

INTERIM APPROACH TO THE REGULATION OF REMOTELY PILOTED AIRCRAFT SYSTEMS

INTRODUCTION

Aviation New Zealand represents the interests of the commercial aviation community in respect of this matter. The submission has been developed in consultation with members from all of the operating groups who are integrally impacted by the activities of RPAS in New Zealand's airspace.

In providing comments we have followed the draft document. In summary we generally accept the Background and Challenges sections but have some comments of relevance to them. This submission primarily focuses on the proposed New Zealand approach and urges a risk based approach be taken.

OVERVIEW

Our aviation system has generally worked well for 100 years. The RPAS industry arguably presents the biggest challenge the existing aviation system has faced. Many of the RPAS developers and users have limited or no knowledge of the existing aviation system and/or no appreciation of the challenges of safely co-existing with manned flight.

There is a risk that the proliferation of RPAS developers and users, with little or no understanding of aviation, the Rules of Flight or safe airspace management could compromise the development of the RPAS industry, and impact adversely on the manned flight industry. Mitigations need to be developed which bridge the fundamental knowledge gap as well as addressing fundamental 'rules of use of the sky'.

We are aware of concerns about RPAS infringing on controlled airspace (including around airports), flying at low altitude over agricultural lands, posing threats to the agricultural aviation and rotary industries, and operating irresponsibly in built up areas. This cannot continue.

There is limited knowledge in the broader aviation industry of the future potential of RPAS, how they could be integrated into many existing operations, and their future value to the economy, in terms of operational efficiencies and manufacturing/supply potential.

The existing aviation industry and the RPAS industry need a clear set of Rules. There should be a unified and agreed approach, with a clear understanding of responsibilities, which ensures safe manufacture, safe operation in New Zealand skies and facilitates the development of the sector.

In our view, we (CAANZ, manned flight and RPAS) must all take responsibility for preserving the safety and integrity of airworthiness and airspace in New Zealand.

2 BACKGROUND

We acknowledge that there is an existing regulatory framework of authorisation and that concerns exist over both the robustness of the

framework and its ability to efficiently evaluate the increasing number of applications. We also understand that CAA has concerns that RPAS were being developed and operated without oversight and this was challenging the life cycle system of safety upon which our present regulatory framework was developed. One potential approach is thus to focus on the RPAS that are being developed/operated outside the existing framework and to encourage their integration.

The existing regulatory environment has delivered satisfactory results for many years. For the vast majority of aviation operators, it continues to work effectively and change is not needed. We accept that the regulatory system developed in the mid-1980s and encapsulated in the CAA Act 1990 is the major issue. To achieve regulatory change for RPAS, in our view, given the economic benefits to the country, the bulk of the costs to be incurred should come from the RPAS industry rather than the broader aviation industry. Simply, is the use of limited CAA funds for regulation development best spent in the RPAS area? Could the previous authorisations process be revamped, broadened and publicised?

We agree that the current system can not continue but question the extent of changes that are necessary and how they should be funded.

3 CHALLENGES

The Growth Imperative

The RPAS industry is comparatively young, is currently worth approx US\$5b per year globally, and could generate between US\$82b (FAA as quoted in the paper) and US\$89b (TEAL Group - EU) in economic impact over the 10 years to 2024. This contrasts with the global aviation market which is currently worth US\$539b pa and growing at around 5.7% pa (ATAG Geneva).

The New Zealand aviation industry is currently worth around NZ\$12.87b (New Horizons report June 2010 extrapolated). While at November 2013 the CAA had approved 15 RPAS operations with 40 enquiries pending, we suspect the economic value is limited compared to the broader aviation industry and its growth potential. Nevertheless, given global growth projections for RPAS, there is a need to do something, from a regulatory viewpoint, about the industry that is developing in New Zealand.

We are seeing some of the legacy RPAS developers buying newer RPAS/technology companies or teaming with them, to gain access to new technologies or to test RPAS in more cost effective locations. While some New Zealand RPAS developers will commercialise their own developments, we are aware of at least one US RPAS manufacturer negotiating with at least one New Zealand RPAS developer.

The paper identifies uses to which RPAS are being put to in New Zealand. This is the tip of the iceberg. International practice is suggesting many more uses – RPAS platforms and technologies, as enablers, will allow us to do many new things.

In our view, the New Zealand RPAS industry has good growth potential. Our regulatory environment, while preserving safety, must permit New Zealand companies to take advantage of that potential, but not to the detriment of the existing aviation industry. Whatever we do though, must have longevity.

Policy Issues

The paper correctly identifies a number of issues. To them, we would add:

- Command and control systems including software security
- Operations in uncontrolled airspace
- Safe testing environments
- Privacy

4 NEW ZEALAND APPROACH TO REGULATION OF RPAS

We are addressing points in the paper and then raising some other issues.

Definition of Remotely Piloted Aircraft Systems

We support the intention to closely follow ICAO definitions. Given the international market for RPAS, we see no point in developing definitions and systems that are peculiar to New Zealand. The regulatory environment, while promoting safety, should assist our international competitiveness.

We note the intention to change rule Parts 19 and 101 to align them with ICAO, and that New Zealand proposes adding distinctions for 'recreational' and 'non-recreational activity'. We question the wisdom of this distinction. We would be departing from ICAO and experience is already showing that small RPAS, which may meet the intended 'recreational' definition, are appearing in flight space and operating 'for commercial reward'.

*In our view, New Zealand should follow ICAO definitions, **all** RPAS need to come under the supervision of CAA - this includes RPAS that are currently classed as 'model aircraft', and the weight break should be removed.*

Development of an RPAS register.

Until the type of regulatory oversight is determined and definitions agreed for RPAS, the merits of a register, who should keep it, why and for what purpose, are unclear.

In our view, the sector may wish to develop an appropriate online register. Where it is maintained and who should maintain it are open for further discussion.

Development of a communications and education programme.

It is clear that there is considerable confusion on the part of RPAS developers and operators as to what they must do to operate safely, especially at low altitude and in shared airspace. The aviation industry has built up a strong safety record over many years and we need to ensure, from a 'New Zealand' viewpoint, that this is not compromised by the RPAS industry.

We agree with the suggested approach and suggest that Aviation NZ would be a logical partner for such work.

Ongoing monitoring of international developments

We agree and would be pleased to assist.

5 CONCLUSION

We agree but need to work with CAA to achieve outcomes.

6 A RISK BASED APPROACH

As a suggestion for a way forward beyond the paper, it might help if we were to start looking at things from the scene of an RPAS accident backwards, because we believe it adds some focus. As we see it there are four potential accident scenarios:

- a. RPAS vs. Person – Absolutely a safety concern, but not strictly a threat to aviation safety.
- b. RPAS vs. Structure or non-human object – Potentially a safety concern, but not strictly a threat to aviation safety.
- c. RPAS vs. RPAS – Potentially a safety concern, particularly if persons are directly beneath, but not strictly a threat to aviation safety.
- d. RPAS vs. Manned Aircraft – Absolutely a safety concern, and definitely a potential threat to aviation safety.

So leaving a, b, and c aside because they are threats that RPAS pose regardless of whether manned aircraft are flying or not, it is for the regulator to decide what level of risk they pose in each of the scenarios, and what an acceptable level of safety is in respect of the likelihood of these scenarios occurring. To focus on d. and put some context around it: we are talking about VFR operations in a see-and-be seen environment, and implicit in this environment are the promulgated right of way rules.

If the RPAS is capable of seeing and being seen, then it is capable of complying with the right of way rules, and if this is the case we pose the question “Does such an RPAS present a materially greater threat to aviation safety than another manned aircraft in the same position?” At altitude the answer to this question is probably ‘no, it doesn’t’. In the low level environment, we suggest ‘yes it does pose a greater risk’.

In our view, a risk based approach to the development of regulations needs to be undertaken.

7 A FEW THOUGHTS SUMMARISED

- 1) We agree RPAS have the potential to create a significant safety risk.
- 2) We agree CAA should have control over all RPAS irrespective of size.
- 3) It should not become a requirement for manned aircraft to fit any additional equipment to avoid RPAS. If RPAS are to operate in

unsegregated airspace, they should be equipped with the capability to see and avoid.

- 4) Consideration should be given as to what level of visibility is regarded as reasonable in order that manned aircraft can see and avoid RPAS. Strobe light? Nav lights? Hi-viz paint? Smoke trails? Mode C? ADS-B for the future?
- 5) Investigations could be made as to whether we can do anything to make manned aircraft more prominent to RPAS to assist them seeing and avoiding such aircraft.
- 6) A transparent system needs to be developed for the RPAS industry covering construction, airworthiness, operator expertise and safety, and this needs to be communicated to the broader industry.
- 7) The paper suggests a split between RPAS operating commercially and those in recreation. We argue that this is irrelevant to the outcomes of a collision so question the purpose of differentiation.
- 8) Timeframe –we think the approach should be to an agreed programme in an agreed time frame – a ‘roadmap’. This is not an issue which should be addressed in an ad hoc or remedial ‘after the event’ manner.
- 9) The policy paper should be developed in a structured manner using best risk management processes – presently while much of the information is there it does not follow the systematic risk management processes as described in the ISO 31000.

Aviation NZ
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