

DUAS28

Posted on 04.01.2024 by Rupert Dent

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Report Title Propellor icing

Initial Report

I was on a live deployment. I conducted a short test flight to check for icing on props as the temperature was close to zero. After a short time, I recognised a change to the drone's handling characteristics so landed. On inspection, the drone had icing on propellers (see picture). No further flights were conducted.



Lessons learned.

It was a reminder of the importance of checking local environmental conditions when flying the drone. A thorough risk assessment led me to conduct a test flight and take extra precautions.

Comment

A concise report that serves as an excellent example of what to do prior to a deployment, urgent or otherwise, in the winter season. We can only congratulate the pilot for a very sensible approach to safe flying. Looking at the photographs of the propeller, the aircraft would have very quickly lost any available lift if the flight had continued. A point to highlight is that the temperature was "close to zero" without being either zero or minus. It is important to remember that icing can occur at temperatures above zero and, although the nominal freezing point of water is 0°C, water in the atmosphere does not always freeze at that temperature and often exists as a "supercooled" liquid. If the surface temperature of an aircraft structure (such as a propellor) is below zero, then moisture

within the atmosphere may turn to ice as an immediate or secondary consequence of contact in such conditions. Ice may form on propellers just as on any aerofoil. It reduces propeller efficiency and may induce severe vibrations.



