

Safety Alert

Grounding of Freefly Astro

27 February 2023

Background information

- On 7th February 2023, a non-National Highways project operating the Freefly Astro experienced an in-flight software failure, resulting in a crash.
- The drone, operating firmware version 1.1.14 had a temporary hang for 1.1 seconds, causing flight control to either cease or function improperly. After 1.1 seconds, despite the flight controller appearing to regain control based on the log data analysis, the aircraft did not have enough time to recover and gain altitude before it crashed.
- The investigation thus far reveals that a logging thread on the flight controller failed to write to the SD card prior to the event. Post-recovery, the flight controller appeared operational based on telemetry data, and resumed control over the drone.
- This failure affecting the flight controls should have been prevented by the system design, but was unable to do so in this instance, therefore requiring further investigation.
- As of 23rd February 2023, the CAA issued a Safety Directive, temporarily grounding all 'Astro' aircraft due to the in-flight software failure causing a crash and an ongoing investigation to determine the root cause.



Actions

- **Do not use the Freefly Astro drone on National Highways projects or schemes until the outcome of the incident investigation is known.**
- **Each National Highways project/scheme to acknowledge receipt of this Safety Alert (via HART) by 03/03/2023**