionality question becomes whether regulatory settings optimally encourage the lowest feasible risk platform while preserving accountability and oversight.

This section does not suggest relaxed safety thresholds. Rather, it highlights the interaction between platform mass and governance structure.

5 Risk-Based Regulatory Alignment

Risk-based regulation seeks to:

- Align oversight effort with safety exposure
- Encourage evidence-based platform selection
- Maintain appropriate levels of assurance

Where technological evolution alters the risk profile of a category of aircraft, periodic structural reflection is consistent with proportionate regulation.

Micro RPA represent a category where technological capability has advanced while regulatory classification has remained largely static. This may create circumstances where governance treatment does not fully reflect contemporary risk characteristics.

The objective is not expanded permissiveness, but calibrated consistency.

6 Potential Refinement Pathways

Any refinement would need to preserve safety thresholds and maintain accountability. Several conservative pathways could be considered.

6.1 Conditional Inclusion Within ReOC Governance

Micro RPA could be permitted under a ReOC structure where:

- Operated by appropriately licensed personnel
- Managed under an approved operations manual
- Subject to Chief Remote Pilot oversight
- Conducted within defined operational envelopes

This would not alter privileges but would align governance with organisational accountability.

6.2 Defined Kinetic or Operational Thresholds

Inclusion could be limited to aircraft below specified mass or energy thresholds, ensuring proportional alignment between physical exposure and governance framework.

6.3 Data-Informed Trial or Exemption Mechanisms

A time-limited, evidence-based pathway could allow structured evaluation of safety outcomes before broader structural adjustment.

Each pathway would maintain regulatory confidence and documented oversight.

7 International Context

International regulatory models increasingly apply operational categories and risk-based assessment frameworks to address repeatable scenarios and technological change.

Some jurisdictions permit micro RPA use within certified organisational environments subject to defined safeguards.

While direct comparison is complex, the broader trend reflects ongoing recalibration between platform capability and governance structure.

Australia's leadership in early RPAS regulation positions it well to consider similar evidence-based refinements where appropriate.

8 Guiding Principles for Consideration

Any structural review should be guided by:

- Risk proportionality
- Evidence-based assessment
- Encouragement of lowest-risk platform selection
- Preservation of accountability
- Regulatory clarity and consistency
- Maintenance of safety confidence

These principles ensure refinement strengthens rather than dilutes oversight.

9 Concluding Perspective

Regulatory frameworks necessarily categorise aircraft types and operational privileges in order to manage safety risk. Over time, technological evolution may shift the relationship between category and exposure.

Micro RPA provide a useful case study in this dynamic. Their combination of low kinetic energy and increasing capability raises proportionality considerations within a certified organisational context.

The objective is not deregulation, but alignment — ensuring that governance structures encourage the safest practicable platform within accountable operational systems.

Measured reflection in this area would reinforce Australia's commitment to proportionate, evidence-based and contemporary RPAS regulation while maintaining strong safety assurance.