

Regulatory requirements that impact on the safe commercial and recreational use of Remotely Piloted Aircraft Systems (RPAS), Unmanned Aerial Systems (UAS) and associated systems.

Proposal to assist CASA to monitor illegal UAV use and to enforce the strict operating conditions necessary to comply with the Civil Aviation Act and regulations

Background

Under new rules that came into effect from 29 September 2016, commercial operators of RPAs, or drones, weighing less than two kilograms do not have to apply to CASA for a certificate and licence. Instead, operators fill out an online notification form detailing the specifications of the aircraft for CASA's records.

Operators were also required to fly the aircraft under a number of specific conditions, including that they only be used during daylight hours and in line of sight, be more than 30 metres away from people and more than 5.5 kilometres away from a controlled airport. Their use over populous areas such as beaches, parks and sporting ovals, as well as near emergency operations such as bushfires, accidents or search and rescue areas was also prohibited.

CASA said in a statement on its website the new rules "cut the cost and red tape of operating very small commercial drones while protecting public safety".

The Issues

John Lyons, the president of the union representing Virgin Australia group pilots VIPA, said "the risk of an aircraft hitting a drone, which is also called an unmanned aerial vehicle (UAV) had increased considerably" with the introduction of the new rules. He also added that "CASA has been forced to lift the licensing restriction on UAVs as a result of the explosion in small low-cost drones available to the public and its lack of resources to monitor illegal use".

He stated that "Small drones in unqualified hands equate to a potentially lethal weapon". They are prone to loss of control, battery and structural failure. Even a small UAV falling out of the sky over a public area can cause lethal injury and serious damage. "A drone inadvertently or deliberately flown into the path of an airliner on approach to or departing an airport could easily cause a disaster."

In addition to the concerns raised by Captain Lyons, the Australian Federation of Air Pilots (AFAP), Civil Air Australia and Australian Certified UAV Operators (ACUO), are said to be considering a High Court appeal if the regulations were not changed, according to a statement from Maurice Blackburn Lawyers, which is assisting the trio on the matter.

Australian Federation of Air Pilots (AFAP) president David Booth said there was a growing problem of rogue drones violating controlled airspace at primary airports.

Although Civil Air President Tom McRobert has acknowledged that: "There are some really good operators out there that show professionalism but, I fear they are the minority. Drones and especially their use in built up areas without proper regulation and enforcement is a recipe for disaster."

The views of industry representatives are supported by independent Senator Nick Xenophon, who in his press release of 6 October 2016 pledged to move an "urgent disallowance motion" to change new rules that allow people to fly light drones without a licence or training.

In a press release on 4 November 2016 by money.cnn.com, it was stated that Dubai airport "the third busiest in the world, has already been forced to shut three times this year because of unauthorized drone activity, creating a headache for airlines and their passengers. During the most recent closure, which lasted for 90 minutes on Oct. 29, 22 flights had to be diverted to other airports. Each shutdown costs the airport about \$1 million a minute".

<http://money.cnn.com/2016/11/04/technology/dubai-airport-drone-hunter/>

The new updated regulations introduced by CASA were seen by many as a way to encourage the controlled commercial use of drones but they do not appear to cater for an ever increasing number of drones being used for sport and recreational flying up to 2kg.

The most critical safety concern, in Australia, is that although CASA have the regulatory authority to impose restrictions on the use of drones they do not have the infrastructure or resources to monitor and enforce acceptable drone usage.

Proposed Solution

My company Nitestar Security Group, anticipated the issues that have arisen with the further use of drones and started planning in early 2015 to create a practical solution to a complex problem that could assist CASA and local authorities in managing drone use while providing an enforcement infrastructure. We have awaited our opportunity to present this to the right audience and believe that, given the initial response to CASA's new regulations, now is the right time to do so.

It is proposed that CASA engage Nitestar Security Group to monitor and enforce UAV regulations under their delegated authority.

Why use Nitestar?

Nitestar is a licensed security provider that is unique insofar as they are also a registered Unmanned Aerial Vehicle Operator (CASA.UOC.0696) that employs pilots with UAV controller certification.

The Nitestar Security Group was established in 1995. In 2014 a decision was made to use innovative technologies in support of their security work with their first UAV pilot obtaining his UAV Controllers certificate in April 2015. An expansion of drone use into other sectors led to the development of Nitestar's drone services division.

Later in 2015 Nitestar were the proud recipients of an Advance Queensland Knowledge Transfer Partnership grant from the Queensland State Government. In collaboration with the Australian Research Centre for Aviation Automation, Nitestar has been charged to assist in developing Queensland into a global innovation hub with a goal to create jobs and drive expansion in local communities. This is being accomplished through investigating and conducting new and innovative applications, utilising UAVs across multiple industry sectors.

Why should a security company be involved?

Although it is possible to monitor drone usage from the ground it is impractical to do so as pilots and drones can be difficult to detect and can easily move locations.

The most efficient way to monitor drone usage is with a combination of ground and aerial surveillance.

To undertake this work it is a requirement that the person/company meet the following criteria

- They must have a Security Firms licence (Class 1 and class 2), in some states this is referred to as a Security Master licence
- Their security personnel must be licenced
- They must have a valid UAV Operators Certificate
- Their pilots must have a valid UAV Controllers Certificate

An extract from a recent email, from the Queensland Department of Justice and Attorney-General, confirming the Security Licensing requirements is shown below:

Section 7 of the Security Providers Act 1993 states that a security officer is a person who, for reward, guards, patrols or watches another person's property, including by -

(b) personally monitoring the property by operating an audiovisual or visual recording system, a radio or other electronic monitoring device.

Section 8 of the Act states that a security firm is a person who, or partnership that, engages in the business of supplying, for reward, security firm services to other persons. Under the Acts Interpretation Act 1954, schedule 1, person includes a corporation.

Therefore whilst it is acknowledged that Nitestar Pty Ltd holds a Security firm licence (3183192) for a class 1 and class 2 licence, it would appear that any individuals operating a drone for reward would also be required to hold a Security Officer (Monitoring) licence.

To summarise, the OFT is not responsible for the licensing for the operation of the drone and cannot provide information relating to the CASA controllers certificate, however it would appear that the security services using UAVs/Drones would fall within the definition of a security officer (monitoring) licence, if being used for the specific purposes of monitoring and surveillance type work etc.

Business Model

Nitestar would be engaged by CASA under their delegated authority to undertake a critical part of their monitoring and enforcement role.

Nitestar would trade under the registered business name "Drone Force".

Guards/pilots would be located in mobile units at agreed locations across Australia to monitor drone usage for any breaches of the regulations.

Breach notices would be given to drone operators, where required, with evidence of the breach being sent to CASA's enforcement officers.

In addition to sending breach notices to CASA, consideration should be given that the offending drone operator could also be served with a local City/Town Council infringement notice. (n.b. in some cases the offender may have only breached local bye-laws and as such, only a council infringement notice would be given.)

Where Nitestar is engaged to monitor and enforce restrictions on drone flying in Controlled Airspace then they will require clearances from Air traffic control. Nitestar, if required, will provide evidence to CASA and Airservices that they can comply with similar airworthiness, pilot training and organisational requirements to current airspace users so that separation standards and procedures can be applied universally with no disadvantage to any airspace user.

Nitestar acknowledge that in addition to CASA requirements, Airservices needs the UAS/remote pilot to be equipped with;

- a) air band VHF radio
- b) ground to ground telephone communication
- c) transponder Mode A/C/S in surveillance airspace
- d) ADS-B 1090 Out, where mandated
- e) barometric altimetry

However, given that Nitestar would ensure that all of their drones are only flown in VLOS at or below 400 feet above ground level then it is anticipated that a formal waiver of items c, d and e may be obtained.

How this service could be funded

Alternative 1 (Working only for CASA)

Funded through CASA's budget, which could be supplemented with enforcement penalties received.

Alternative 2 (Preferred – Working for both CASA and local City/Town Councils)

Funded through enforcement penalties received and contributions from City/Town Councils.

Special note:

It is strongly proposed that CASA make an amendment to their penalty regulations so that a breach of the regulations by a drone operator would be accompanied by a breach notice to the owner/operator of the land upon which the breach occurred.

This would mean that if a breach occurred, say on a beach near an airport, that the City/Town Council would also be served with a breach notice that could result in a penalty/fine being issued.

This would encourage City/Town Councils to assist with the monitoring of drones as in return for City/Town Councils assisting with the funding of the "Drone Force" CASA would waive any penalties that Councils would have been charged on the basis that they are mitigating their culpability by their engagement/funding of monitoring personnel. It would also decrease the likelihood of land owners in restricted areas employing unlicensed operators to perform unsanctioned flights in these zones.

Next Steps

Should you wish to consider our proposal further then we would be happy to make a formal presentation to you which would provide more comprehensive information as to how this would work in practice.

We look forward to hearing from you.

Yours Sincerely

Bob Dean

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