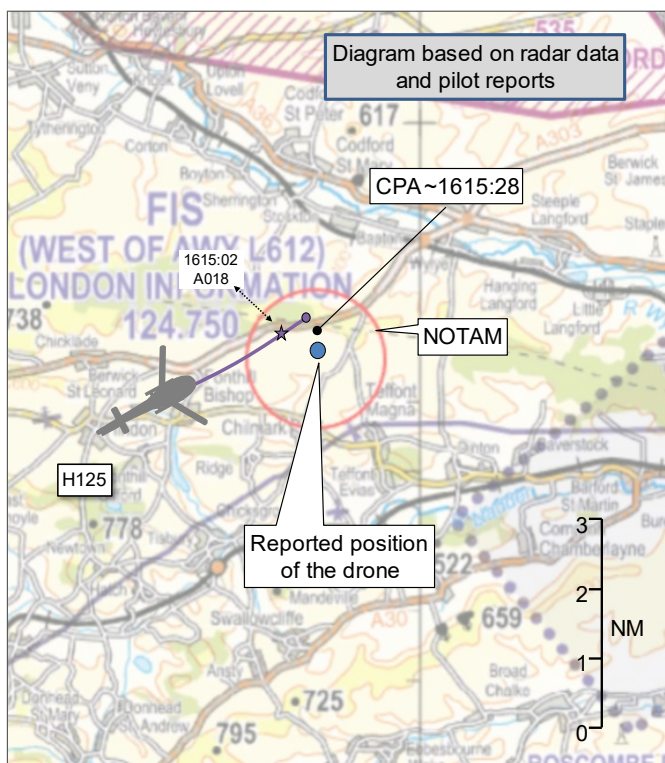


AIRPROX REPORT No 2024156

Date: 02 Jul 2024 Time: ~1615Z Position: 5106N 00202W Location: Chilmark

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	RPAS	H125
Operator	Civ UAS	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VLOS	VFR
Service	None	Traffic
Provider	N/A	Boscombe Down
Altitude/FL	NK	NK
Transponder	Not fitted	A, C, S
Reported		
Colours	Grey	Red, White, Blue
Lighting	Nav	Strobes, Nav
Conditions	VMC	VMC
Visibility	5-10km	>10km
Altitude/FL	1000ft	1000ft
Altimeter	AGL	RPS (1015hPa)
Heading	270°	060°
Speed	60kt	110kt
ACAS/TAS	Not fitted	TAS, FLARM, SkyEcho
Alert	N/A	None
Separation at CPA		
Reported	0ft V/200m H	Not Seen
Recorded	NK	



THE UAS PILOT reports that the UAS was flying on a standard Flight Acceptance Test Plan at Chilmark. This is a NOTAM'd flight test site, used daily, and has been actively under NOTAM since 2017. During the flight test, the UAS was flying at 1000ft AGL in a 300m orbit. The remote pilot visually acquired the helicopter at around 2-3NM, aided by the noise. The remote pilot expected the helicopter to remain above the NOTAM (1500ft), or to avoid by flying to the north of the NOTAM. The helicopter appeared to be rapidly descending to the same altitude, possibly below, that of the UAS and with no more than 2-300m horizontal separation. The helicopter was noted, by visual ground markers, to be well inside the NOTAM and into the approved flying area and flightpath of the UAS. The remote pilot commanded the aircraft into a hard bank and onto a southerly heading to avoid an Airprox. The remote pilot maintained the aircraft at 1000ft, as by this time the helicopter was below the UAS. The UAS was then landed when safely separated from the helicopter. The helicopter appeared to continue to descend on the same flightpath, flying west-to-east through the NOTAM. This was corroborated by an FR24 track and UAS GPS logs.

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

THE H125 PILOT reports that they were the PIC, conducting a high workload test flying sortie, in Class G airspace, to the west of Boscombe Down. They passed by Chilmark at two points during the sortie, once at the beginning (1512Z) and once at the end (1615Z). The flight profile at 1512Z (time of incident as given by the UAS operator iaw initial Airprox notification), was approximately 1NM to the south, outside the NOTAM'd area at an approximate altitude of 5000ft AGL in the descent to 1000ft AGL (east-to-west, to a point close to Fonthill Bishop). The flight profile at 1615Z (at the end of the flight) did encroach on the northwest portion of the NOTAM'd area at approximately 1000ft AGL. The aircraft was flown just south of the A303 (west-to-east) to avoid direct overflight of a large wood in a single engine helicopter and to deconflict with the entry/exit point of Deptford Down; a heavily used RW area on

Salisbury Plain, used frequently by military callsigns, with traffic that is on a different working frequency (Salisbury Ops) to those operating to the south of the site (Boscombe Approach frequency). As such, the flightpath was chosen to avoid the aforementioned risks, in the knowledge that the NOTAM existed. The aircraft was positioning at this time for a northern lane visual recovery for MoD Boscombe Down iaw its Aerodrome order book. During this recovery, the crew did not see any UAS, or any UAS activity at the site, whilst transiting to the north of the Chilmark UAS site. As is always the case, NOTAMs for the area of operation were briefed (location, size and vertical extent) in the pre-flight brief and the crew was very familiar with this particular NOTAM and its location, given that it has been permanently in place for the last 7 years. This is one of four local NOTAMs for either UAS operations or model flying operations in close proximity to MoD Boscombe Down. This site is often quiet with no UAS activity (they had personally only observed activity at the site 3-4 times in the past year)¹, even though it has had a permanent NOTAM covering 24/7 operations since 2017. The flight profiles of RW test pilot training from MoD Boscombe Down are often high workload, in airspace with a significant level of GA traffic. These flights are de-risked by use of a Traffic Service from MoD Boscombe Down, an onboard TAS that is required to be serviceable for instructional sorties, ADS-B "Out" conspicuity, and EFBs with ADS-B "In" and [a subscription service to display common glider EC]. Both permanent UAS NOTAMs are located close to entry and exit VFR points from the airfield, with one located under the MATZ stub; whilst they are known to ETPS crews and briefed daily, they are not segregated airspace and, due to weather constraints, the need to remain clear of other traffic, and their occasional activity, it is not practical to consider them as such. The UAS had no electronic conspicuity [equipment] that they were aware of, and was not detected by their multiple on board systems. Operating BVLOS [they believed] in busy Class G airspace and mitigating risk of MAC through the use of remote observers and a permanent NOTAM that does not reflect actual activity, are not effective means of ensuring safe deconfliction of an air vehicle that is invisible to an ATC radar unit located just 11 miles away and operating above 400ft AGL in a dense traffic environment.

THE BOSCOMBE APPROACH CONTROLLER reports that they had no recollection of this event due to the time elapsed before they were alerted to the Airprox.

Factual Background

The weather at Boscombe Down was recorded as follows:

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METAR EGDM 021520Z 34010KT 9999 FEW038 SCT045 18/08 Q1019 NOSIG RMK BLU BLU=  
METAR EGDM 021550Z 01013KT 9999 SCT045 19/08 Q1019 NOSIG RMK BLU BLU=
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The NOTAM covering the UAS activity at Chilmark was as follows:

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H4209/24 NOTAMN (EGGN H4209/24)  
Q) EGTT/QWULW/IV/BO/W/000/022/5107N00202W002  
A) EGTT B) 2407012300 C) 2409302259  
E) UAS OPR BEYOND VISUAL LINE OF SIGHT (BVLOS) UTILISING VISUAL  
OBSERVERS (EXTENDED LINE OF SIGHT) WI 1NM RADIUS OF  
510636N 0020223W (CHILMARK) MAX HGT 1500FT AGL. FOR INFO  
07826 918598. AR-2024-4287/AU2  
F) SFC G) 2200FT AMSL
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken; the H125 could be detected on the radar replay and identified from Mode S information. The drone could not be detected at all. The drone operator had reported the Airprox as occurring at 1512Z, but at this time the H125 was transiting westbound and was to the south and outside the confines of the NOTAM. As the H125 returned

¹ The drone operator advised that this site was used 3-4 times a week and over 350 flights took place in 2024.

towards Boscombe at 1615, its track took it within the NOTAM boundary laterally, and the radar indicated that the aircraft was descending to 1800ft (radar QNH 1018hPa), see Figure 1.

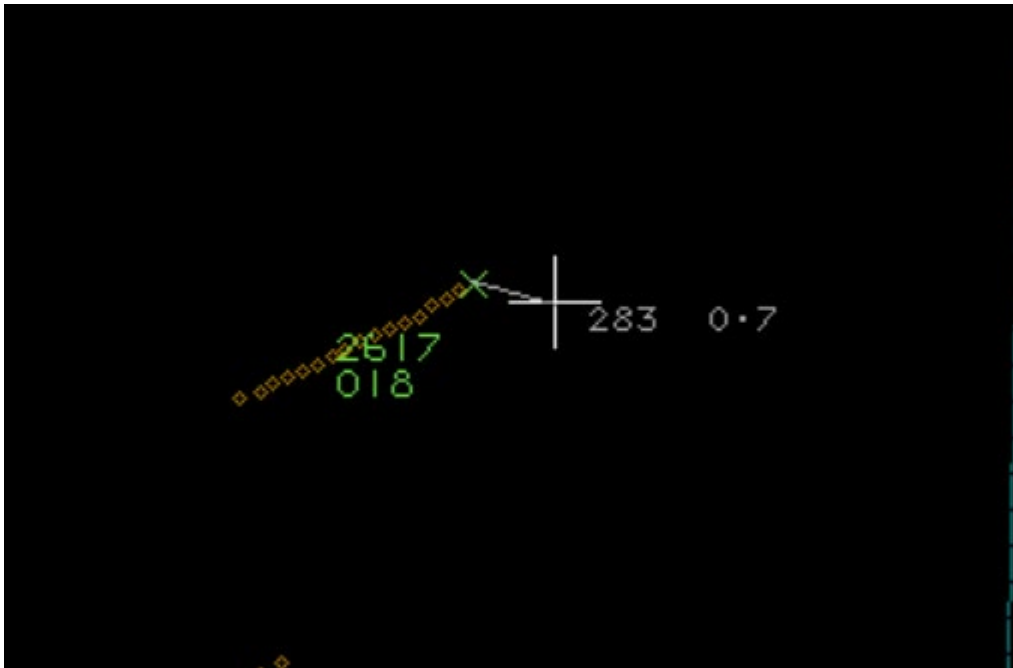


Figure 1 - 1615:02, the white cross indicates the centre of the NOTAM

The H125 continued on heading, although the Mode C could no longer be detected by the radar and so the altitude was unknown, until 1615:28, after which the aircraft faded from the radar (Figure 2). The actual separation between the H125 and the drone could not be determined.

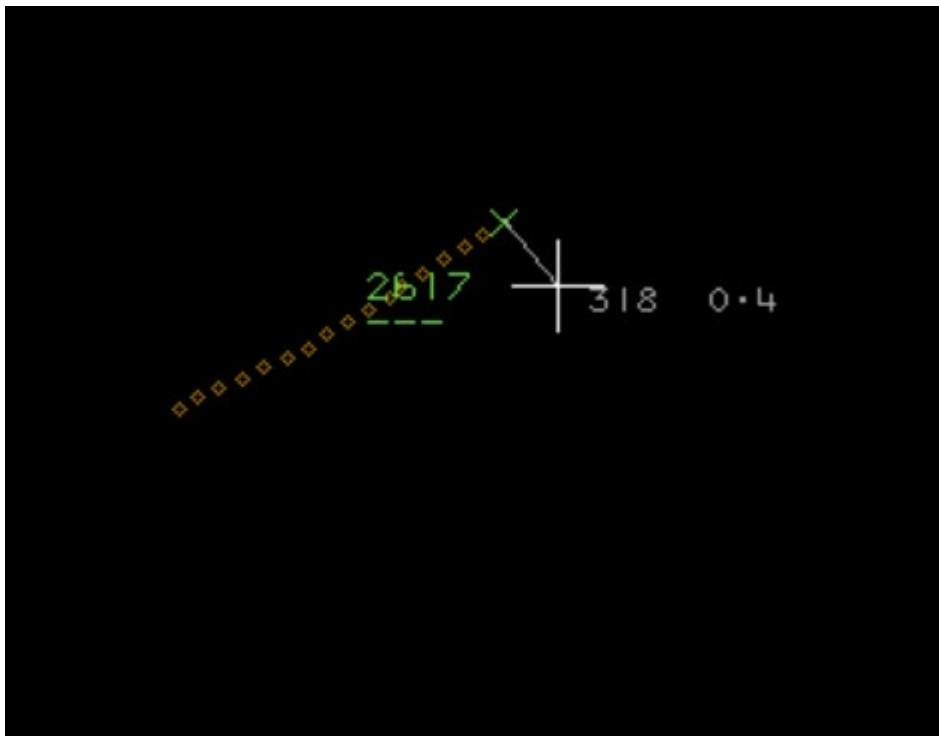


Figure 2 - 1615:28, H125 faded from radar on the following radar sweep

However, ADS-B derived information indicated that the H125 had been in the region of 1300ft when in the vicinity of the drone (Figure 3). Google Earth-derived information indicated terrain height in the region of 500ft in the vicinity of the drone operation.

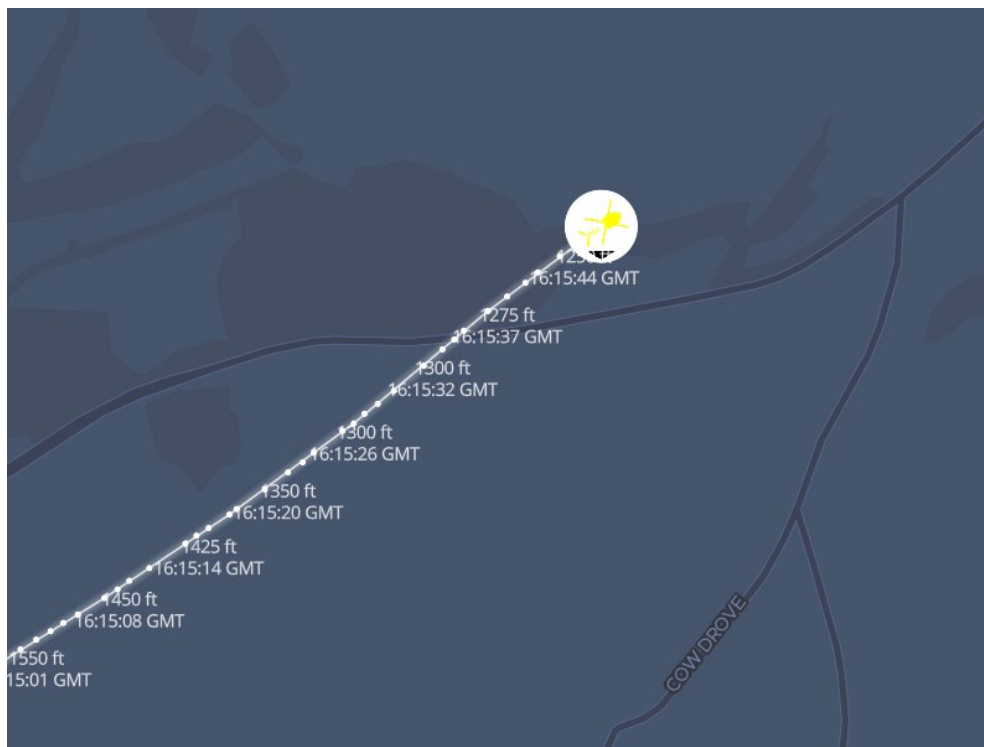


Figure 3 – ADS-B derived information indicating that the H125 was at 1300ft (equating to approximately 1400ft AMSL).

The UAS and H125 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: (a) comply with the authorised [...] limitations and conditions; (b) avoid any risk of collision with any manned aircraft and discontinue a flight when continuing it may pose a risk to other aircraft, people, animals, environment or property.³

Comments

HQ Air Command

The helicopter crew was aware of the NOTAM and, in selecting their route back to Boscombe, elected to fly through the upper and north westerly portion of the NOTAM'd volume to mitigate other risks associated with single engine flight over a large wood and the busy entry/exit point of Deptford Down. The NOTAM does not constitute an avoid and there is a normalisation among Boscombe aircrew that this NOTAM, which has been in effect for years, is rarely active with drone flying, despite the H24 ops stated. Following this incident, discussions have taken place between the drone operating company and Boscombe Down. It has been agreed that the company would look at an Operation Instruction regarding their drone NOTAMs to set a default NOTAM with daily activation hours and to formalise arrangements for notifying Boscombe Ops of drone activity above 400ft.

Summary

An Airprox was reported when a UAS and an H125 flew into proximity at Chilmark at around 1615Z on Tuesday 2nd July 2024. The UAS pilot was operating under VLOS, not in receipt of an ATS. The H125 pilot was operating under VFR in VMC, in receipt of a Traffic Service from Boscombe Down.

² (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

³ Regulation (EU) 2019/947 as retained (and amended in UK domestic law) Under the European Union (Withdrawal) Act 2018 - UAS.SPEC.060 Responsibilities of the remote pilot (3)(b)

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the H125 pilot and the drone operator, radar photographs/video recordings, ADS-B data 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 first discussed the actions of the drone operator. They had been operating extended VLOS in accordance with their operational authorisation from the CAA, which required them to promulgate the activity, complied with by issuing the NOTAM. Members discussed the value of having a NOTAM that was re-activated on a continual basis, noting that, as had been the case here, it had the potential for other airspace users to become inured to it. However, members also recognised that, other than a permanent solution with segregated airspace, the drone operator had no other options. Nonetheless, they did wish to highlight that a NOTAM is purely a warning, and is not protected airspace. On this occasion the drone operator had received generic situational awareness on the H125, as they had heard it approaching (**CF2**) and, once visual, although concerned by the helicopter's proximity, had been able to manoeuvre the drone clear (**CF5**).

Turning to the actions of the H125 pilot, members were sympathetic to the pilot's risk assessment and mitigating actions, in that they had wanted to remain clear of the wooded area and the busy entry point onto Salisbury Plain Training Area. Nevertheless, the NOTAM had given details about the drone operation, and the pilot had flown through an area promulgated by the NOTAM (**CF1**). Members noted that the continual activation of the NOTAM, and the perception that it had been under-utilised, had engendered a normalisation amongst Boscombe Down personnel of ignoring the warning. Although the H125 pilot had received generic situational awareness from the NOTAM (**CF2**) that a drone could be present, the TAS and other CWS on-board the H125 could not have detected the drone (**CF3**) and the pilot had not been visual with it (**CF4**).

Turning to the role of ATC, members wondered whether the controller could have been expected to remind the H125 pilot about the NOTAM, but were told by military controlling members that local Boscombe procedures were that, once the pilot had descended below the height at which a Traffic Service could be provided, the responsibility for separation remained with the pilot.

Within the course of the discussion about the merits of the continual NOTAM and the notice given to it by local airspace users, the Board was told by military members that Boscombe Down had re-invigorated old procedures whereby contact would be made with the drone operator on a daily basis to establish the planned daily activity. This information would then be briefed to Boscombe Down pilots each day. Members were heartened to hear this and felt it was a pragmatic solution.

When determining the risk of collision, members considered the reports from both pilots together with the radar replay. Unfortunately, the drone had not displayed on the radar and the H125 pilot had not seen the drone, so the only assessment of separation had been from the drone operator. There was a wide spread of views from members, with some viewing the incident as normal operations, and others arguing that there had been a risk of collision. However, after some debate, in the end the Board agreed that the drone operator's description of the event, together with the avoiding action taken, described a situation where, although safety had been degraded, thanks to the drone operators actions, there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2024156				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	Human Factors	• Aircraft Navigation	An event involving navigation of the aircraft.	Flew through promulgated and active airspace, e.g. Glider Site

• 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	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
• 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
5	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

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:

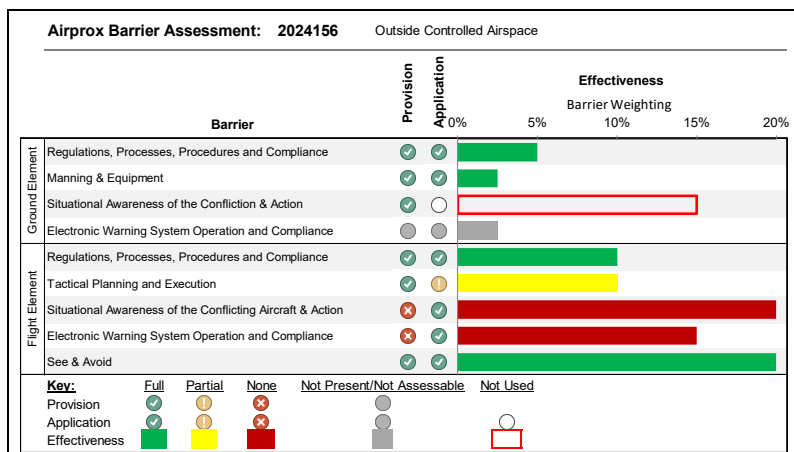
Situational Awareness of the Confliction and Action were assessed as **not used** because the NOTAM was beneath the radar vector chart (MILSMAC) so the controller had not been required to warn the H125 pilot about the NOTAM.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the H125 pilot had chosen to fly through the NOTAM'd area.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because both had pilots had only generic information on the other aircraft; the UAS operator from hearing the helicopter approaching and the H125 pilot from the NOTAM.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TAS and CWS equipment on board the H125 could not detect the UAS.



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