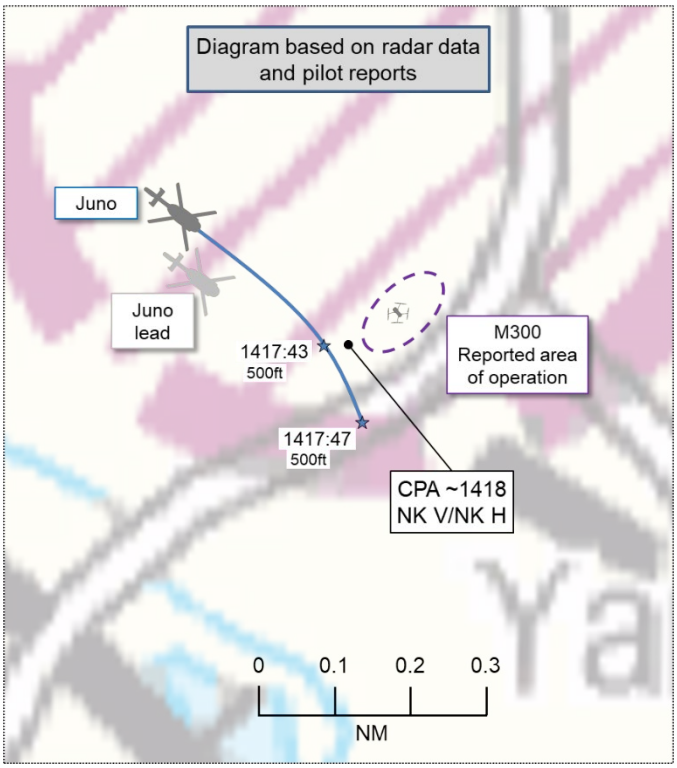
AIRPROX REPORT No 2024280

Date: 14 Nov 2024 Time: ~1418Z Position: 5254N 00213W Location: Swynnerton Training Camp

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Juno	M300
Operator	HQ Air (Trg)	Civ UAS
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VLOS
Service	Basic	None
Provider	Shawbury Low Lvl	N/A
Altitude/FL	500ft	NK
Transponder	A, C, S+	Not fitted
Reported		
Colours	Black/yellow	Black
Lighting	HISL nav & ldg	Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	120ft	~300ft
Altimeter	QNH	NK
Heading	120°	NK
Speed	20kt	NK
ACAS/TAS	TCAS I	Other
Alert	None	Information
Separation at CPA		
Reported	0ft V/20m H	Not seen
Recorded	NK V/NK H	



THE JUNO PILOT reports that they were the number 2 aircraft of a formation lifting out of Swynnerton helicopter landing site (HLS); on passing approximately 100ft, the number 1 aircraft alerted them to a drone seen ahead and slightly left of the aircraft. The drone was a quad-rotor drone, in a hover, approximately above the buildings of the training camp. Their aircraft was turned away and the drone passed down their left-hand side, approximately 20m clear. The drone seemed to remain stationary in the hover throughout. The Swynnerton HLS they used is published in the HLS directory, and was booked by Shawbury Ops. The HLS is used frequently by rotary-wing aircraft, both Shawbury-based and other visitors.

The pilot further noted that, had the aircraft rotors struck the drone, then it was likely that damage would have occurred to the aircraft. They certainly did not expect to find a drone being flown in close proximity to such a busy HLS and it was somewhat disappointing that it was not landed at the sound of two rotary-wing aircraft approaching the HLS.

The drone was originally [notified to them] on the radio by the crew in the lead aircraft. The drone was behind the cockpit coaming, but was then seen quite close and at the same level, maintaining a hover.

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

THE M300 DRONE OPERATOR reports that a pre-flight check on NATS and 'Drone Safety Map' websites showed there was no FRZ or any other need to notify anyone regarding their drone flight. They arrived on site at Swynnerton training camp to let them know they were undertaking another drone flight. They spoke to the same person [as they had previously] for a flight [the week before] and they confirmed the airspace was clear and thanked them for the call. As they were undertaking the drone flight they had a warning on their remote saying there was another user in the airspace. After stopping the M300 to check the airspace they could not see any other aircraft that would risk this flight. A couple of minutes later they then heard another aircraft approaching and again stopped but no emergency

manoeuvres were needed. Finally they saw the aircraft which were out of the perimeter of their flightpath and perceived to be flying at a much higher altitude.

The M300 drone operator further reported that they were operating in the Specific category with the drone in visual line of sight (VLOS).

The drone operator assessed the risk of collision as 'None'.

THE SHAWBURY CONTROLLER reports that no notification of an Airprox was reported to them by the Juno pilot at the time.

THE SHAWBURY BM FLIGHT SAFETY OFFICER reports that they were not directly involved in the incident and were submitting the DASOR as the BM Flight Safety Officer (BMFSO) to contribute towards the Airprox investigation being conducted as part of the linked report. [This was submitted on behalf of] the controller involved, who was on annual leave.

They reviewed the Ricochet radar replay and R/T recordings and their comments were based on [their observations] from them. The aircraft involved was using callsign [Juno callsign 2], which was part of the formation callsign. At the time of the recorded Airprox, the controller was band-boxing the Radar Approach (RA) and Low Level (LL) positions potentially working on and monitoring more than 4 frequencies. There did not appear to be any aircraft working on RA frequencies from the point [the Juno pilot] made initial contact on Stud 4 to the point they visibly departed Swynnerton on the radar replay.

From visible squawks on the radar replay, it is suggested there were at least three other callsigns working LL frequencies (Studs 4&5) before [the Juno pilot] made contact, with an additional two aircraft joining the LFA after [the Juno formation] was on frequency. [The Juno formation] checked-in and made contact with the LL controller on Stud 4 and requested a Basic Service. On receipt of the service from the controller, they then switched to the LL quiet frequency and completed a radio check as per extant procedures. They then transited to Swynnerton.

Although the area of Swynnerton is not directly marked on the radar chart, no other radar returns were visible in the general location that would warrant any calling of traffic to the formation under a Basic Service. There is a semi-audible radio transmission from [the Juno formation], which was believed to be them reporting established at Swynnerton at 1412:11. The controller responded requesting '[Juno formation callsign]*, say again*' with no response being heard.

Again, no other radar returns were observed in the close vicinity of the formation. The two radar returns for [the Juno formation] dropped off radar at 1414:42 (this was expected due to the theoretical base of radar cover), still no other radar returns were viewed in the close vicinity of Swynnerton. At 1417:19, a transmission from what was believed to be [the Juno formation] was heard stating '*…two aircraft lifting from Swynnerton for* [destination]'. No radar returns were observed at Swynnerton at that time. At 1417:43 two radar returns appeared in the vicinity of Swynnerton, their squawks and the previous radio transmissions would suggest this was [the Juno formation]. At 1419:33 [the Juno formation] appeared to be positively tracking away from Swynnerton. No other radar returns were observed in the close vicinity.

At no point during [Juno formation's] time at Swynnerton was a non-squawking or squawking radar return visible in the vicinity which would have suggested a possible Airprox with another aircraft or drone. There was no mention of an Airprox being declared from the formation to the LL controller on frequency. Based on the radar and radio transmission recording, they believed at the time the LL controller would not have been aware of the drone or an Airprox occurring. In their opinion, based on the information available to them, the BMFSO assessed the controller's workload as low.

The safety implications were a possible mid-air collision with a drone, although no information was reported to ATC at the time of the incident. Due to this, the perceived severity at the time would have been negligible.

The controller perceived the severity of the incident as 'Low'.

Factual Background

The weather at Shawbury Airfield was recorded as follows:

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METAR EGOS 141350Z 08003KT 9999 SCT020 13/08 Q1032 TEMPO SCT025 RMK BLACKWHT TEMPO BLU
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Analysis and Investigation

2 Gp BM

The investigation summary included the crew report and interviews with the aircraft Captain and Swynnerton Range Officer.

The BMFSO was in liaison with the SFSO to ensure a robust response plan for drone activity outside the ATZ is established, including an ATC Supervisor flowchart. The E&OM is to raise 2 DASOR Recommendations in order for the Unit to conduct a complete review of 'Contingency Plan 9' and to reinvigorate the Drone Campaign with both local and service communities. There is additional benefit in ensuring that key landing sites (eg Swynnerton, Nesscliffe) are also included in the Drone Campaign.

The investigation noted the following outcomes and recommendations:

The Juno flew as close as 20m laterally to the drone, because the drone operator flew their drone on the edge of a known military training area. The drone operator had sought permission from the range officer in advance and that had been given [on condition that] the drone was flown within a specified 20min flying window. The drone operator was made aware of the booked Juno helicopters but flew the drone later than was agreed. It has been recommended that the Swynnerton range officer speak with the drone operator in the first instance to remind them of what had been agreed. The RAF Shawbury SFSO would also give them a call.

The crews were not made aware of the drone flight location, however, Swynnerton had made the drone operator aware of the [Juno] flights as the call from the drone operator came in after the helicopter booking. They did not ring Shawbury after the drone booking was made which may have alerted the crews to look in that direction. Swynnerton has agreed to inform Shawbury Ops of any known drone activity.

A full review of 'Contingency Plan 9' was to occur in light of a number of recent drone sightings and the Airprox involving 1 FTS and within the Shawbury Dedicated User Area (DUA). The review should include the creation of a flowchart for actions in the event of drone sighting as well as drone approvals.

Flight Restriction Zones (FRZs) do not exist around all helicopter landing sites (HLSs). However, in this case it would not have made a difference as the drone operator had sought permission from the HLS operator. FRZs are extremely unlikely to be allocated around all HLSs.

A recommendation to reinvigorate the previously successful Drone Campaign, using social media and other avenues to educate and provide information to the local community, was made.

The SFSO further commented that the location of the drone flight was over a building in the grounds of a company that immediately borders the Swynnerton Training Area. There was an assumption that the company was the owner of the drone. A follow-up investigation revealed that the drone was commissioned through a professional drone operator to carry out a survey of the roof of a particular building. They were unable to track down the drone operator but were satisfied that there will be no repeat of that concurrent drone activity at that location in the future, if the Range Officer informs the company that helicopters are booked in.

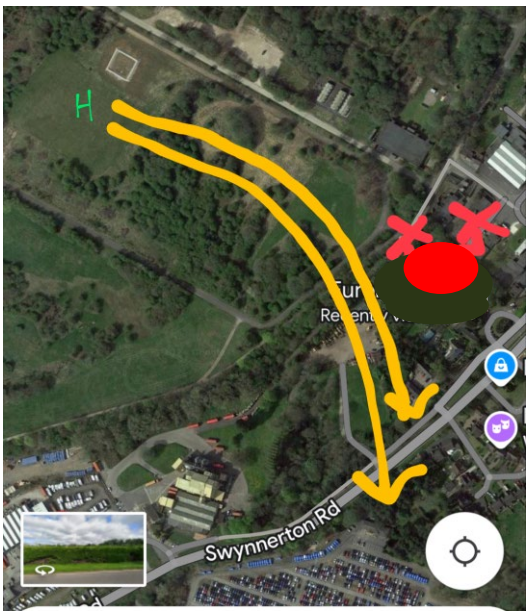


Figure 1 – Helicopter landing site HLS and drone operation area

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the Juno was positively identified using Mode S data. The elevation of the helicopter landing site (HLS) is approximately 350ft and the formation was first displayed on radar at 1417:39 indicating 0ft, equating to 500ft AMSL on the day (London QNH 1031), or approximately 150ft AGL. The Juno pilot provided a navigation file which confirmed the radar track and timings.

The M300 drone was not visible on radar.

CPA was assessed to have been at approximately 1417:43, shortly after the Juno formation had lifted from the Sywnnerton HLS and appeared on radar. The separation values could not be determined.

The Juno pilot and M300 drone operator shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] 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.[2]

Comments

HQ Air Command

The Juno crew was unaware of the M300 until notified by the formation lead, at which point they were able to visually acquire the UAV and take avoiding action. Improved visual conspicuity or compatible electronic conspicuity would have allowed the Juno formation to acquire the M300 at an earlier stage and prevent the air systems coming into conflict. Swynnerton had attempted to achieve deconfliction by agreeing timings with the M300 operator, but this was circumvented by the operator disregarding the agreed timings. The reinvigoration of the Drone Campaign to raise awareness among both the civilian and military communities is welcomed, as are the improvements in notification of UAV activity between Swynnerton and RAF Shawbury.

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] Assimilated Regulation (EU) 2019/947- GM1 UAS.SPEC.060(1)(a) Responsibilities of the Remote Pilot

Summary

An Airprox was reported when a Juno and an M300 drone flew into proximity at Swynnerton Training Camp at approximately 1418Z on Thursday 14th November 2024. The Juno pilot was operating under VFR in VMC in receipt of a Basic Service from Shawbury Low Level and the M300 operator was operating in the Specific Category under VLOS rules in VMC, not in receipt of a FIS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the Juno pilot, the M300 operator, radar photographs/ video recordings, navigation files for the Juno flight, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 first discussed the actions of the Juno pilot, who was following the lead in a Juno pair. The Board noted that the lead pilot of the Juno pair had sighted the drone and had reported it to the following Juno pilot, agreeing that, prior to that, the pilot had had no situational awareness of the M300 drone activity in the locality (**CF6**) as no information had been available from the Shawbury controller. Members were heartened that the timely alert from the Juno lead pilot had assisted the following pilot's sighting of the drone, albeit a late sighting (**CF9**), and that this had fortuitously compensated for the incompatibility of the Juno's EC equipment with the drone and inability to detect it (**CF7**). Members further agreed that the view of the drone had initially been obscured by the location of the trees between the Juno's lift-off point and the operational area of the M300 drone (**CF11**).

Turning their attention to the actions of the M300 drone operator, the Board noted that they had contacted staff at the Swynnerton Training Camp in advance of the flight, but wondered if the operator had remembered the agreed timings. Members agreed that the timing of the M300 drone operation had been outside the agreed hours of operation and that the M300 operator had not contacted the Swynnerton Range Officer to communicate their intentions to operate the drone during an alternative timeframe (**CF3**). Members further agreed that, on not contacting the Swynnerton Range Officer, the M300 drone operator had not adequately adapted their plan to account for the revised timing of the drone operation (**CF4**). Whilst considering the planning aspects of the M300 drone operation, some members wondered if the pilot had considered notifying military operations, and if that could have been promulgated via the CADS or NOTAM system. The Board recalled a previous recommendation from Airprox 2022024[3] stating that:

> '*The CAA and MAA jointly consider a coherent means by which non-recreational drone activity can be promulgated by drone operators and an associated method through which this information can be made available to other air users operating in either the UK Military Low Flying System or with a CAA permission to operate outside the provisions of ORS4 No.1496*.'

To which the CAA and MAA jointly responded as follows:

> *Both the CAA and the MAA acknowledge that the NOTAM system can be used to highlight unusual activity (such as non-routine UAS operations above 400ft AGL) but that this system is not suitable for notification of routine UAS operations at or below 400ft AGL. It is also acknowledged that there are several disconnected applications that are currently used by the RPAS industry but that their use is not mandated. Their disconnected nature would make reliance on their use impractical for crewed aviation as this would not provide a common picture.*
>
> *The CAA and MAA undertake to work in the existing joint working groups to consider how non-recreational drone activity can be integrated with, and communicated to, manned aircraft activity (military and civilian) below 500ft agl such that crews may plan to avoid them in a timely manner.*

[3] Airprox Report 2022024

Returning to the Airprox itself, some Military ATC members wondered if the CADS (Centralised Aviation Data Service) system would have been effective had the drone operator informed Military Ops of their M300 drone operation at short notice, and mentioned that they would recommend a 24hr notice period prior to any drone operation. Members were concerned that had a drone operator, hypothetically, informed Military ATC on the day of operation, then the crew may not have had access to the information during their pre-flight planning phase and may have been airborne at the time of publication of the information on CADS. During this conversation the Board was heartened to learn that a CADS replacement was ongoing, with the potential to provide ATC with the ability to receive and pass information directly to crews during flight. The Board further discussed the point at which the M300 drone operator had become aware of the proximity of the two Juno helicopters, and agreed that the M300 drone's electronic conspicuity equipment had alerted the operator to the presence of other airspace users (**CF8**) and shortly afterwards the drone operator had heard aircraft activity. Members agreed that, on hearing the aircraft, the M300 drone operator had had generic situational awareness of the presence of the Juno helicopters (**CF6**), but members were disappointed that the M300 drone operator, despite awareness of aircraft activity in the vicinity, had not discontinued their flight (**CF5**). The Board acknowledged that the M300 drone operator's initial view of the Junos had been obscured by the trees (**CF11**) and agreed this had led to a late sighting of the Juno (**CF9**). Members also agreed that the M300 drone operator had flown close enough to the Juno to have caused concern (**CF10**).

Moving their discussion towards the actions of Swynnerton ground operations, some members wondered why the Swynnerton Range Officer had not informed Shawbury of the intended drone flight, while other members rationalised that it had not been necessary to inform Shawbury of something that would, otherwise, not have affected the Juno operation. However, some members noted that the Range Officer could have equally informed the M300 drone operator that they had been expecting helicopter activity during the day, and hopefully have reduced the likelihood of a conflict occurring. Nonetheless, the Board agreed that Swynnerton ground operations had had inaccurate situational awareness of the timings of the M300 drone activity due to it having been operated outside the original planned, and agreed, timeframe (**CF2**).

Members then considered the actions of the Shawbury Low Level controller and noted that, once the Junos had flown below the base of radar coverage, there had been nothing that the controller could either have seen or done to mitigate confliction with other low level airborne operations. Furthermore, the Board agreed that the controller had not been required to monitor the Juno pair under the terms of a Basic Service in any case (**CF1**). The Board recognised that the Shawbury controller had not been passed information on any drone activity at Swynnerton, and had had no situational awareness of its presence (**CF2**) and had, therefore, been unable to pass such information to the Juno pilot.

In concluding their discussion the Board agreed that, although safety had been degraded, no risk of collision between the Juno and the M300 drone had existed, and that the Juno had been manoeuvred to the right and away from the drone. As such, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024280			
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
2	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Tactical Planning and Execution			

3	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
4	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
	• Situational Awareness of the Conflicting Aircraft and Action			
5	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
6	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			
7	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
8	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
9	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
10	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern
11	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C.

Safety Barrier Assessment[4]

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 **ineffective** because the Swynnerton Range Officer had inaccurate situational awareness on the operation of the M300 which had flown outside the planned times. Therefore, they did not inform the Shawbury Low Level operator who, consequently, had no situational awareness of the M300 operation.

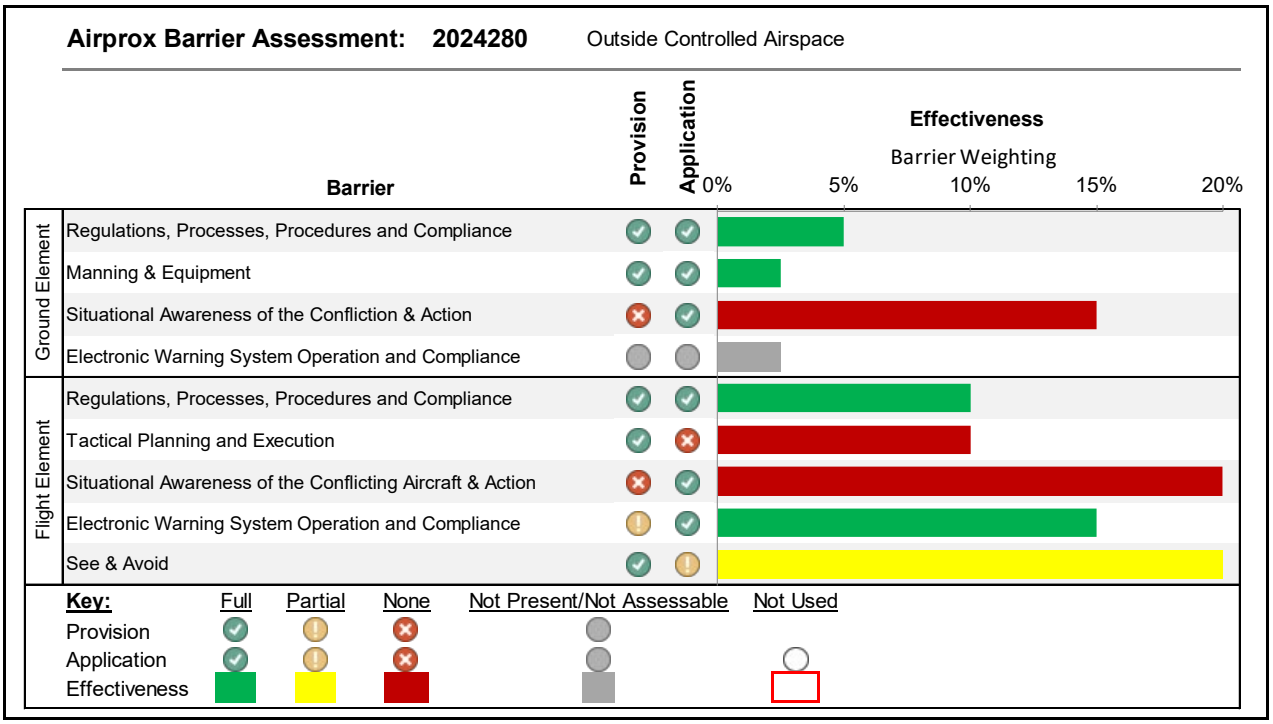
Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because the M300 operator did not communicate their plan adaption to operate the drone later than originally planned.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Juno pilots had no situational awareness of the M300's operation and, although the M300 operator had generic situational awareness of the presence of the Junos in the vicinity, they did not discontinue their flight.

See and Avoid were assessed as **partially effective** because both the Juno pilot and the M300 operator sighted the other aircraft at a late stage..

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


Airprox Barrier Assessment: 2024280
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