SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-58

UAS LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/3/2/1418								
Classification	Serious Incident		**Date**	16 June 2023			**Time**	1650Z	
Type of Operation	Unmanned Aerial Vehicle (Part 101)								
Location									
Place of Departure	Vryheid, KwaZulu-Natal Province		Place of Intended Landing			Vryheid, KwaZulu-Natal Province			
Place of Occurrence	Vryheid, KwaZulu-Natal Province								
GPS Co-ordinates	Latitude	27º46'16.23" S		Longitude	30º47'42.99" E		Elevation	3 835 ft	
Aircraft Information									
Registration	ZT-XVW			Class	3A				
Make; Model; S/N	Arace Sirin (Serial Number: SIR0074)								
Damage to Aircraft	Minor			Total UAS Hours	654.11				
Pilot-in-command									
Licence Type	Remote Pilot Licence (RPL)			Gender	Male		Age	27	
Licence Valid	Yes	Total Hours		619.31	Total Hours on Type			619.13	
Total Hours 30 Days	4.50			Total Flying on Type Past 90 Days	4.50				
People Controlling	1	**Injuries**	0	**Fatalities**	0	**Injuries (on ground)**		0	

What Happened

On 16 June 2023, an Unmanned Aircraft System (UAS) with registration ZT-XVW was launched for demonstration purposes in Vryheid in KwaZulu-Natal province. The flight was conducted under visual line of sight (VLOS) rules by day and under the provisions of Part 101 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that he was conducting a demonstration to show the rapid depletion of the UAS battery because it had depleted rapidly during its previous flight. The pilot launched the UAS and, when it was airborne and stabilised at approximately 2 metres (m), he started to record his remote pilot station using his mobile phone. Thereafter, he manipulated the controls to move the UAS to another position, but there was signal latency; the UAS impacted a pole and crashed to the ground.

There were no injuries reported on the ground. The UAS sustained minor damage to the propeller.

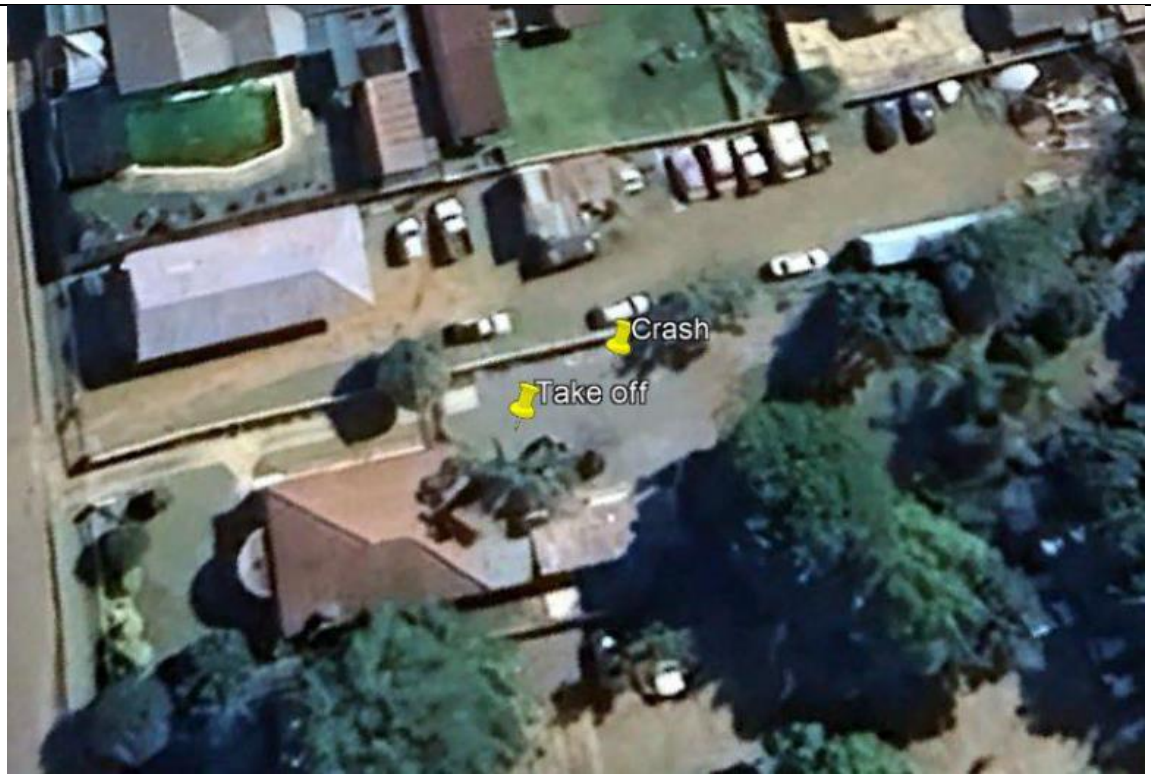

Figure 1: The accident site in Vryheid. (Source: Google Earth)

Figure 2: The UAS at the accident site. (Source: Pilot)

.

Figure 3: Close up view of the UAS after the accident. (Source: Pilot)

Findings

- The pilot was issued a Remote Pilot Licence (RPL) with visual line of sight (VLOS) and beyond visual line of sight (BVLOS) ratings on 17 December 2021 with an expiry date of 31 December 2023.

- The pilot had a total of 619.13 hours on the UAS type, but had flown 4.5 hours in the past 90 days preceding the accident.

- His Class 3 medical certificate was issued on 20 November 2021 with an expiry date of 20 November 2025 with no medical restrictions.

- The Remote Maintenance Technician was initially issued a RMT licence on 15 November 2021 with an expiry date of 14 November 2023.

- The operator was issued a Remotely Piloted Aircraft Systems Operating Certificate (ROC) on 31 October 2022 with an expiry date of 31 October 2023.

- The UAS was initially issued a Remotely Piloted Aircraft Systems Letter of Approval (LOA) on 5 April 2022, which was renewed on 22 May 2023 with an expiry date of 30 April 2024.

- The UAS's last mandatory periodic inspection (MPI) was conducted on 22 April 2023 at 620.29 total hours. The UAS had accumulated 33.82 hours since the last MPI.

- Signal latency:
  This means the time it takes for the signal from the remote pilot station to reach the UAS, and this affects the reaction time of the UAS. This could prove dangerous because the UAS could fly into obstacles or people due to the delay.

Probable Cause

The UAS experienced a signal latency which resulted in the pilot losing control and, subsequently, it impacted a pole and crashed to the ground.

Contributing Factor(s)

None.

Safety Action(s)

None.

Safety Recommendation/s

None.

About this Report

The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Purpose

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

Disclaimer

This report is produced without prejudice to the rights of the AIID, which are reserved.

This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa