



# Model Flying New Zealand

NZMAA – New Zealand Model Aeronautical Association

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**18/08/2020**

The Director of Civil Aviation

## **Colmar Brunton New Zealand Drone Research June 2020 Response and Questions**

Thankyou for the opportunity to raise comment and questions of the research undertaken by Colmar Brunton.

Model Flying New Zealand (MFNZ) is an incorporated society representing more than 2000 RPAS (Remotely Piloted Aerial System) users in New Zealand. Incorporated in 1948, the organization has enjoyed more than 70 years as part of New Zealand's aviation environment, operating safely and productively for the entire community.

Model Flying New Zealand undertakes training of its members, takes part in STEM and educational content for students, and promotes the continued safe use of RPAS for recreation within New Zealand.

We enjoy a valuable and healthy relationship with the Civil Aviation Authority. Many of our members are professional pilots, commercial RPAS operators, and all are aviation enthusiasts.

MFNZ membership on average operates 20.8 RPAS each. By MFNZ internal numbers this represents 37% of New Zealand's RPAS fleet.

MFNZ helped develop the current CAR101 rule set and holds its own CAR102 certificate. Its members are able to fly aircraft over 25kg, and at night, under this certificate. As well as the CAR102, MFNZ is an approved organization IAW CAR101.202 and meets the definition in CAR101.207(b)

The previous Colmar Brunton RPAS survey dated August 2017 produced obviously erroneous results, which were then scaled by a factor to appear less nonsensical in public consultation<sup>1</sup>. Model

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<sup>1</sup> Drones: Benefit Study 2019 / MoT & MBIE / s2.2 – m.e consulting

Flying New Zealand was very enthusiastic about the possibility of accurate data from this latest survey.

Unfortunately, there appear to be questionable results and conclusions drawn in the latest survey.

## **Methodology**

Colmar Brunton details the methodology in carrying out the 2019/2020 survey on page 81 of the report. The main source of data was interviews and the online survey with users and the general public, and then the results were extrapolated from these.

MFNZ questions why this method was used, when real data is available in many of the fields and would result in significantly more accurate findings.

For example, the number of DJI aircraft individual IDs that have been activated within New Zealand is available and is a significantly lower number than that given in the survey results. As DJI easily represents the largest number of consumer or prosumer drone sales (between 77-90%<sup>2</sup>), this data can provide an accurate scalar to the entire countries RPAS fleet. In the most extreme example this still results in numbers that are half that claimed by the latest Colmar Brunton survey.

MFNZ carries out regular internal surveys of our membership, with higher levels of engagement and a larger population sample set than the Colmar Brunton survey. Again, the numbers MFNZ conclude are significantly different than the results of the Colmar Brunton survey.

MFNZ notes that no subject matter experts from within MFNZ, nor any other representative body, were consulted during the process of the generating the questions to the survey. The lack of understanding of the technology, and rules, is evident in the results. MFNZ made repeated attempts to participate in the formulation and analysis of the survey and all were rebuffed.

As one example of the avoidably erroneous results, page 24 of the report states that 73% of New Zealand's commercial drone fleet is manufactured by DJI, however 49% of the fleet features geofencing as a technology. This is obviously erroneous data, as the overwhelming majority of DJI aircraft in operation (all made in the last 5+ years) feature geofencing, let alone the other manufacturers that also feature geofencing. Similar examples can be made of remote ID, lighting, etc.

Whilst no effort was made to consult subject matter experts, the survey does include data from 1038 people who have not operated an RPAS, nor have any training or perceivable knowledge about the subject. As the general population are largely guided by the media in regards to their thoughts on various subjects, and the many "bad drone stories" generating traffic through news releases, this seems quite an absurd situation: ignoring real data, yet using a large part of the survey consulting the general public who cannot be expected to know the rules or technology.

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<sup>2</sup> <https://www.droneii.com/drone-manufacturer-market-shares-dji-leads-the-way-in-the-us> & <https://uavcoach.com/2019-drone-industry-survey/>

As this survey's results are being used to drive future RPAS legislation, this does not align with the Civil Aviation Authorities "risk based proportional regulation" ethos. Nor does it align with the ethos of "stakeholder engagement" in rule development.

*Please explain why no sources of hard data were used to generate the results, or even as a sanity check, and why no subject matter experts or third parties were consulted in the construction of the survey or the questions asked in it.*

### **Survey Questions – Project Tsunami - Residential Sample Drone Questionnaire.pdf**

- 1. When some of our members tried to complete the survey, as soon as they input their address at S11, the survey shut down. Why was this?*
- 2. Question A2 does not allow an answer appropriate to model aircraft. Why is this since they are part of the survey according to the heading photos in S1?*
- 3. The average age of our members is almost 60 and the majority have been flying RPAS since childhood. How appropriate is it to focus questions A3a and A3b on the last 6 months and earlier than 6 months?*
- 4. How many people answered option 3 to question B1? Using your extrapolation algorithm how does the resulting number relate to the actual MFNZ membership?*
- 5. Why does B4 not list "registered flying site" as an option?*
- 6. Question B5b makes no allowance for flying at a registered flying site, why is this? Many of these sites allow for RPAS operation without pre planning due to already existing arrangements.*
- 7. Is question B7 appropriate for persons with 50 years flying experience? What is the relevance of discovering that a model aircraft crashed harmlessly in a farmer's field 40 years ago? Or to an FPV racing drone clipping a gate (or 10 of them) in the weekend?*
- 8. What were the responses to question C2? Was there a difference between responses from those who selected option 3 at Question B1 and other responders?*
- 9. In Question C4, seven out of the eight questions can be answered true or false correctly according to whether the responder is a member of an approved organisation or operating under CAR102. What is the correlation between these answers and those who selected option 3 to B1?*
- 10. Was question C4, or any of the other questions, changed or clarified during the course of the survey being online?*

11. *Question C4 options 1/2/5/8 are all possible to answer true or false correctly or incorrectly under the provisions stated, and under CAR101. Was this factored into the results?*
12. *The rules stated in Question C5 are wrong in that they are incomplete. For example, it is untrue to say “you can’t fly above 400ft”. You can if you are in a Danger area (MFNZ operate 27 such areas) or if a NOTAM is in place<sup>3</sup>. Asking whether a rule is reasonable is invalid if the rule is wrongly stated, was this factored into the results?*
13. *The statement at C6 is incorrect. The Part 102 certificate held by Model Flying New Zealand is for the operation of Large models and for night operation. The majority of our members fly under Part 101 rules. It is membership of the approved organisation that permits flying on or near airfields, over property without permission, night flying and flying over 400ft. The above questions all make question C6 impossibly to answer correctly. Was this factored into the results?*
14. *How do the answers to C8 correlate to the B1 option 3 response?*

## **General Results Response**

### **Restricted Airspace (throughout survey results)**

The use of the term “Restricted Airspace” can only be described as deliberately misleading within the survey. Restricted Airspace is a precisely defined type of airspace by CAA under CAR Part 71<sup>4</sup>. What the survey is likely referring to is Controlled Airspace.

Restricted Airspace, and the Control Zone (CTR) are quite different and promulgating incorrect information serves only to confuse. It is not possible to operate within a shielded environment within Restricted Airspace, however it is within a CTR.

*Why is Restricted Airspace being confused with Control Zones and other types of special use airspace?*

### **DJI Maps Vs. Airshare – Page 37**

DJI's map does not show the Control Zone, but rather the approach and departure paths that are logically areas of higher risk due to increased traffic, rather than Airshare's map which is displaying the CTR (not restricted airspace). Also note the Airshare map being represented is out of date and deprecated, incorrectly drawing the 4km radius from the boundary of the aerodrome.

There are numerous examples of where both DJI Go and Airshare (and other non-certified airspace maps) are missing airspace, or erroneously display it, however it is incorrect to compare them, both are incomplete, and both are showing different things.

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<sup>3</sup> New Zealand Civil Aviation Rule Part 101.202, and 101.207(b)(c)

<sup>4</sup> New Zealand Civil Aviation Rule Part 71.153

The correct way to compare all the various uncertificated airspace data is each one to a current Visual Navigation Chart and the Aeronautical Information Publications, rather than to each other.

### **Raw numbers of operators and RPAS - (throughout survey results)**

Page 10 of the report states 271,121 New Zealanders have used a drone for recreational purposes in the last 6 months, and that there are 156,610 recreational RPAS. How is “used” defined? Do they have a family member who actually operated the RPAS to take a family photo? In this example are all the family members users of the RPAS? Or does Colmar Brunton suggest that every recreational drone owner shares their aircraft with one (or more) other?

This is obviously at odds with MFNZ numbers of 20.8 RPAS per member and does not pass the “sanity check”.

This result is also at odds with the 2019 Drone: Benefits Study commissioned by MOT and MBIE<sup>5</sup>

The United States FAA records 990,000 recreational drone operators, and 1.2 million recreational drones<sup>6</sup>. The results of this survey imply that New Zealand has twice the number of operators as RPAS, which is not in line with international data.

*How does Colmar Brunton justify this result? How did Colmar Brunton arrive at the figure of 271,121 from the survey?*

### **Demographics – Page 17-18 (83)**

Page 83 footer states that use of RPAS of those aged over 75+ was negligible, and therefore not projected in the results.

MFNZs membership includes 294 individuals aged over 75, potentially representing some 6000 RPAS. This is greater than the entire number of registered manned aircraft operating in New Zealand<sup>7</sup>.

*How does Colmar Brunton conclude that this is negligible number?*

### **Aircraft Weights – Page 11**

The survey states that there are 331 drones over 5kg operating in New Zealand recreationally.

Model Flying New Zealand operates as a CAA approved 101.202 organization, and under CAR102. This allows the operation of RPAS between 15-25kg and 25kg+ RPAS, known within MFNZ as Category 1 and Category 2 respectively.

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<sup>5</sup> Drones: Benefit Study 2019 / MoT & MBIE / s2.2 – m.e consulting

<sup>6</sup> <https://www.phillybyair.com/blog/drone-stats/> & [https://www.faa.gov/uas/resources/by\\_the\\_numbers/](https://www.faa.gov/uas/resources/by_the_numbers/)

<sup>7</sup> <https://www.aviation.govt.nz/aircraft/aircraft-statistics/aircraft-class/>

MFNZ records indicate that within MFNZ membership:

- Cat 1 (15-25kg) – 319
- Cat 2 (25kg+) – 34

As the survey uses 5kg as the weight break, which does not align with CAR101, MFNZ does not keep record of the number of 5-15kg aircraft within its membership. However, as the average 60+ sized model aircraft will be over 5kg, the number of 5kg+ aircraft operated recreationally will be in the many thousands within MFNZ membership alone.

The survey results are obviously erroneous.

We also note that all other CAR101.202 approved organizations will keep records of RPAS under their approval, but none were contacted.

*Why did Colmar Brunton not approach the CAR101.202 approved organizations for accurate and documented data?*

### **Rule Comprehension – Page 57**

“When tested on the rules, commercial users are proven to be more knowledgeable than recreational users”

As previously noted, the survey incorrectly represents the rules, or presents them in such a manner that a yes/no answer is impossible if the respondent actually understands the rules.

It is not at all reasonable to draw any conclusions from the survey data on these aspects.

### **Incidents – Page 76**

It is misleading to conclude that a recreational RPAS crashing is an “incident”. Many of them are operated in a fashion that will result in crashes nearly 100% of time, such as FPV Racing. Often the aircraft is able to right itself and immediately take off again.

Gathering data on the number of recreational drone crashes is akin to gathering data on the number of bumper cars at an amusement park hitting each other, if not nuanced properly. Whilst actual RPAS incidents do happen, one cannot compare a crash of a recreational RPAS to manned aircraft crashes, nor automotive ones. The consequences are entirely different, and comparison only results in erroneous data that skews the readers interpretation.

A much more worthwhile statistic when taking into consideration in these results is the incredibly low number of injuries and accidents resulting from the recreational use of RPAS - Notably lower than many other sports or recreational activities.

*Why was data that erroneously conveys risk gathered, rather than more useful statistics?*

## **Privacy – (throughout survey results)**

The word “Privacy” occurs 17 times throughout the document, with a number of pages addressing it specifically, however the New Zealand Privacy Commissioner records only 3 complaints<sup>8</sup> in the last 10 year period regarding RPAS use. None of the complaints were upheld. Millions of RPAS flights, three privacy complaints.

Existing privacy laws have been proven to be fit for purpose with RPAS use<sup>9</sup>, privacy concerns are sensationalized in the media, rather than being an actual problem worthy of more legislation or regulation.

There are far more privacy issues regarding cell phone cameras, however privacy seems to be a theme of the Colmar Brunton report.

*Why is privacy seemingly such a large focus of the report, when statistically it’s a non-event?*

## **Peak Drone – Page 21 and 25**

It is widely known in the industry that the peak sales of consumer and prosumer camera drones occurred in December 2018. This is documented in sales records and is also represented in the dataset gathered in this survey.

Post December 2018, consumer camera drone sales have reached a plateau, or in some cases declined. Many industry surveys predict an increase in the number of industrial RPAS being sold and operated, the aircraft being far fewer in number (albeit higher in cost) and most likely operating under CAR102 in New Zealand.

This is obviously very important if the survey results are to be used in the guidance of future regulation.

*Why was this not referenced in the survey results conclusions?*

## **Conclusion**

Whilst Model Flying New Zealand applauds all parties involvement for conducting the survey, and appreciates the need for risk based proportional regulation being constructed from the data gathered by such surveys, the obvious errors and lack of common sense applied in this report make it unfit for its intended purpose.

Due to how the survey was conducted, and the questionable data gathered, its difficult to find a single page in the report that does not contain errors in the results or in its conclusions.

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<sup>8</sup> Official Information Act Request – Privacy Commissioner July 2020

<sup>9</sup> <https://www.privacy.org.nz/blog/drones/>

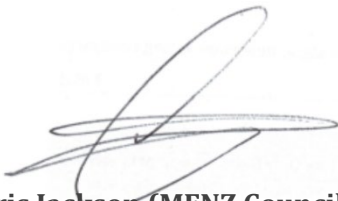
As the registration of RPAS is a perceived risk mitigation factor in future RPAS legislation, despite previous international evidence to the contrary, if data from this survey is used to justify a registration system the costs and revenue predicted from such a system will also be erroneous.

The obvious deficiencies in the data need to be addressed and annotated, and then the report reconsidered before it is used in the guidance of any future action of any sort. Due to this report being publicly distributed by the parties involved, and commented on in the media<sup>10</sup>, this should include some form of public retraction of the inaccuracies.


We implore MOT, CAA, MBIE and Colmar Brunton to make use of the communities and industries representation groups, and subject matter experts, in any future surveys. With the limited resources available to the CAA, the use of external subject matter experts is imperative to keep costs down and collect accurate actionable data.

Model Flying New Zealand look forwards to your communication, and future involvement in any future study undertaken.

**Sincerely,**

A handwritten signature in black ink, appearing to be 'Chris Jackson', written over a faint, illegible typed name.

**Chris Jackson (MFNZ Council Member and Author)**

A handwritten signature in blue ink, appearing to be 'Paul Clegg', written over a faint, illegible typed name.

**Paul Clegg (MFNZ Secretary)**

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<sup>10</sup> <https://www.stuff.co.nz/dominion-post/news/wellington/122425222/one-in-five-drone-users-flouting-rules-by-flying-in-restricted-air-space> & <https://www.rnz.co.nz/news/national/423379/drone-use-rules-in-new-zealand-not-widely-understood-caa-study>