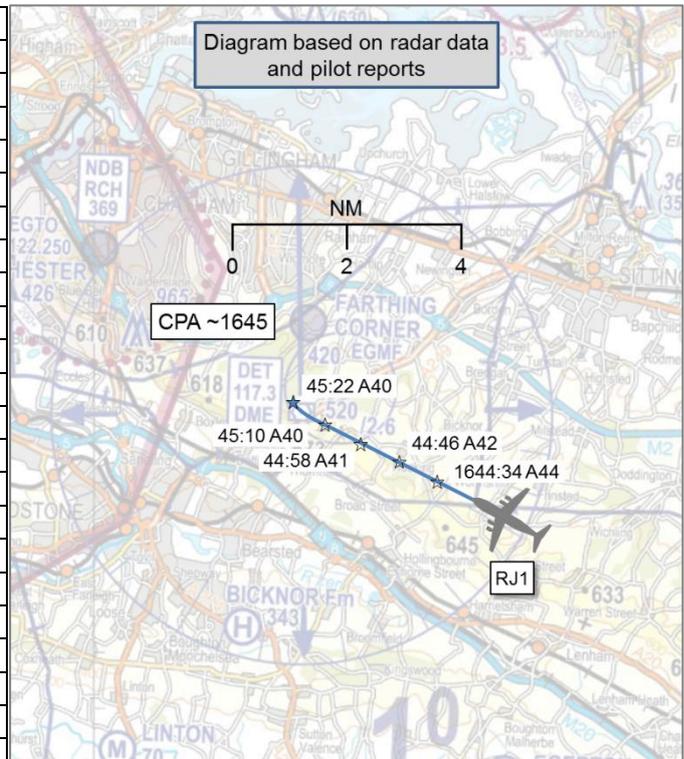


**AIRPROX REPORT No 2015106**

Date: 9 Jul 2015 Time: 1645Z Position: 5118N 00036E Location: Near Detling VOR

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	RJ1	Drone
Operator	CAT	Unknown
Airspace	London TMA	
Class	A	
Rules	IFR	
Service	Radar Control	
Provider	Thames Radar	
Altitude/FL	4000ft	
Transponder	A, C, S	
<b>Reported</b>		
Colours	White/red	
Lighting	All on	
Conditions	VMC	
Visibility	NK	
Altitude/FL	4000ft	
Altimeter	QNH (NK hPa)	
Heading	315°	
Speed	220kt	
ACAS/TAS	TCAS II	
Alert	None	
<b>Separation</b>		
Reported	60ft V/0m H	
Recorded		NK



**THE RJ1 PILOT** reports turning on to heading 315° after DET when the First Officer saw a ‘helicopter type’ remotely controlled drone in the 10 o’clock position pass 60ft below the left wing. ATC were informed.

He assessed the risk of collision as ‘High’.

**THE DRONE OPERATOR:** A drone operator could not be traced.

**Factual Background**

The weather at London City was recorded as follows:

METAR EGLC 091650Z 28005KT 230V330 CAVOK 23/03 Q1022

**Analysis and Investigation**

**CAA ATSI**

The RJ1 pilot reported seeing a drone approximately 30-50ft below his aircraft, 5nm northwest of Detling VOR. The NATS report and radar replay confirmed that no other contacts were visible in the area.

## UKAB Secretariat

The Air Navigation Order 2009 (as amended), Article 138<sup>1</sup> states:

‘A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.’

Article 166, paragraphs 2, 3 and 4 state:

(2) The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.

(3) The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.’

(4) The person in charge of a small unmanned aircraft which has a mass of more than 7kg excluding its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight must not fly the aircraft

- (a) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;
- (b) within an aerodrome traffic zone ...; or
- (c) at a height of more than 400 feet above the surface unless it is flying in airspace described in sub-paragraph (a) or (b) and in accordance with the requirements for that airspace.’

A CAA web site<sup>2</sup> provides information and guidance associated with the operation of Unmanned Aircraft Systems (UASs) and Unmanned Aerial Vehicles (UAVs).

Additionally, the CAA has published a UAV Safety Notice<sup>3</sup> which states the responsibilities for flying unmanned aircraft. This includes:

‘You are responsible for avoiding collisions with other people or objects - including aircraft.

## Summary

An Airprox was reported when an RJ1 and a reported drone flew into proximity at about 1645 on Thursday 9<sup>th</sup> July 2015. The RJ1 pilot was at 4000ft, operating under IFR in VMC, in receipt of a Radar Control Service from the Swanwick Thames Sector. The drone operator could not be located.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of a report from the RJ1 pilot, radar photographs/video recordings and a report from the appropriate ATC authority.

The Board were advised by a commercial drone operator that multi-rotor drones were capable of ascending to some few thousand feet, but that the cost of the equipment required rose considerably as the altitude capability was increased. Small multi-rotor drones were not considered capable of ascending to more than a couple of thousand feet, and a multi-rotor drone with the capability to ascend to 4000ft, as reported, would have been significantly expensive and in the ‘professional’ class of drones. Consequently, members agreed that the reported drone was unlikely to have been operated at this altitude as a passing whim, and that it represented a considerable investment in cost and time, if indeed it was a multi-rotor drone. Even if the drone was able to reach 4000ft,

<sup>1</sup> Article 253 of the ANO details which Articles apply to small unmanned aircraft. Article 255 defines ‘small unmanned aircraft’. The ANO is available to view at <http://www.legislation.gov.uk>.

<sup>2</sup> [www.caa.co.uk/uas](http://www.caa.co.uk/uas)

<sup>3</sup> CAP 1202

representatives from ARPAS-UK<sup>4</sup> had suggested that battery life would preclude it remaining there for any length of time; the average battery life for a drone is 15 minutes when flying conservatively, and the Board understood that flying at height drained the battery even more quickly. This led the Board to wonder whether the crew could have seen something other than a multi-rotor drone. Notwithstanding, with both members of the flight crew having seen the object, the Board did not doubt that the crew had seen something at their level; that they were convinced that it looked like a helicopter-type drone had to be taken at face value, although it was considered by some members more likely that the object may have been a fixed-wing drone, capable of being operated at the reported altitude for considerably less cost.

Irrespective, the drone operator was not entitled to operate there, and his non-compliance posed a safety risk. Furthermore, to reach a height of 4000ft, the drone would need to be flown on first person view (FPV), and regulation states that, when using FPV, an additional person must be used as a competent observer who must maintain direct unaided visual contact with the drone in order to monitor its flight path in relation to other aircraft. At 4000ft it would be impossible to see the drone from the ground and therefore to operate it legally.

Whatever the nature of the drone, members agreed that the incident occurred in the Class A airspace of the London TMA, that the drone operator should not have allowed the drone to be there, and that consequently it was flown into conflict with the RJ1. There was no radar return from the drone, as would be expected, so the Board based their assessment of risk on the separation reported by the RJ1 pilot. After some discussion, members agreed that separation had been reduced to the minimum and that chance had played a major part in events.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The reported drone was flown into conflict with the RJ1.

Degree of Risk: A.

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<sup>4</sup> Association of Remotely Piloted Aircraft Systems-UK.