



‘Industry Speaks: The Future of Drone Regulation in Australia’

A synopsis of submissions made to *The Rural and Regional Affairs and Transport References Committee* concerning the inquiry into current and future regulatory requirements that impact on the safe commercial and recreational use of Remotely Piloted Aircraft Systems (RPAS), Unmanned Aerial Systems (UAS) and associated systems in Australia.

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INTRODUCTION

On 13 October 2016, the Senate of the Australian Federal Parliament moved that the Rural and Regional Affairs and Transport References Committee undertake an inquiry into current and future regulatory requirements that impact on the safe commercial and recreational use of Remotely Piloted Aircraft Systems (RPAS), Unmanned Aerial Systems (UAS) and associated systems (**the Inquiry**).

The Inquiry attracted 94 submissions over 634 pages. A list of all submissions in their entirety can be found [here](#).

The **purpose of this paper** is to give you a synopsis or 'snap shot' of the submission made to the Inquiry to inform you as to what the various stakeholders are saying about the current regulatory regime surrounding drones. It is envisaged that the submissions made to the Inquiry may play a critical role in shaping the future direction of the regulatory regime concerning the use of drones.

While the term 'Remotely Piloted Aircraft' is the term used in the legislation, I will use the term 'drone' due to its greater acceptance, ease of use and recognition.

Finally, a special thanks to Mieke Snijder PhD for assistance in editing and shaping this paper.

Fly Free!

The Drone Lawyer.



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1. EDUCATION & TRAINING

The need for an educational ‘campaign’ is a strong theme,¹ with education being cited as a key to success.²

Some submissions refer to a near complete absence of any educational initiatives,³ that the Civil Aviation Safety Authorities (**CASA**) has not provided an adequate level of public education,⁴ and even that recent educational material promulgated by CASA has contradicted the regulations.⁵

Others support CASA’s current education initiatives notwithstanding they could be expanded considerably,⁶ including greater outreach,⁷ and greater resources for CASA.⁸ Another strong theme is the push for education rather than regulation,⁹ or legislation;¹⁰ that improved regulatory compliance can be achieved through education.¹¹ One reason for this is that removing or amending the regulations will make no difference to those who either don’t care about the rules,¹² are uneducated,¹³ or unaware.¹⁴

Others are of the view that education is not the answer.¹⁵

Rather, a total ban on drones is required, except for designated model flying clubs,¹⁶ or licensed commercial operators.¹⁷

Education is to be provided to all pilots,¹⁸ including commercial operators,¹⁹ hobbyists,²⁰ and recreational users.²¹

There is also call for education of the wider population,²² drone manufacturers,²³ retailers,²⁴ as well as state and federal law enforcement agencies, and local government,²⁵ to ensure that local government authorities are aware of the existing regulations and their role in enforcing

1 Submission No. 8: Elevo Pty Ltd; Submission No. 12: Australian Airports Association; Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide; Submission No. 35: Australasian Fire & Emergency Service Authorities Council and National Aerial Firefighting Centre; Submission No. 39: Australian Airline Pilots’ Association; Submission No. 12: Australian Airports Association; Submission No. 69: NSW Government; Transport for NSW

2 Submission No. 52: Mr Chris Bird

3 Submission No. 73: Australian Certified UAV Operators Inc.

4 Submission No. 71: Australian Miniature Aerosports Society Inc

5 Submission No. 41: Aeroeye

6 Submission No. 47: CanberraUAV

7 Submission No. 46: Australian Association for Unmanned Systems

8 Submission No. 26: Mr Jason Tepper

9 Submission No. 85: Mr Yiming Teng; Submission No. 81: Dr Chris Thompson; Submission No. 48: NSW Ambulance

10 Submission No. 26: Mr Jason Tepper

11 Submission No. 66: UAS International

12 Submission No. 2: Mr Ian Fraser; Submission No. 4: Mr John Cook

13 Submission No. 4: Mr John Cook

14 Submission No. 9: Mr Egon Kuster; Submission No. 50: Model Aeronautical Association of Australia

15 Submission No. 82: Mr Mark Leuschner

16 Submission No. 82: Mr Mark Leuschner

17 Submission No. 82: Mr Mark Leuschner

18 Submission No. 76: Mr Robin Lowe; Submission No. 66: UAS International; Submission No. 19: International Aerospace Law & Policy Group; Submission No. 22: Maurice Blackburn Lawyers; Submission No. 50: Model Aeronautical Association of Australia; Submission No. 72: Office of the Australian Information Commissioner; Submission No. 45: NSW Farmers; Submission No. 50: Model Aeronautical Association of Australia; Submission No. 64: QBE; Submission No. 19: International Aerospace Law & Policy Group; Submission No. 87: Mr Phil Stevens

19 Submission No. 33: National Farmers’ Federation

20 Submission No. 64: QBE

21 Submission No. 22: Maurice Blackburn Lawyers

22 Submission No. 49: Aerial Application Association of Australia Ltd; Submission No. 66: UAS International; Submission No. 19: International Aerospace Law & Policy Group; Submission No. 22: Maurice Blackburn Lawyers; Submission No. 46: Australian Association for Unmanned Systems; Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide; Submission No. 88: Mr Ross Meadows

23 Submission No. 72: Office of the Australian Information Commissioner

24 Submission No. 50: Model Aeronautical Association of Australia

25 Submission No. 34: Qantas Group



them.²⁶ Some say CASA has done a poor job of informing and educating the general public as to the rule changes.²⁷

There is support for training of all pilots,²⁸ some say mandatory,²⁹ including minimum proficiency courses,³⁰ knowledge tests,³¹ basic air law examinations,³² online training course,³³ or CASA approved training program,³⁴ followed by a practical test,³⁵ similar to that required to obtain a boating licence or forklift ticket.³⁶

Some say that all operators should be licenced,³⁷ while others say only commercial operators should be licenced.³⁸

The current regime where pilots can gain their licence in 5 days is not sufficient to allow them to fly safely.³⁹

Some that that drone pilots must have the same minimum standards of aviation knowledge required of all pilots and operators in the same airspace.⁴⁰

For commercial operations, standards and training should be established to create a baseline level of competence and awareness of safety and privacy,⁴¹ with the training and skills to keep other workers and the public safe.⁴²

There is a call for greater standardisation of training packages and assessment across training providers.⁴³ There is also support for repealing the current regulations so as to return to mandatory training in all commercial RPAS operation,⁴⁴ because without training we undermine the very safety systems put in place to protect aviation and public safety.⁴⁵

Another view is to mandate training based on size of the drone, such as mandatory training for the operators of all RPAS over 250g.⁴⁶

There should also be training requirements for recreational users,⁴⁷ or recreational users at least to be encouraged to undertake basic training.⁴⁸

Topics of education include:

- (a) best practice privacy principles;⁴⁹

26 Submission No. 34: Qantas Group
27 Submission No. 51: Mr Ashley Fairfield
28 Submission No. 87: Mr Phil Stevens
29 Submission No. 74: Interspatial Aviation Services Pty Ltd; Submission No. 46: Australian Association for Unmanned Systems
30 Submission No. 50: Model Aeronautical Association of Australia; Submission No. 41: Aeroeye
31 Submission No. 10: Mr Edward Browning
32 Submission No. 11: Virgin Independent Pilots Association; Submission No. 51: Mr Ashley Fairfield
33 Submission No. 9: Mr Egon Kuster
34 Submission No. 24: Thiess Pty Ltd
35 Submission No. 10: Mr Edward Browning
36 Submission No. 41: Aeroeye
37 Submission No. 87: Mr Phil Stevens
38 Submission No. 63: Drone Solutions Pty Ltd
39 Submission No. 23: Helistar Aviation
40 Submission No. 73: Australian Certified UAV Operators Inc.
41 Submission No. 30: Australia Post
42 Submission No. 51: Mr Ashley Fairfield
43 Submission No. 46: Australian Association for Unmanned Systems
44 Submission No. 22: Maurice Blackburn Lawyers; Submission No. 63: Drone Solutions Pty Ltd
45 Submission No. 73: Australian Certified UAV Operators Inc.
46 Submission No. 73: Australian Certified UAV Operators Inc.
47 Submission No. 63: Drone Solutions Pty Ltd
48 Submission No. 63: Drone Solutions Pty Ltd; Submission No. 15: Global Drone Solutions
49 Submission No. 72: Office of the Australian Information Commissioner



- (b) responsible drone use;⁵⁰
- (c) awareness of the rules and penalties;⁵¹
- (d) risks associated with flying a drone;⁵²
- (e) places in which drones may be flown,⁵³ including sharing airspace,⁵⁴ and emergency operations;⁵⁵ and
- (f) insurance.⁵⁶

Some say education should be provided by drone manufacturers and suppliers,⁵⁷ while others suggest that CASA provided drone education and training days for 'new drone owners' at unused sporting fields on weekends, experienced people could explain the regulations and support users in gaining the skills required.⁵⁸

2. ENFORCEMENT & PENALTIES

There is a call for more monitoring and oversight of drone operations.⁵⁹

The key to success is enforcement of the regulations,⁶⁰ by CASA,⁶¹ as a deterrent to unsafe RPAS operations.⁶² However, enforcement poses one of the greatest challenges to both National and Local authorities,⁶³ and the penalty regime for inappropriate RPAS operation is inadequate or at best unclear.⁶⁴

There is very strong support for stronger deterrents against non-compliance,⁶⁵ including increased fines⁶⁶ and the ability to quickly investigate, prosecute, and publicise initial prosecutions.⁶⁷

Many refer to CASA's limited resources,⁶⁸ its inability to sufficiently oversee all RPAS activities,⁶⁹ and the need for CASA to receive additional funding for compliance activities.⁷⁰

50 Submission No. 72: Office of the Australian Information Commissioner; Submission No. 22: Maurice Blackburn Lawyers; Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 58: Regional Aviation Association of Australia

51 Submission No. 4: Mr John Cook; Submission No. 87: Mr Phil Stevens; Submission No. 4: Mr John Cook; Submission No. 48: NSW Ambulance; Submission No. 69: NSW Government; Transport for NSW

52 Submission No. 22: Maurice Blackburn Lawyers; Submission No. 34: Qantas Group; Submission No. 58: Regional Aviation Association of Australia; Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 18: Prof Des Butler

53 Submission No. 34: Qantas Group; Submission No. 45: NSW Farmers

54 Submission No. 49: Aerial Application Association of Australia Ltd

55 Submission No. 35: Australasian Fire & Emergency Service Authorities Council and National Aerial Firefighting Centre

56 Submission No. 52: Mr Chris Bird

57 Submission No. 4: Mr John Cook; Submission No. 48: NSW Ambulance

58 Submission No. 81: Dr Chris Thompson

59 Submission No. 70: Regional Express; Submission No. 68: Asia-Pacific RPAS Consortium; Submission No. 70: Regional Express

60 Submission No. 52: Mr Chris Bird; Submission No. 69: NSW Government; Transport for NSW

61 Submission No. 35: Australasian Fire & Emergency Service Authorities Council and National Aerial Firefighting Centre

62 Submission No. 12: Australian Airports Association

63 Submission No. 60: DJI

64 Submission No. 39: Australian Airline Pilots' Association

65 Submission No. 39: Australian Airline Pilots' Association; Submission No. 34: Qantas Group; Submission No. 71: Australian Miniature Aerospports Society Inc; Submission No. 49: Aerial Application Association of Australia Ltd; Submission No. 53: Mr Graham Giles

66 Submission No. 8: Elevo Pty Ltd; Submission No. 45: NSW Farmers; Submission No. 19: International Aerospace Law & Policy Group

67 Submission No. 46: Australian Association for Unmanned Systems; Submission No. 8: Elevo Pty Ltd; Submission No. 71: Australian Miniature Aerospports Society Inc

68 Submission No. 50: Model Aeronautical Association of Australia; Submission No. 65: Piper Alderman; Submission No. 73: Australian Certified UAV Operators Inc.

69 Submission No. 70: Regional Express

70 Submission No. 23: Helistar Aviation



Some say there is a total lack of enforcement,⁷¹ that there should be a review of the adequacy of the current enforcement framework,⁷² and that CASA's monitoring and enforcement activities should be significantly enhance/improved.⁷³ The burden on CASA may be alleviated by delegating enforcement power to local law enforcement officers.⁷⁴ There is a need to closely involve federal and state police in addressing unsafe or unlawful RPAS operations.⁷⁵ including at the local area level,⁷⁶ through the involvement of Council Officers.⁷⁷

In the longer-term, there is a need to determine unequivocally which agency should be responsible for enforcing drone laws - whether that is CASA, Federal or State Police, Local Government agencies, or even private contractors,⁷⁸ including the auditing of drone operators.⁷⁹ An objective and consistent nationwide policy in relation to State and Local Government regulation of the RPAS industry is needed.⁸⁰

There is little doubt that regardless of the regulatory system in place, enforcement is likely to be a major challenge for CASA.⁸¹

3. TRACKING, REGISTRATION AND LICENCING

There is no current means of determining the identity of a drone pilot and his/her license status and type.⁸² As a result, when accidents and incidents occur, the likelihood of identifying the operator is often remote.⁸³ Consequently, there is significant support for drone registration,⁸⁴ which is identified as the nucleus for the creation of a responsible RPAS culture,⁸⁵ and/or identification,⁸⁶ including all non-recreational pilots required to submit a flight plan.⁸⁷ It is argued that mandatory registration is impossible to police.⁸⁸

There is support for **tracking** on every drone,⁸⁹ including the ability to identify in real-time an operating aircraft, its owner and pilot, and its precise location.⁹⁰ It is suggested that manufacturers use tracking systems to allow CASA to receive and remotely visualise activities of drones,⁹¹ including transponder type equipment,⁹² or that an application be developed which

71 Submission No. 8: Elevo Pty Ltd
72 Submission No. 63: Drone Solutions Pty Ltd
73 Submission No. 73: Australian Certified UAV Operators Inc.; Submission No. 46: Australian Association for Unmanned Systems
74 Submission No. 65: Piper Alderman; Submission No. 93: IDS Australia
75 Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide
76 Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide
77 Submission No. 73: Australian Certified UAV Operators Inc.
78 Submission No. 8: Elevo Pty Ltd; Submission No. 3: Nitestar Security Group; Submission No. 11: Virgin Independent Pilots' Association
79 Submission No. 68: Asia-Pacific RPAS Consortium; Submission No. 70: Regional Express; Submission No. 66: UAS International
80 Submission No. 46: Australian Association for Unmanned Systems
81 Submission No. 50: Model Aeronautical Association of Australia
82 Submission No. 54: RelmaTech Ltd; Submission No. 22: Maurice Blackburn Lawyers
83 Submission No. 73: Australian Certified UAV Operators Inc.
84 Submission No. 81: Dr Chris Thompson; Submission No. 11: Virgin Independent Pilots Association; Submission 94: No Drone; Submission No. 53: Mr Graham Giles; Submission No. 54: RelmaTech Ltd; Submission No. 39: Australian Airline Pilots' Association; Submission No. 74: Interspatial Aviation Services Pty Ltd; Submission No. 21: Civil Air Operations Officers Association of Australia; Submission No. 23: Helistar Aviation; Submission No. 39: Australian Airline Pilots' Association; Submission No. 19: International Aerospace Law & Policy Group
85 Submission No. 78: Drone Safety Services
86 Submission No. 54: RelmaTech Ltd; Submission No. 49: Aerial Application Association of Australia Ltd; Submission No. 87: Mr Phil Stevens; Submission No. 54: RelmaTech Ltd; Submission No. 65: Piper Alderman; Submission No. 39: Australian Airline Pilots' Association
87 Submission No. 23: Helistar Aviation
88 Submission No. 9: Mr Egon Kuster
89 Submission No. 19: International Aerospace Law & Policy Group; Submission No. 78: Drone Safety Services
90 Submission No. 54: RelmaTech Ltd
91 Submission No. 19: International Aerospace Law & Policy Group
92 Submission No. 70: Regional Express



enables members of the public to track and identify drones operating above their homes and businesses.⁹³

Mobile Subscriber Identity Module (SIM) technology could be used to create a secure register of drones and provide traceability to owners.⁹⁴ While arguably an additional administrative burden, it's not onerous given that an identical scheme applies to the purchase of mobile phones/sim cards.⁹⁵

Tracking drones during flight is unsuitable for smaller drones or racing drones where the drone weighs less than the transponder itself,⁹⁶ or where the drone does not pose a threat to the general public.⁹⁷

On the contrary, there is also opposition to mandatory flight logging and CASA tracking individual drones,⁹⁸ at least without further funding for CASA to undertake this.⁹⁹ Moreover, individual registration of drone ownership would act as a deterrent to illegal or dangerous drone activity.¹⁰⁰

A register be set up,¹⁰¹ perhaps mandatoy,¹⁰² through CASA where a drone is assigned a unique identifier,¹⁰³ administered through an online portal operated by CASA.¹⁰⁴

There are differing views on the size of the drone before registration is required, including drones weighing 500g or more,¹⁰⁵ over 250g,¹⁰⁶ over 100g,¹⁰⁷ even less than 100g.¹⁰⁸

All commercial RPAS operators should be licenced.¹⁰⁹

Point of sale certification by purchasers should be implemented so as to record intended use and identity.¹¹⁰

The requirement for all commercial drone pilots to hold a licence should be reinstated.¹¹¹ There is concern about the cost of licencing.¹¹²

93 Submission No. 45: NSW Farmers
94 Submission No. 36: Telstra Corporation
95 Submission No. 39: Australian Airline Pilots' Association
96 Submission No. 81: Dr Chris Thompson
97 Submission No. 84: Mr Sam Heeps
98 Submission No. 84: Mr Sam Heeps
99 Submission No. 81: Dr Chris Thompson
100 Submission No. 70: Regional Express
101 Submission No. 19: International Aerospace Law & Policy Group
102 Submission No. 20: ProUAV Australia; Submission No. 73: Australian Certified UAV Operators Inc.; Submission No. 28: Parrot ANZ Pty Ltd
103 Submission No. 65: Piper Alderman
104 Submission No. 12: Australian Airports Association; Submission No. 15: Global Drone Solutions
105 Submission No. 51: Mr Ashley Fairfield
106 Submission No. 73: Australian Certified UAV Operators Inc.; Submission No. 12: Australian Airports Association; Submission No. 15: Global Drone Solutions; Submission No. 63: Drone Solutions Pty Ltd
107 Submission No. 78: Drone Safety Services
108 Submission No. 65: Piper Alderman; Submission No. 78: Drone Safety Services
109 Submission No. 15: Global Drone Solutions
110 Submission No. 19: International Aerospace Law & Policy Group
111 Submission No. 64: QBE; Submission No. 51: Mr Ashley Fairfield
112 Submission No. 2: Mr Ian Fraser; Submission No. 26: Mr Jason Tepper



4. INSURANCE

Mandatory minimum **public liability insurance** for all drone use,¹¹³ or recreational RPAS,¹¹⁴ and commercial operators to hold appropriate levels of insurance to ensure injured people have recourse.¹¹⁵

Some do not support mandatory insurance provisions,¹¹⁶ Alternatively, some suggest a levy at the time of purchase to go towards an appropriate insurance arrangement, payable only by those not already covered by such insurance.¹¹⁷

It is suggested that CASA be directed to commission an independent and public report examining what levels of coverage would be appropriate for a compulsory system of public liability insurance for drones.¹¹⁸

5. 2KG COMMERCIAL EXEMPTION / WEIGHT ISSUES

Generally speaking, under the present regulations, commercial application of drones is permitted without explicit CASA authorisation if the drone weighs less than 2kg (**Exemption**).

There is support for the Exemption,¹¹⁹ which some consider an appropriate, risk-based approach,¹²⁰ of enormous benefit to a wide range of applications.¹²¹ The Exemption is applauded as a flexible, risk-based regulatory approach,¹²² which encourages Australian businesses to adopt drone technology,¹²³ and is a catalyst for innovation and economic development, while assuring the safety of the national airspace.¹²⁴

It is seen as both sound science and common sense that allows CASA to concentrate on the larger vehicles which represent a much higher risk to the general public and other airspace users.¹²⁵ Sub-2kg drones pose an exceptionally small risk to life or property in comparison to the risk posed by bicycles, hang gliders or a well-struck cricket ball.¹²⁶

It is argued that those who oppose the Exemption on the basis of safety are either misinformed or are purposely using safety concerns to run a scare campaign in order to stifle competition, protect their commercial interests and control the drone industry within Australia.¹²⁷

There is also opposition to the Exemption,¹²⁸ which is effectively seen as a deregulation of the entire drone industry,¹²⁹ which was made without industry-wide support, without hard data to

113 Submission No. 23: Helistar Aviation; Submission No. 64: QBE; Submission No. 11: Virgin Independent Pilots Association; Submission No. 46: Australian Association for Unmanned Systems; Submission No. 50: Model Aeronautical Association of Australia
114 Submission No. 73: Australian Certified UAV Operators Inc.; Submission No. 20: ProUAV Australia
115 Submission No. 22: Maurice Blackburn; Submission No. 63: Drone Solutions Pty Ltd and Lawyers; Submission No. 41: Aeroeye; Submission No. 50: Model Aeronautical Association of Australia; Submission No. 51: Mr Ashley Fairfield
116 Submission No. 59: Insurance Council of Australia; Submission No. 60: DJI
117 Submission No. 53: Mr Graham Giles
118 Submission No. 73: Australian Certified UAV Operators Inc.
119 Submission No. 28: Parrot ANZ Pty Ltd; Submission No. 47: CanberraUAV; Submission No. 60: DJI
120 Submission No. 66: UAS International
121 Submission No. 47: CanberraUAV
122 Submission No. 31: Intel
123 Submission No. 31: Intel
124 Submission No. 60: DJI
125 Submission No. 47: CanberraUAV
126 Submission No. 60: DJI
127 Submission No. 76: Mr Robin Lowe
128 Submission No. 63: Drone Solutions Pty Ltd; Submission No. 49: Aerial Application Association of Australia Ltd; Submission No. 74: Interspatial Aviation Services Pty Ltd; Submission No. 39: Australian Airline Pilots' Association; Submission No. 87: Mr Phil Stevens; Submission No. 64: QBE
129 Submission No. 7: Mr Vince Sofia



support the initiative, and without wider regard for the implications on aviation and public safety.¹³⁰

It is submitted that a 2kg drone could absolutely destroy the tail rotor of a helicopter,¹³¹ and that the sub two-kilogram variety poses the greatest risk to aircraft,¹³² and to the public.¹³³ It is submitted that even a 250-gram or 500-gram drone could destroy the tail rotor of a helicopter.¹³⁴

While some agree that the classification according to weight is an appropriate,¹³⁵ others say that weight is not an especially good control,¹³⁶ that “use” should be incorporated into the regulations so that rules are tailored based on the level of risk to the type of activity being conducted¹³⁷ or there should be no weight limit under which drones are not regulated.¹³⁸

It is argued that the Exemption is out of sync with most of the world which has adopted 250 grams as the upper limit mass for low risk use with more relaxed regulations and rule.¹³⁹

A proposed compromise situation submitted us that the Exemption be restricted to non-Populated Areas.¹⁴⁰

6. BEYOND VISUAL LINE OF SIGHT (BVLOS)

In general, flying a drone BVLOS is not permitted.

While the current VLOS requirement is also supported,¹⁴¹ there is strong support to allow BVLOS flights,¹⁴² for commercial operations,¹⁴³ which has been described as the key to unlocking many of the potential benefits associated with drones,¹⁴⁴ and will help to stimulate investment in new business models,¹⁴⁵ and a major growth area in the next 10 years.¹⁴⁶

The current requirement for BLVOS flying approval by CASA on a case-by-case basis is criticised for being too slow.¹⁴⁷

BVLOS flights will facilitate commercial drone deliveries,¹⁴⁸ and improve assistance to remote communities.¹⁴⁹

130 Submission No. 73: Australian Certified UAV Operators Inc.
131 Submission No. 87: Mr Phil Stevens
132 Submission No. 11: Virgin Independent Pilots Association; Submission No. 74: Interspatial Aviation Services Pty Ltd
133 Submission No. 74: Interspatial Aviation Services Pty Ltd
134 Submission No. 87: Mr Phil Stevens
135 Submission No. 21: Civil Air Operations Officers Association of Australia; Submission No. 28: Parrot ANZ Pty Ltd
136 Submission No. 9: Mr Egon Kuster
137 Submission No. 9: Mr Egon Kuster
138 Submission No. 87: Mr Phil Stevens
139 Submission No. 63: Drone Solutions Pty Ltd
140 Submission No. 74: Interspatial Aviation Services Pty Ltd
141 Submission No. 63: Drone Solutions Pty Ltd
142 Submission No. 26: Mr Jason Tepper; Submission No. 59: Insurance Council of Australia
143 Submission No. 56: Institute of Public Affairs
144 Submission No. 36: Telstra Corporation
145 Submission No. 56: Institute of Public Affairs
146 Submission No. 52: Mr Chris Bird
147 Submission No. 27: Department of the Environment and Energy
148 Submission No. 40: Domino's Pizza Enterprises Ltd
149 Submission No. 59: Insurance Council of Australia



The risk of BVLOS flight can be reduced through designated flight routes, strict AGL separation, ATC and training,¹⁵⁰ as well as having all beyond visual sight operations conducted with ADS-B transponders on board the aircraft.¹⁵¹

To aid in BLVOS, it is submitted that CASA setup sites for BVLOS testing.¹⁵²

7. **PRIVACY**

Existing privacy laws primarily regulate only Australian government agencies and large private sector organisations.¹⁵³

It is suggested that a specific right to privacy is created,¹⁵⁴ or that CASA work with the Australian Privacy Commissioner to review current legislation to ensure there is adequate protection against perverse privacy invasion,¹⁵⁵ and to deter and control the threat of unauthorised surveillance and privacy risk associated with drones.¹⁵⁶

The Office of the Australian Privacy Commissioner has suggested that it may develop an Australian Privacy Principles Code under the Privacy Act specifically for drone use.¹⁵⁷

Others argue that any privacy provisions should be directed at the offending conduct and not the specific technology that happens to be employed.¹⁵⁸

8. **AIRWORTHINESS**

CASA has yet to develop a comprehensive set of airworthiness regulations for the drone industry.¹⁵⁹ Therefore, airworthiness regulations should be a priority for CASA.¹⁶⁰

Any proposed airworthiness framework should closely follow the model currently being developed by the Joint Authorities for Rulemaking and Unmanned Systems (JARUS) and the European Aviation Safety Agency (EASA).¹⁶¹

It is submitted that as a minimum requirement, drone pilots should inspect their aircraft for serviceability and airworthiness before each flight.¹⁶²

150 Submission No. 59: Insurance Council of Australia

151 Submission No. 23: Helistar Aviation

152 Submission No. 52: Mr Chris Bird

153 Submission No. 72: Office of the Australian Information Commissioner

154 Submission No. 65: Piper Alderman

155 Submission No. 32: Australian Pork

156 Submission No. 38: Victorian Farmers Federation; Submission No. 71: Australian Miniature Aerosports Society Inc; Submission No. 72: Office of the Australian Information Commissioner

157 Submission No. 72: Office of the Australian Information Commissioner

158 Submission No. 60: DJI

159 Submission No. 46: Australian Association for Unmanned Systems

160 Submission No. 46: Australian Association for Unmanned Systems; Submission No. 61: Council of Scientific and Industrial Research; Submission No. 23: Helistar Aviation

161 Submission No. 17: Civil Aviation Safety Authority

162 Submission No. 19: International Aerospace Law & Policy Group



9. AIR TRAFFIC MANAGEMENT

Australia currently lacks a roadmap for the seamless integration of drones into Australian airspace.¹⁶³ As a result, there is support for a drone air traffic management system,¹⁶⁴ or at least clear guidelines for the co-operative use of airspace, between traditional and emerging users.¹⁶⁵

Some submit that CASA has failed to address the airspace separation between drones and other low-level airspace users.¹⁶⁶ It would not be unreasonable to expect CASA to have established a real time system of communication between drone users and existing low-level airspace users to allow them to make local arrangements for adequate self-separation.¹⁶⁷ This may be facilitated by way of connectivity with a standardised flight control platform through cellular networks,¹⁶⁸ offered by private providers,¹⁶⁹ or for a shared military and civil national air traffic control system which is currently being developed.¹⁷⁰

10. SPECIAL RULES/CARVE-OUTS

There is a view that commercial and non-commercial purposes should be regulated differently,¹⁷¹ as they pose different risks/hazards to aviation and public safety.¹⁷² For recreational users, safe flying areas should be designated by the appropriate authorities.¹⁷³

Many submissions called for carve-outs for more specific uses or locations, including the following:

- (a) within an enclosed building;¹⁷⁴
- (b) on private property,¹⁷⁵ although the landowner 'excluded operation' category is criticised;¹⁷⁶
- (c) police to perform tasks in conditions, locations and circumstances that commercial operators cannot,¹⁷⁷ including the allowance of police or fire service drones to deployed for faster and cheaper "eyes on" compared to the dispatch of a helicopter,¹⁷⁸ This could include an approval process for emergency aerial operations over controlled airspaces,¹⁷⁹ and a legislative ability to stop or remove RPAS in police operations area;¹⁸⁰

163 Submission No. 46: Australian Association for Unmanned Systems
164 Submission No. 36: Telstra Corporation; Submission No. 26: Mr Jason Tepper; Submission No. 73: Australian Certified UAV Operators Inc.
165 Submission No. 40: Domino's Pizza Enterprises Ltd; Submission No. 21: Civil Air Operations Officers Association of Australia
166 Submission No. 49: Aerial Application Association of Australia Ltd
167 Submission No. 49: Aerial Application Association of Australia Ltd
168 Submission No. 16: Little Ripper Lifesaver Pty Ltd
169 Submission No. 78: Drone Safety Services
170 Submission No. 73: Australian Certified UAV Operators Inc.
171 Submission No. 50: Model Aeronautical Association of Australia; Submission No. 21: Civil Air Operations Officers Association of Australia
172 Submission No. 71: Australian Miniature Aerosports Society Inc
173 Submission No. 16: Little Ripper Lifesaver Pty Ltd; Submission No. 23: Helistar Aviation
174 Submission No. 52: Mr Chris Bird
175 Submission No. 56: Institute of Public Affairs; Submission No. 61: Council of Scientific and Industrial Research; Submission No. 38: Victorian Farmers Federation
176 Submission No. 41: Aeroeye; Submission No. 63: Drone Solutions Pty Ltd
177 Submission No. 69: NSW Government; Transport for NSW
178 Submission No. 93: IDS Australia
179 Submission No. 75: Victorian Department of Environment, Land, Water and Planning
180 Submission No. 67: Northern Territory Police, Fire and Emergency Services



- (d) model aircraft activities;¹⁸¹
- (e) no-profit operation; ¹⁸²
- (f) greater level of protection is to be afforded to aerodromes,¹⁸³ including an exclusion zone of 10 kms be established around all controlled airports,¹⁸⁴ and drones keep at least 5.5km away from any aerodrome and helicopter landing pad, whether it is registered or not;¹⁸⁵
- (g) Racing drones should be in own category,¹⁸⁶ and not face the same onerous restrictions that apply to other forms of drone;¹⁸⁷
- (h) remote areas;¹⁸⁸
- (i) Government Property;¹⁸⁹
- (j) hospital grounds;¹⁹⁰
- (k) enforce exclusion zones based on identified high risk airspace, both military and civil;¹⁹¹
- (l) University research facilities.¹⁹²

11. USING NEW AND/OR EMERGING TECHNOLOGES

There is support for geo-fencing, ¹⁹³ as well as return to home functionality, ¹⁹⁴ forced/flight termination systems,¹⁹⁵ sense and avoidance technology, ¹⁹⁶ collision avoidance, ¹⁹⁷ and command and control technology.¹⁹⁸

It is submitted that manufacturers be required to technically limit the distance that a drone can travel from its pilot.¹⁹⁹ It is also submitted that all drones sold domestically or imported into Australia could be firmware locked to conform to current regulations²⁰⁰

181 Submission No. 14: Aeromodellers NSW
182 Submission No. 47: CanberraUAV
183 Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 58: Regional Aviation Association of Australia
184 Submission No. 11: Virgin Independent Pilots Association
185 Submission No. 63: Drone Solutions Pty Ltd
186 Submission No. 9: Mr Egon Kuster
187 Submission No. 81: Dr Chris Thompson; Submission No. 86: Mr John Cotterill
188 Submission No. 93: IDS Australia; Submission No. 47: CanberraUAV; Submission No. 24: Thiess Pty Ltd
189 Submission No. 61: Council of Scientific and Industrial Research
190 Submission No. 48: NSW Ambulance
191 Submission No. 39: Australian Airline Pilots' Association
192 Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide
193 Submission No. 33: National Farmers' Federation; Submission No. 46: Australian Association for Unmanned Systems; Submission No. 39: Australian Airline Pilots' Association; Submission No. 63: Drone Solutions Pty Ltd; Submission No. 31: Intel
194 Submission No. 46: Australian Association for Unmanned Systems
195 Submission No. 46: Australian Association for Unmanned Systems
196 Submission No. 31: Intel
197 Submission No. 31: Intel
198 Submission No. 31: Intel
199 Submission No. 20: ProUAV Australia
200 Submission No. 30: Australia Post



GIS technology combined with smart phones or other devices would lend itself to improving safety across a wide range of low level airspace issues.²⁰¹

There is also support for a dedicated frequency spectrum for the command, control and payload communications systems.²⁰²

Others generally do not support specific technology mandates as they stifle innovation.²⁰³

12. GENERAL CRITICISM

There is much general criticism of the current regulatory regime,²⁰⁴ which has been called a complete failure,²⁰⁵ and that the recent Part 101 regulation makes the situation worse,²⁰⁶ with the creation of extensive new problems for aviation safety affecting all users of the Australian skies.²⁰⁷

The regulations are not sufficiently harmonised with international efforts to provide a seamless integration of manned and unmanned aviation,²⁰⁸ and that CASA's risk assessments are flawed and are not supported by international research.²⁰⁹ Accordingly, CASA should await

the outcome of the International Civil Aviation Organisation survey of states on local drone laws.²¹⁰

While some stop short of calling for a repeal of the most recent regulations recognising that elements such as terminological harmonisation with International Civil Aviation Organisation guidance is essential to sound forward development of the commercial RPAS sector as a whole,²¹¹ others call for the most recent regulations to be repealed.²¹² Also flagged is the potential for argument that the regulations are ultra vires and open to judicial challenge.²¹³

Some consider the latest regulations too lenient,²¹⁴ due to safety concerns,²¹⁵ and which have the potential to send contradictory messages to the general public about the regulation of drone activity.²¹⁶ There is currently no reference to any regulation or controls around the external loads that a drone is authorised to carry.²¹⁷

201 Submission No. 49: Aerial Application Association of Australia Ltd

202 Submission No. 61: Council of Scientific and Industrial Research

203 Submission No. 60: DJI

204 Submission No. 65: Piper Alderman; Submission No. 7: Mr Vince Sofia; Submission No. 63: Drone Solutions Pty Ltd

205 Submission No. 13: Austec Aerial Solutions

206 Submission No. 22: Maurice Blackburn Lawyers

207 Submission No. 73: Australian Certified UAV Operators Inc.

208 Submission No. 73: Australian Certified UAV Operators Inc.

209 Submission No. 73: Australian Certified UAV Operators Inc.

210 Submission No. 22: Maurice Blackburn Lawyers

211 Submission No. 73: Australian Certified UAV Operators Inc.

212 Submission No. 13: Austec Aerial Solutions; Submission No. 22: Maurice Blackburn Lawyers; Submission No. 19: International Aerospace Law & Policy Group; Submission No. 73: Australian Certified UAV Operators Inc

213 Submission No. 22: Maurice Blackburn Lawyers

214 Submission No. 19: International Aerospace Law & Policy Group; Submission No. 73: Australian Certified UAV Operators Inc.; Submission No. 23: Helistar Aviation; Submission No. 11: Virgin Independent Pilots Association; Submission No. 22: Maurice Blackburn Lawyers

215 Submission No. 74: Interspatial Aviation Services Pty Ltd; Submission No. 73: Australian Certified UAV Operators Inc.

216 Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide

217 Submission No. 69: NSW Government; Transport for NSW



On the other hand, some consider the latest regulatory amendments to be too strict,²¹⁸ seen as government red tape strangling the life out of this industry,²¹⁹ and a barrier for those who want to innovate and create commercial opportunities.²²⁰ There is also criticism that CASA has tried to apply a full size aviation solution to something that is now in the hands of the common person.²²¹ CASA needs to provide greater certainty in relation to the requirements

for approvals and certainty in relation to the application processing time including clearer processes, more efficient processing, and lower application costs.²²²

The regulations are also criticised for being complex and difficult to understand,²²³ such as the use of the term 'populous area',²²⁴ or how to determine areas of restricted airspace.²²⁵ They

are also confusing due to areas of overlap and confusion between Federal law and local laws and regulations,²²⁶ making it difficult for drone pilots to identify, let alone interpret, all of the relevant requirements.²²⁷

GENERAL SUPPORT

There is a lot of general support for the current regulatory regime,²²⁸ which is seen as fair, workable and adequate.²²⁹

CASA has employed a with sound and objective risk- based methodology,²³⁰ which are seen as a reasonable balance between community safety and the growth of the industry.²³¹ It is submitted that it is virtually impossible to cause harm to passenger aircraft or others in general when RPA are operated correctly and as per our current legal requirements.²³²

Moving forward, a solid regulatory framework laying down all technical, safety and operational requirements will need to be implemented.²³³

218 Submission No. 36: Telstra Corporation
219 Submission No. 52: Mr Chris Bird
220 Submission No. 20: ProUAV Australia
221 Submission No. 52: Mr Chris Bird
222 Submission No. 46: Australian Association for Unmanned Systems
223 Submission No. 63: Drone Solutions Pty Ltd; Submission No. 52: Mr Chris Bird
224 Submission No. 65: Piper Alderman
225 Submission No. 52: Mr Chris Bird
226 Submission No. 51: Mr Ashley Fairfield; Submission No. 75: Victorian Department of Environment, Land, Water and Planning; Submission No. 65: Piper Alderman
227 Submission No. 65: Piper Alderman
228 Submission No. 85: Mr Yiming Teng; Submission No. 81: Dr Chris Thompson; Submission No. 43: Unmanned Research Aircraft Facility, University of Adelaide; Submission No. 68: Asia-Pacific RPAS Consortium; Submission No. 4: Mr John Cook; Submission No. 70: Regional Express; Submission No. 24: Thiess Pty Ltd; Submission No. 35: Australasian Fire & Emergency Service Authorities Council and National Aerial Firefighting Centre; Submission No. 46: Australian Association for Unmanned Systems; Submission No. 21: Civil Air Operations Officers Association of Australia; Submission No. 36: Telstra Corporation; Submission No. 32: Australian Pork; Submission No. 1: Mr Don Raffaele; Submission No. 5: Department of Agriculture and Food, Western Australia; Submission No. 6: Mr Michael Fawcett; Submission No. 8: Elevo Pty Ltd; Submission No. 66: UAS International; Submission No. 36: Telstra Corporation
229 Submission No. 78: Drone Safety Services; Submission No. 76: Mr Robin Lowe; Submission No. 71: Australian Miniature Aerospports Society Inc
230 Submission No. 66: UAS International; Submission No. 60: DJI
231 Submission No. 56: Institute of Public Affairs
232 Submission No. 76: Mr Robin Lowe
233 Submission No. 70: Regional Express; Submission No. 57: Australian Strategic Air Traffic Management Group; Submission No. 46: Australian Association for Unmanned Systems; Submission No. 66: UAS International