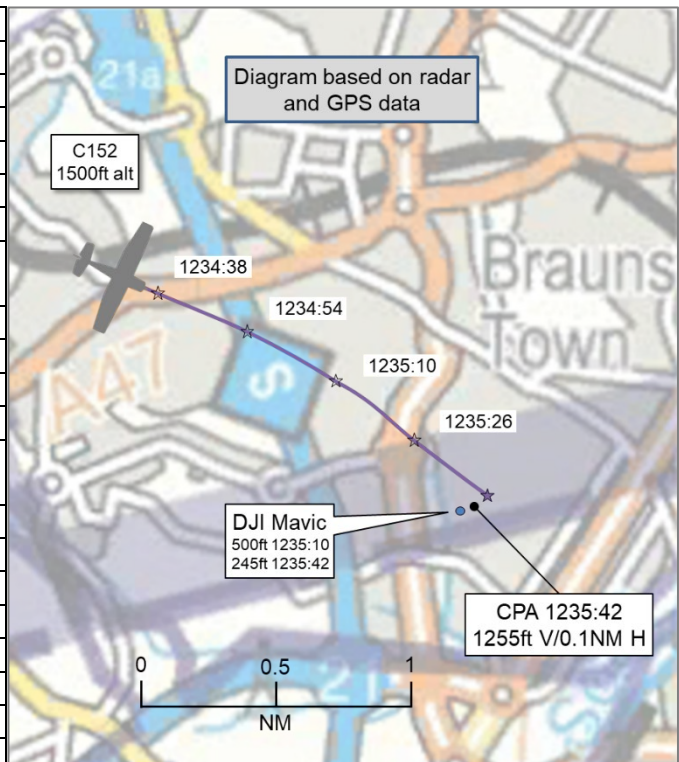


AIRPROX REPORT No 2022077

Date: 09 May 2022 Time: 1236Z Position: 5237N 00111W Location: 5.5NM W Leicester airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DJI Mavic	C152
Operator	Civ UAS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VLOS	VFR
Service	None	Basic
Provider	N/A	East Midlands Radar
Altitude/FL	245ft	1500ft
Transponder	Not fitted	A, C, S
Reported		
Colours	Grey	White
Lighting	'Fitted'	Nav, strobe, beacon, landing
Conditions	VMC	VMC
Visibility	5-10km	>10km
Altitude/FL	86m agl (282ft)	1500ft
Altimeter	agl (N/A hPa)	QNH (1020hPa)
Heading	NR	NR
Speed	NK	NR
ACAS/TAS	Other ¹	Not fitted
Alert	Information	N/A
Separation at CPA		
Reported	~120m V/~115m H	Not seen
Recorded	1255ft V/0.1NM H	



THE DJI MAVIC PILOT reports that they were flying their DJI Mavic drone at Mosedale Meadows, Leicester. They were flying to an altitude of 86m high. They heard what possibly could have been an aircraft then suddenly saw a Cessna 152 light-aircraft suddenly appear from the trees flying from a north-westerly direction. The Cessna was flying towards the eastern side. Having seen the aircraft, which they estimate being about 200m distance from their drone, they immediately lowered their drone and the Cessna passed by with no incident. The Cessna was very low at what they estimate to be about 100-200m high. They feel that the Cessna should have been at least 1000ft (300m) flying over built-up areas. Their concern is that they were about to go up to 400ft (120m) high but luckily they were able to detect the Cessna fairly early. They believe the Cessna flying at the time was flying too low. This could have collided with their drone but they were able to take immediate action without any collision or accidents happening.

The pilot assessed the risk of collision as 'Medium'.

THE C152 PILOT reports that they were returning from [departure airfield] back to [destination airfield] with 2 persons on board. They flew back in uncontrolled Class G airspace with a Basic Service from East Midlands Radar at 1500ft on the QNH. East Midlands notified them of helicopter traffic operating in the area and they were visual with it. However, they were not notified of any drone traffic. There were no NOTAM regarding drone operations and, despite maintaining a good lookout, they did not see the drone involved in this incident.

¹ 'Airspace alerts' was employed by the pilot, a system that monitors ADS-B data and alerts if an aircraft enters a pre-defined area.

THE EAST MIDLANDS RADAR CONTROLLER reports that they have no recollection of the event. The pilot did not report the Airprox at the time, nor was there any contact on the radar associated with the drone.

Factual Background

The weather at East Midlands was recorded as follows:

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METAR EGNX 091220Z 19016KT 9999 FEW038 18/09 Q1020
METAR EGNX 091250Z 21018KT 9999 FEW038 18/09 Q1020
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Analysis and Investigation

East Midlands ATC Unit Investigation

At the time of the Airprox, East Midlands Radar was providing a Basic Service to [the pilot of the C152]. The drone was not detected on primary radar or the [airfield's drone detection equipment]. The pilot did not report an Airprox on the frequency.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and, whilst the C152 was detected and identified using Mode-S transponder, the DJI Mavic was not detected. However, the DJI Mavic pilot was able to provide a GPS log file of their flight to the UKAB Secretariat and this information has been combined with the radar data to measure the CPA.

The DJI Mavic and C152 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.² During the flight, the remote pilot shall keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property.³

Summary

An Airprox was reported when a DJI Mavic and a C152 flew into proximity 5.5NM west of Leicester airfield at 1236Z on Monday 9th May 2022. The drone pilot was operating VLOS, the C152 pilot was operating under VFR, both were in VMC, the C152 pilot in receipt of a Basic Service from East Midlands Radar, the DJI Mavic pilot not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data from the drone pilot, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board discussed this event and were satisfied that the separation between the aircraft, and the actions taken by the drone pilot, had been sufficient to ensure that there had been no risk of collision. Members had been encouraged by the drone pilot's use of an ADS-B device to help them to be more situationally aware of the traffic situation in the surrounding area. The Board discussed the difficulties faced by an individual on the ground when estimating the altitude of a passing aircraft however, members welcome and encourage reporting when there may be some doubt regarding safety.

² (UK) SERA.3205 Proximity.

³ EASA Part UAS.OPEN.060 Responsibilities of the remote pilot (2)(b).

Members were satisfied that normal safety standards and parameters had pertained and, as such, the Board assigned Risk Category E.

Members agreed on the following contributory factors:

- CF1.** The East Midlands Radar controller was not required to monitor the flight of the C152 under a Basic Service.
- CF2.** The C152 pilot had not had any awareness of the presence of the drone whereas, as they had heard the C152, drone pilot had had generic awareness of the C152 pilot prior to sighting it.
- CF3.** The ADS-B device used by the drone pilot had generated a genuine alert regarding the presence of the C152.
- CF4.** The C152 pilot had not become visual with the drone at any point.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2022077				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
3	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
4	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: E

Safety Barrier Assessment⁴

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because, when providing a basic service, the controller is not required to monitor the flight.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the C152 pilot had not had any awareness of the presence of the drone whereas, as they

⁴ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

had heard it, the drone pilot had had generic awareness of the presence of the C152 prior to sighting it.

Airprox Barrier Assessment: 2022077		Outside Controlled Airspace						
Barrier		Provision	Application	Effectiveness Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & Action	✗	○					
	Electronic Warning System Operation and Compliance	●	●					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓					
	Electronic Warning System Operation and Compliance	!	✓					
	See & Avoid	✓	✓					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●	○			
Application	✓	!	✗	●	○			
Effectiveness	■	■	■	■	■			