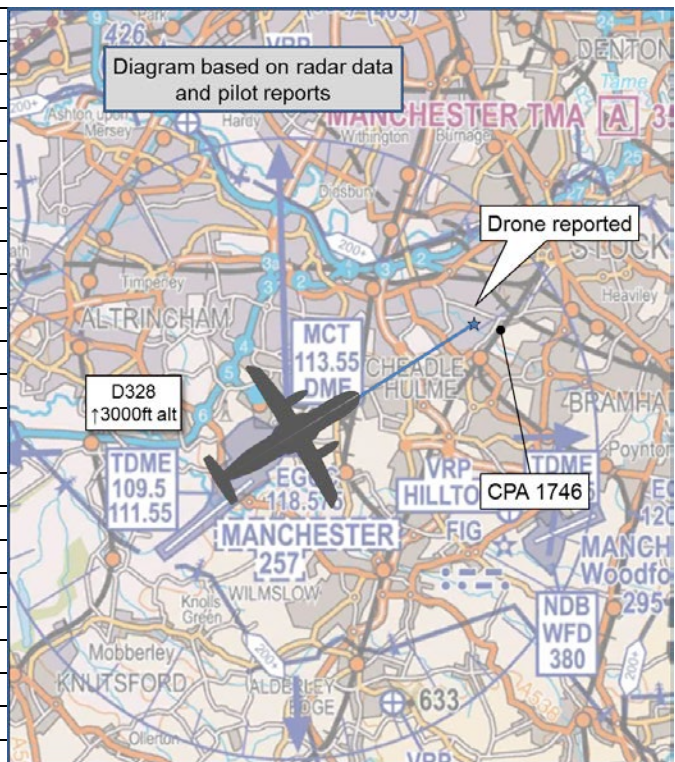


AIRPROX REPORT No 2015176

Date: 2 Oct 2015 Time: 1746Z Position: 5323N 00210W Location: 4nm NE Manchester

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|-------------------|------------------------------|----------------|
| Aircraft | Do328 | Drone |
| Operator | CAT | Unknown |
| Airspace | Manchester TMA | Manchester TMA |
| Class | D | D |
| Rules | IFR | |
| Service | Radar Control | |
| Provider | Manchester | |
| Altitude/FL | 3000ft | |
| Transponder | A,C,S | |
| Reported | | Not reported |
| Colours | White | |
| Lighting | Strobes, anti-colls, landing | |
| Conditions | VMC | |
| Visibility | 10km | |
| Altitude/FL | 3000ft | |
| Altimeter | NK | |
| Heading | 053° | |
| Speed | 200kt | |
| ACAS/TAS | TCAS II | |
| Alert | None | |
| Separation | | |
| Reported | 30ft V/0ft H | NK |
| Recorded | NK | |



THE DO328 PILOT reports departing from Manchester RW05L; on passing 3000ft, the First Officer, who was PF, exclaimed that a drone had just missed the aircraft. He had seen it in front and slightly left of the nose; it was red and white and it passed down the left-hand side of the aircraft, slightly high. Although the miss distance was hard to judge, it was very close, less than 50ft, and must have passed over the port propeller. The incident was reported to Manchester ATC and the aircraft inspected on landing, although there was no damage.

He assessed the risk of collision as ‘High’.

THE DRONE OPERATOR: The drone operator could not be traced.

THE MANCHESTER CONTROLLER reports that after departing from RW05L, the pilot of the Do328 reported a drone passing his left wing at 3000ft.

Factual Background

The weather at Manchester was recorded as follows:

METAR EGCC 021720Z VRB03KT CAVOK 15/09 Q1022 NOSIG
 METAR EGCC 021750Z AUTO VRB03KT 9999 NCD 14/08 Q1022

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.'

(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 a Do328 and a drone came into proximity at 1746 on Friday 2nd October 2015. The Do328 was operating under IFR in VMC and receiving a Radar Control Service from Manchester. The incident did not show on the NATS radars and the drone operator could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilot of the Do328, radar photographs/video recordings and reports from the air traffic controllers involved.

The Board first noted that, as for other aviators, drone operators are fundamentally required to avoid collisions with all aircraft. More specifically, drone flight above 400ft is prohibited in Class D airspace without the permission of the appropriate air traffic control unit. The Do328 crew reported seeing the drone at 3000ft on climb-out from Manchester airport; the drone operator was not entitled to operate in this location.

In this incident, operating at levels of 3000ft, the drone operator would almost certainly be operating 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. Furthermore, under FPV operations, for drones of less than 3.5kg, the drone is not permitted to operate above 1000ft agl without CAA approval being

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](#).

gained and a NOTAM being issued. At 3000ft the drone operator was flying within the Manchester TMA, Class D airspace, without permission and, in his non-compliance, the Board considered that the drone operator was posing a flight safety risk.

Operating as he was in airspace within which he was not permitted meant that the Board considered that the cause of the Airprox was that the drone operator had flown into conflict with the Do328. As is often the case with drone Airprox, the drone did not show on the NATS radars; the Do328 pilot estimated that the drone passed over the top of the propeller by about 30ft. Using this estimate as a guide, the Board determined that the risk was Category A, separation had been reduced to the bare minimum and chance had played a major part in events.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The drone was flown into conflict with the Do328.

Degree of Risk: A.