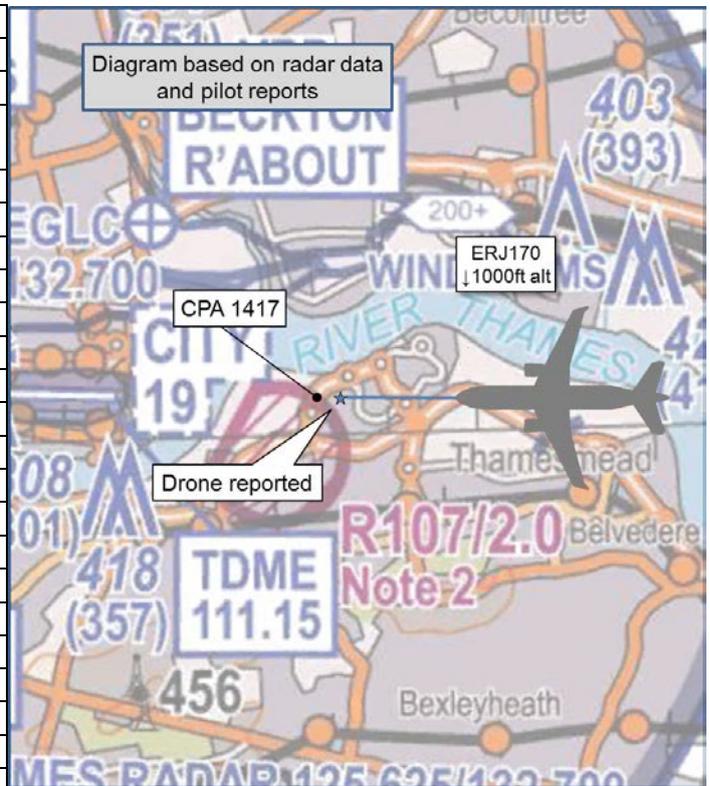


AIRPROX REPORT No 2015211

Date: 6 Dec 2015 Time: 1417Z Position: 5130N 00006E Location: 1.5nm E London City

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	ERJ170	Drone
Operator	CAT	Unknown
Airspace	London/City CTR	London/City CTR
Class	D	D
Rules	IFR	
Service	Radar Control	
Provider	London City	
Altitude/FL	1000ft	
Transponder	A,C,S	
Reported		Not reported
Colours	White, red, blue	Red, black
Lighting	NK	
Conditions	VMC	
Visibility	20km	
Altitude/FL	1000ft	
Altimeter	QNH (1017hPa)	
Heading	270°	
Speed	129kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	100ft V/50m H	
Recorded		NK



THE ERJ170 PILOT reports that he was on final approach to London City, passing 1000ft when he saw a red and black UAV. He reported that there was a high cockpit workload as they were landing, and it was too late to take any avoiding action. The drone passed overhead by 100ft and 50m to the port side. It could have been stationary, but the wind at this level was in excess of 20kts. He believed that the aircraft about 2mins ahead of him had also reported seeing the drone.

He perceived the severity of the incident as ‘Medium’.

THE DRONE Operator could not be traced.

THE LONDON CITY CONTROLLER reports that a previous aircraft had reported a UAV at 1.5nm final RW27, red and black in colour, south of the approach lane. The ERJ170 also subsequently reported the drone, confirming that it was at 1000ft. As a result, another following inbound aircraft elected to break off their approach from 2000ft and reposition.

Factual Background

The weather at London City was recorded as follows:

METAR EGLC 061420Z 23013KT 9999 BKN014 14/10 Q1017=

Analysis and Investigation

UKAB Secretariat

The Air Navigation Order 2009 (as amended), Article 138¹ 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.⁷

(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.

In addition, the CAA has published guidance regarding First Person View (FPV) drone operations which limit this activity to drones of less than 3.5kg take-off mass, and to not more than 1000ft².

Summary

An Airprox was reported when an ERJ170 and a drone flew into proximity at 1417 on Sunday 6th December 2015. The ERJ170 operating under IFR in VMC, and of a Radar control Service from London City. The drone operator could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the ERJ170 pilot, radar photographs/video recordings and a report from the air traffic controller involved.

Members considered the circumstances of the incident and noted that, for flights within Line-of-Sight, CAA guidance³ is that the drone operator is required to employ the See-and-Avoid principle through continued observation of the drone, and the airspace around it, with respect to other aircraft and objects. Within the UK, Visual Line-of-Sight operations are normally accepted as being out to a maximum distance of 500m horizontally, and 400ft vertically from the drone operator.

In this incident, reported at 1000ft, members opined that the drone operator may well have been flying on First Person View (FPV), for which regulation mandates that 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. Irrespective, the drone was within the London/City CTR Class D airspace above 400ft and without permission; as a result of this non-

¹ 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>.

² ORSA No. 1108 Small Unmanned Aircraft – First Person View (FPV) Flying available at: [ORSA No 1108](#).

³ <http://www.caa.co.uk/Commercial-Industry/Aircraft/Unmanned-aircraft/Unmanned-Aircraft>

compliance with CAA regulations, the Board considered that the drone had been flown into conflict with the ERJ170.

As is often the case with drone Airprox the incident did not show on the NATS radars. Although the other pilots had also reported seeing the drone at a further distance away, the ERJ170 pilot estimated that the drone was 100ft above and within 50m of the ERJ170 (just over a wingspan away), when they passed by. Using this estimate as a guide, the Board determined that the risk was Category B, safety margins had been much reduced below normal.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The drone was flown into conflict with the ERJ170.

Degree of Risk: B.