

DUASXX17

Posted on 24.04.2024 by Rupert Dent

Category: [Drone](#)

Report Title Collision with wind turbine

Initial Report

From AAIB record-only UAS investigations reviewed October to November 2023, published within [AAIB Bulletin: 1/2024](#). The remote pilot had planned a series of automated mapping missions. On the third day of conducting this mission, the UA lost real time kinematic signal which caused the UA to pause during a turn away from a wind turbine. The remote pilot resumed the flight and the UA initially reversed along its previous flight path, flying into the wind turbine. The remote pilot was not aware the turbine had the ability to rotate 360° around its vertical axis. This required a larger area to avoid for the UA to maintain 50m clear of the turbine in all positions, which was not taken into account when planning. The UA sustained significant damage and was replaced. There was no visible damage to the wind turbine.

Comment

This occurrence relates the consequences of not ensuring that the automated settings are appropriate for the flight being undertaken. Real Time Kinematic "RTK" input has become a very useful tool for drone-based survey data capture. It increases accuracy. However for an automated mission it is important to set what the aircraft will do should RTK disconnect. It can either be set to hover or to continue the mission to the end of the sequence. In this instance it paused and then retraced its flightpath to where the RTK had dropped out, in order to then continue the mission without leaving any data gaps. Clearly the wind shifted, the turbine shifted with it and this is why the aircraft came into contact with the blade. What is not clear is whether the vision systems were active or, if they were, whether it was the speed of the turbine blade that was so high that the vision system transmission lag with the control inputs resulted in it hitting the aircraft.

At CHIRP we do meet, with a certain regularity, occurrences where the root cause was the pilot initiating one controller input which then leads to another automated control input that wasn't expected. The pilot then finds themselves behind the aircraft and struggling with where the control logic is going to take them next. Anticipating what happens next is key to dealing with this and there is no substitute for reading and re-reading the user manual, as well as comprehensive and regular currency training.



