



4th July 2019

Dear Lord Neco Hall of Birkenhead,

This open-letter precedes DJI's official response via the BBC's complaint process on the issues of impartiality and accuracy. It will be published on both public DJI channels and shared with media organisations as of today, Thursday 4th July.

As the world's leader in civilian drones and aerial imaging technology, we feel it is our duty on behalf of the millions of responsible drone users around the globe, to express our deep disappointment at the BBC's negative portrayal of drone technology and one-sided reporting based on hearsay. This now seems to be an established pattern of reporting by the BBC, with such bias appearing both during Panorama's 'The Gatwick Drone Attack' that aired 15th April 2019, and more recently during Horizon's 'Britain's Next Air Disaster? Drones' aired 1st July 2019.

The BBC is a public service broadcaster whose remit is to 'inform, educate, and entertain.'¹ We strongly believe that both these programmes fall very short of informing and educating viewers in an impartial and accurate manner. It is the BBC's duty to paint a more nuanced picture of the events at Gatwick, given that there is still no firm conclusion due to the lack of physical evidence or any photographic material to prove that a drone was even the actual cause of the disruptions, and therefore no information upon which to analyse the actual risk or threat to aviation. In relation to 'Britain's Next Air Disaster? Drones', only about one minute of an hour-long programme was given to the multitude of benefits that drone technology has to offer society.

DJI was approached by both the Panorama and Horizon production teams and provided plenty of input including an interview with our Head of Policy for Europe. However, almost none of the material was included in either programme. We have to assume this is because the BBC ultimately preferred to boost viewing figures by focusing on sensational, high-risk scenarios that are vanishingly rare or almost impossible, while ignoring evidence that drone technology is safe and that the drone industry itself has implemented various features to mitigate the risks described. This cannot be construed as balanced or impartial in anyone's book.

'Britain's Next Air Disaster? Drones'

Looking at 'Britain's Next Air Disaster? Drones' specifically, the narrative of the documentary was already set in choosing an ex-marine to host the programme. Throughout the programme this military background was referred to time and time again to establish some kind of justification for his expertise to talk knowledgeably on the matter of drone technology. This clearly framed the issue as a military issue right from the very start.

¹ <https://www.bbc.com/aboutthebbc/whatwedo/publicservices/learning>



The documentary almost exclusively focused on threats and risks posed by drones, and the general tone of the documentary was overwhelmingly negative, with the presenter frequently using the words 'catastrophic' and 'terrifying'. Although at no point was DJI explicitly named, the programme frequently showed DJI-branded drones in a very negative light, completely overshadowing what DJI has achieved in the drone industry, our many safety and security features, and the impeccable safety record of the industry.

In the programme, there were many instances where the situation was heavily skewed to portray the 'danger of drones'. The programme summary suggested that airtime would be given to the positive applications of drones. However, the ratio of discussion on this versus risk was worryingly disproportionate and in many cases unevidenced despite ample evidence being available. The presenter referred to 'endless positive uses' of drones, but only fleetingly made reference to four or five applications. We'd like to take this opportunity to address just some of these segments:

Impact Assessment Testing

The Impact Assessment testing shown on the programme can only be described as disturbing. When conducting scientific research relating to aviation risk, it is fundamentally important that a collision scenario reflect real-world inputs, especially as to the physical nature of the objects colliding. The Horizon programme did the exact opposite, relying upon an artificial amalgam of a drone battery, and randomly placed rigid carbon-fibre rods, glued together. There is no conceivable way that this artificial "Frankendrone" provides any useful information about collision risk. Previously, DJI raised objections about testing sponsored by BALPA involving the artificiality of the javelin-like object used in their collision test, as well as the University of Dayton Research Institute video involving speeds in excess of the capabilities of the drone and aircraft.^{2 3} In contrast, where research has been thorough and scientific, such as in the case of the FAA's ASSURE programme, we have supported the resulting knowledge that is informative to the industry and the public. The ASSURE research⁴ showed that small drones do not pose a catastrophic risk to aircraft in flight. Indeed, ASSURE's research shows that the structure of a typical drone causes elastic flexing, dissipating and absorbing impact energy. However, by modifying the physical construction of the "drone," the test becomes immediately scientifically invalid.

Compounding the disturbing test is the choice of aircraft component. The testing shown in the Horizon programme involved old parts from small planes that carry one to five passengers. Those results were then used to suggest the risk of a drone coming into contact with a modern commercial airliner carrying 250 plus people. Furthermore, the Horizon tests were carried out on the same piece of plane. It is more than likely that the structure was weaker for the second test, when it had already been subjected to heavy impact from the gelatin bird. Although it was acknowledged that the old small plane parts used for the test were not the

² https://www.theregister.co.uk/2017/08/01/dji_veep_balpa_qinetiq_drone_study/

³ <https://www.dji.com/ie/newsroom/news/dji-demands-withdrawal-of-misleading-drone-collision-video>

⁴ <https://www.dji.com/uk/newsroom/news/new-report-highlights-importance-of-djis-drone-safety-efforts?clickaid=IFapYZRd4BA145XAG7IENBpeYuek2bMk&clickpid=939637&clicksid=2d9324eb88b0976f4b6f6d561b941b47>



same as would likely be found in newer more sophisticated aircraft and that the likelihood of such a collision with a drone was 'quite low', the segment still cited BALPA saying that they believed that such a collision could result in an aircraft actually crashing. Where was the balanced perspective of a well-informed voice from industry who could speak to the science of these tests?

Airprox Board Report

A section of the documentary was dedicated to Airprox Board reports, referring to 125 near-collisions between aircraft and drones that were reported in 2018, and specifically going into detail about one reported incident in July 2016 where a drone allegedly came within 20m from an A320 above the Shard building in London (at 4,900 feet altitude and 180 knots speed (207 mph)). The Airprox Board, which accepts all pilot reports at face value, did not independently evaluate whether the pilot could have made such careful observations at that speed, or how likely it was to have seen a drone at that altitude instead of a bird, as did the producers of this documentary. The evidence behind these reports is taken as fact. However, the results of a Freedom of Information request to the Airprox Board from last month states:

"in all cases, UK Airprox Board (UKAB) has no confirmation that a drone has flown close to an aircraft other than the report made by the pilot(s).

Similarly, other than from the report of the pilot(s), UKAB has no confirmation that a drone was involved."⁵

On pages 15 onwards of our 'Elevating Safety: Protecting the Skies in the Drone Era'⁶ you will find numerous examples from around the world where a drone has been falsely reported to be involved in an aircraft near-miss or collision incident, namely Romeoville, Illinois, August 2015; London, April 2016; Mozambique, January 2017; Sedona, Arizona, February 2017; Adelaide, Australia, July 2017; Waihi, New Zealand, March 2018; Boston, January 2015; Los Angeles, March 2016; Toronto, November 2016; Auckland, New Zealand, April 2018. Contrary to all of these false or unsubstantiated reports, and the millions of flying hours clocked up by civilian drone users around the world, there have only been two confirmed incidents of a drone coming into contact with a helicopter, and both landed safely.

Having these reports published in trusted media creates a scenario of misinformation potentially more dangerous than fake news about the drone industry. For regulators, elected officials and drone companies trying to make drones safer, inaccurate news stories aren't just misleading. They harm the process of improving safety, because they focus attention on outrageous events that didn't happen, instead of on aviation risks that may be less sensational but much more prevalent. They also lead to stricter regulation, which curtails drone operations, and results in fewer lives saved using drone technology. Quite literally the BBC's sensational false reporting on drone risks could itself cost lives.

⁵ <https://www.airproxrealitycheck.org/uk-airprox-board-reveals-no-proof-of-a-drone-ever-flown-close-to-an-aircraft/>

⁶ https://terra-1-g.djicdn.com/851d20f7b9f64838a34cd02351370894/Flysafe/190521_US-Letter_Policy-White-Paper_web.pdf



As we detail in Part 2 of our Elevating Safety report, there are many studies which raise doubts about pilot drone sightings. Academic research provides strong evidence that the account of an airplane pilot alone may not be sufficient to establish that a drone was flown in close proximity to a traditional aircraft: Pilots of airplanes moving at 150 mph or faster often have less than a fraction of a second to identify unexpected objects near them, and human reaction time cannot reliably allow them to determine what that object is. Aviation experts have long realised the limits of “detect and avoid,” the well-established requirement for airplane and helicopter pilots to keep a vigilant lookout for other aircraft. Long before the advent of drones, a 1991 Australian Transport Safety Bureau research report warned, “The physical limitations of the human eye are such that even the most careful search does not guarantee that traffic will be sighted.”⁷ Against that backdrop, researchers have begun studying the limits of pilots’ ability to spot drones, especially popular consumer drones smaller than one meter across. One study of human visual acuity concluded aircraft pilots had less than a 10 percent chance of spotting a small drone nearby, even in ideal conditions.⁸ It modelled the behaviour of the human eye and how a variety of drones would appear in different scenarios to reach general conclusions about their visibility.

Safety and Security Features

The vast majority of drones in popular use have safety features that deter and prevent the risk scenarios described in the Horizon documentary.

From our inception 13 years ago, DJI has been at the leading edge of technological innovation, helping to promote and shape what is today a civilian drone industry still in its infancy. Whether used for construction, inspection, emergency response, agriculture, conservation, filming or any other industry, the full potential of drone technology is yet to be seen. Unfortunately, this technology is in danger of being stifled by misrepresentation and scare mongering in the UK media.

DJI has introduced safety features and technology including geofencing at airports, power plants and prisons; maximum altitude limits; obstacle sensing technology; a return-to-home feature; knowledge testing of new drone pilots; remote identification to enable security responses (AeroScope); and our new commitment to expanding our existing implementation of ADS-B receivers that detect nearby traditional aircraft and alert drone pilots to possible collision risks.⁹ In short, safety is a forefront consideration of everything we and other manufacturers do.

⁷ [atsb.gov.au/media/4050593/see_and_avoid_report_print.pdf](https://www.atsb.gov.au/media/4050593/see_and_avoid_report_print.pdf), p. vii

⁸ commons.erau.edu/cgi/viewcontent.cgi?article=1349&context=edt, p. iv

⁹ https://terra-1-g.djicdn.com/851d20f7b9f64838a34cd02351370894/Flysafe/190521_US-Letter_Policy-White-Paper_web.pdf



However, the Horizon programme ignored many of these features:

Geofencing

This was almost entirely overlooked in the programme which focused primarily on "easy ways to get around it."

Remote ID solution (AeroScope)

We have reason to believe that AeroScope was not in use during the early stages of recent airport sightings in the UK, but hope that it will be more broadly deployed in the interest of safety and security. One of the key initiatives of the industry, and one of our ten Elevating Safety points¹⁰, is for more manufacturers to implement remote identification functions. Watching the Horizon documentary, you would never know that an industry-wide solution is under development, and that the vast majority of civilian drones already have the feature implemented.

ADS-B

DJI drones for enterprise use (M200 series and Mavic 2 Enterprise) already feature DJI AirSense, a built-in ADS-B receiver, enhancing airspace safety by automatically providing the operator with real-time information about the position, altitude and velocity of nearby manned aircraft equipped with ADS-B transmitters. AirSense enables safer and more efficient use of airspace, particularly in locations where other manned aircraft may be operating.^{11 12}

In our Elevating Safety report, DJI suggested a 10-point plan which aims to ensure the world's skies remain safe in the drone era.¹³ Just one of these points is a commitment that all new DJI drone models released after January 1, 2020 that weigh more than 250 grams will include AirSense technology. This will be the largest single deployment of ADS-B collision prevention technology to date and sets a new standard by putting professional-grade aviation safety technology in drones available to everyone. This was very briefly referenced in the Horizon programme as, "the biggest manufacturer of drones has recently pledged to install new technology that will warn the operator if they appear to be on a collision course". However, the programme failed to acknowledge that this initiative is a huge achievement for the industry or to explain its full significance.

Summary

Even though all the above information was provided to the programme's researcher, and we discussed with the production direct input from DJI, only ADS-B and geofencing were briefly mentioned and the latter, as outlined, in a disparaging light.

¹⁰ https://terra-1-g.djicdn.com/851d20f7b9f64838a34cd02351370894/Flysafe/190521_US-Letter_Policy-White-Paper_web.pdf

¹¹ <https://www.dji.com/newsroom/news/dji-introduces-m200-series-drones-built-for-enterprise-solutions>

¹² <https://www.dji.com/newsroom/news/dji-expands-drone-ecosystem>

¹³ https://terra-1-g.djicdn.com/851d20f7b9f64838a34cd02351370894/Flysafe/190521_US-Letter_Policy-White-Paper_web.pdf



We find it, quite frankly, unfair and incredibly biased that a documentary looking at drones does not include a response from DJI, any drone manufacturer or any drone association such as the Drone Manufacturers' Alliance Europe or ARPAS.

We would welcome the opportunity to work with the BBC on a 'Drones For Good' documentary which would seek to go some way in addressing the balance in a currently extremely one-sided, negative media landscape. We also request that next time a BBC unit is working on a drone-related programme, our voice and those of our industry peers be included at length and in detail, so that the programme can fulfill the BBC's mission to be an impartial, independent, accurate and reliable source of information.

Yours Sincerely,

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