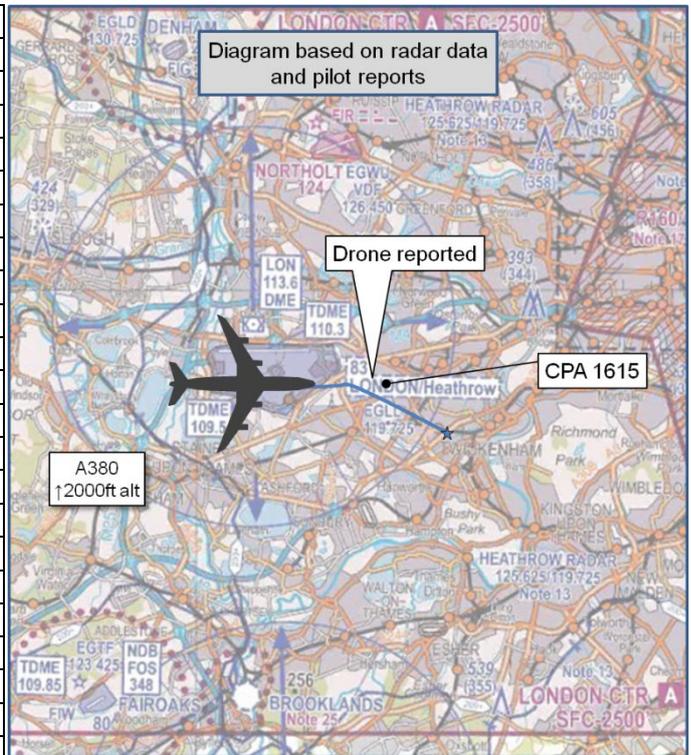


**AIRPROX REPORT No 2015195**

Date: 13 Oct 2015 Time: 1615Z Position: 5216N 00022W Location: 4nm SE Heathrow

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	A380	Drone
Operator	CAT	Unknown
Airspace	LTMA	LTMA
Class	D	D
Rules	IFR	
Service	Radar Control	
Provider	London control	
Altitude/FL		
Transponder	A,C,S	
<b>Reported</b>		Not reported
Colours	White, gold	
Lighting	NK	
Conditions	VMC	
Visibility	10km	
Altitude/FL	2000ft	
Altimeter	QNH (1023hPa)	
Heading	120°	
Speed	230kt	
ACAS/TAS	TCAS II	
Alert	None	
<b>Separation</b>		
Reported	150ft V/80m H	
Recorded		NK



**THE A380 PILOT** reports being on the DET 1J SID from Heathrow. In the right turn, the crew observed a large object at the same altitude which appeared to be taking avoiding action. The object passed within 70-80m, down the port side. It was greyish-white in colour, had a span of about 2m and was semi-circular in design; it appeared to have propulsion at the rear of the structure. No avoiding action was necessary. They advised ATC of the sighting, and a follow-up call was made to the airport police.

He assessed the risk of collision as 'Medium'.

**THE DRONE OPERATOR** could not be traced.

**THE SWANWICK CONTROLLER** reports that the A380 was flying the Heathrow DET SID on the BIG frequency when the pilot reported that he had encountered a drone on climb-out, when passing an altitude of 2000ft. Heathrow tower were advised and the Heathrow local police were informed.

**Factual Background**

The weather at Heathrow was recorded as follows:

METAR EGLL 131550Z AUTO 03007KT 360V070 9999 SCT038 12/04 Q1024 NOSIG=  
 METAR COR EGLL 131620Z AUTO 04007KT 360V070 9999 SCT036 12/04 Q1024 NOSIG=

## Analysis and Investigation

### 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.<sup>7</sup>

(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 1000ft<sup>2</sup>.

### Summary

An Airprox was reported when an A380 and a drone flew into proximity at 1615 on Tuesday 13<sup>th</sup> October 2015. The A380 pilot was operating under IFR in VMC and in receipt of a radar control Service from Swanwick. The drone operator could not be traced.

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

Information available consisted of a report from the A380 pilot, radar photographs/video recordings and a report from the air traffic controllers involved.

Although the object that the pilot described was unusual in design and size, Board members thought that because the pilot had described it as having a propulsion system it was unlikely to be a Met balloon; the Board therefore concluded that it was probably a drone of some sort. Members then considered the circumstances of the incident and noted that, for flights within Line-of-Sight, CAA guidance<sup>3</sup> requires a drone operator 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 2000ft, members opined that the drone operator was probably flying the drone using First Person View (FPV), for which regulation mandates that an additional person must

<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> ORSA No. 1108 Small Unmanned Aircraft – First Person View (FPV) Flying available at: [ORSA No 1108](http://www.caa.co.uk/Commercial-Industry/Aircraft/Unmanned-aircraft/Unmanned-Aircraft).

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

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 TMA Class D airspace above 400ft and without permission; as a result of his non-compliance with CAA regulations, the Board considered that the drone had been flown into conflict with the A380. As is often the case with drone Airprox, the incident did not show on the NATS radars; the A380 pilot estimated that the drone was 150ft above and within 80m of the A380. Using this estimate as a guide, the Board determined that the risk was Category B, safety margins had been much reduced.

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

Cause: The drone was flown into conflict with the A380.

Degree of Risk: B.