

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10225						
Classification	Accident	Date	13 September 2022	Time	0801Z		
Type of Operation	Remotely Piloted Aircraft System, RPAS (Part 101) Mapping						
Location							
Place of Departure	Kolomela Mine Klipbankfontein PIT, Northern Cape Province		Place of Intended Landing	Kolomela Mine, Klipbankfontein PIT, Northern Cape Province			
Place of Occurrence	Kolomela Mine Klipbankfontein PIT, Northern Cape Province						
GPS Co-ordinates	Latitude	28° 24' 7.06" S	Longitude	022° 57' 31.04" E	Elevation	4478 ft	
Aircraft Information							
Registration	ZT-UJX						
Make; Model; S/N	DJI Phantom 4 RTK (Serial Number: P400010)						
Damage to Aircraft	Substantial			Total Aircraft Hours	202.5		
Pilot-in-command							
Licence Type	RPL Multi Rotor		Gender	Male		Age	37
Licence Valid	Yes	Total Hours	84.03		Total Hours on Type	37.39	
Total Hours 30 Days	7.9		Total Flying on Type Past 90 Days	37.39			
People On-board	0	Injuries	0	Fatalities	0	Other (on ground)	0
What Happened							
<p>On 13 September 2022, a DJI Phantom 4 RTK remotely piloted aircraft (RPA) with registration ZT-UJX was launched for mapping purposes at Kolomela Mine Klipbankfontein PIT in the Northern Cape province. The operation was conducted under beyond visual line of sight (BVLOS) by day and under the provisions of Part 101 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot stated that he conducted a pre-flight inspection, and no anomalies were found. The battery (a Phantom 4 battery with serial number: 0DQAJ3G034026R) was at 100%. The RPA was launched and it climbed to 600 feet (ft). Six (6) minutes into the flight at approximately 540 metres (m) from the take-off position, the RPA lost Command and Control (C2) connection with the pilot's controller unit. The pilot waited a few minutes for the RPA to activate the return-to-home function. However, after a few minutes, the RPA did not return. Therefore, the pilot set out to look for it at its last known location; he found it crashed on the ground.</p> <p>The RPA had damage to the battery, airframe, camera, gimbal and propeller blades.</p>							



Figure 1: The ZT-UJX after recovery. (Source: Operator)



Figures 2 and 3: Damaged battery, propeller blade, gimbal and skid. (Source: Operator)

Findings

1. The pilot was initially issued a Remote Pilot Licence (RPL) on 22 June 2018. His licence revalidation was carried out on 13 July 2022 and the licence was reissued on the same date with an expiry date of 31 May 2023. A visual line of sight (VLOS) and beyond visual line of sight (BVLOS) ratings were endorsed on his licence. His Class 3 medical certificate was issued on 28 February 2020 with an expiry date of 28 February 2024 with no restrictions.
2. The last inspection carried out on the RPA prior to the accident flight was on 15 August 2022 at 194.4 hours. The RPA was flown a further 8.1 hours after the said inspection.

<p>3. The operator was issued a Remotely Piloted Aircraft System (RPAS) Letter of Approval (LOA) on 16 October 2020, which was renewed on 8 September 2022 with an expiry date of 31 October 2023. The operator was issued an RPAS Operating Certificate (ROC) number: CAA/C001 on 4 January 2022 with an expiry date of 21 December 2022.</p> <p>4. Fine weather conditions prevailed at the time of the flight. The weather did not have a bearing to this accident.</p> <p>5. Following the accident, the RPA was repaired, and the battery was replaced.</p>
<p>Probable Cause(s)</p> <p>It is likely that the RPA lost C2 communication link, which resulted in the loss of control and the subsequent crash.</p>
<p>Contributing Factor(s)</p> <p>None.</p>
<p>Safety Action(s)</p> <p>None.</p>
<p>Safety Message and/or Safety Recommendation/s</p> <p>None.</p>
<p>About this Report</p> <p><i>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.</i></p> <p><i>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.</i></p>
<p>Purpose</p> <p><i>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.</i></p>
<p>Disclaimer</p> <p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

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