

## Consolidated Drone/Balloon/Model/Unknown Object Summary Sheet for UKAB Meeting on 13th September 2023

Total	Risk A	Risk B	Risk C	Risk D	Risk E
10	2	4	4	0	0

Airprox Number	Date Time (UTC)	Aircraft (Operator)	Object	Location <sup>1</sup> Description Altitude	Airspace (Class)	Pilot/Controller Report Reported Separation Reported Risk	Comments/Risk Statement	ICAO Risk
2023137	28 May 23 1443	A320 (CAT)	Unk Obj	5116N 00024W OCK hold. FL85	London TMA (A)	<p><b>The A320 pilot</b> reports that during holding at Ockham on arrival to LHR at FL85, a drone flew in[to] the middle of the holding pattern. [The] drone was so close that the fuselage golden colour was visible to [the] cockpit. ATC [was] notified at the time of the occurrence.</p> <p><b>Reported Separation:</b> 100ft V / 100m H <b>Reported Risk of Collision:</b> High</p> <p><b>The controller</b> reports that both LHR Tower and Police were informed.</p> <p><b>A NATS Investigation</b> reports that [the A320 pilot] was holding at OCK at the time of the report and was 2.4NM bearing 149° from OCK and reported that the drone was <i>'...a little bit below us, in the middle of the hold'</i> but did not describe the UAS any further. They note that analysis of the radar by Safety Investigations indicated there were no associated primary or secondary contacts visible on radar at the approximate time of the event.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were such that they were unable to determine the nature of the unknown object.</p> <p><b>Applicable Contributory Factors:</b> 4, 5</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where although safety had been reduced, there had been no risk of collision.</p>	C

<sup>1</sup> Latitude and Longitude are usually only estimates that are based on the reported time of occurrence mapped against any available radar data for the aircraft's position at that time. Because such reported times may be inaccurate, the associated latitudes and longitudes should therefore not be relied upon as precise locations of the event.

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2023149	1 Jul 23 1857	A319 (CAT)	Balloon	5129N 00023W 2NM E Heathrow 700ft	London CTR (D)	<p><b>The A319 pilot</b> reports descending on the ILS for RW27R at Heathrow when they saw a black unlit drone just in front of them. The drone did not have arms with rotors on extending from a body, it was more of a solid round flat structure about 1m in diameter. It was seen for such a short time, about 2sec, they could not provide any more detail.</p> <p><b>Reported Separation:</b> 30ft V/0m H <b>Reported Risk of Collision:</b> High</p> <p><b>The Heathrow controller</b> reports the A319 descending through 700ft reported a drone “30 feet over the top of us” on final approach to RW27R. No description of size, shape or colour was given. After informing the next landing aircraft of the reported drone sighting, they reported “we also saw something, looked like a balloon”.</p>	<p>In the Board’s opinion the description of the object by both the A319 pilot and following aircraft pilot were sufficient to indicate that it was probably a balloon.</p> <p><b>Applicable Contributory Factors:</b> 4,6</p> <p><b>Risk:</b> The Board considered that the pilot’s overall account of the incident portrayed a situation where providence had played a major part in the incident and/or a definite risk of collision had existed.</p>	A

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2023152	3 Jul 23 1645	A321 (CAT)	Unk Obj	5128N 00011W 10NM E Heathrow 3000ft	London TMA (A)	<p><b>The A321 pilot</b> reports that on approach to RW27L, at about 3000ft on the ILS, a drone was spotted about 500ft above the aircraft. The drone had 3 propellers and was black.</p> <p><b>Reported Separation:</b> 500ft V</p> <p><b>The Heathrow Fin controller</b> reports that the A321 pilot reported that they had spotted a drone above them whilst at approximately 6NM final. However, the pilot in the aircraft behind reported that it was definitely a balloon and that they could read some of the message on it. They continued to pass the balloon sighting to following aircraft and the Heathrow Sup was informed and put the info onto ATIS.</p> <p><b>The NATS investigation</b> reports that the A321 pilot reported that the drone had <i>“three propellers on it.”</i> This was subsequently clarified as <i>“had two cameras on it as well and four propellers, very clearly a drone”</i>. The pilot of the following aircraft, informed the LL FIN controller <i>“it’s not a drone, it’s a load of balloons that are all together, just went past us.”</i> When questioned by the controller that they were reporting balloons, the pilot stated <i>“yeah, hundred percent, it was like a bunch of five or six balloons, I could see the circular that looked like [unintelligible], it got quite close to us.”</i> The pilot of an aircraft behind also stated that the object was <i>“just above us, looks like one hundred metres above us.”</i> The LL FIN controller requested confirmation of balloons and the pilot responded <i>“I’m not sure about that, but it looked like balloons.”</i> Analysis of the radar by Safety Investigations indicated that there were no primary or secondary contacts associated with the drone sighting visible on radar at the approximate time of the event.</p>	<p>In the Board’s opinion the reported altitude and/or description of the object, together with the reports from the pilots of the following aircraft, were such that they were unable to determine the nature of the unknown object.</p> <p><b>Applicable Contributory Factors:</b> 4, 5</p> <p><b>Risk:</b> The Board considered that the pilot’s overall account of the incident portrayed a situation where although safety had been reduced, there had been no risk of collision.</p>	C

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2023155	7 Jul 23 1928	A220 (CAT)	Drone	5128N 00025W 1NM E Heathrow 2000ft	London CTR (D)	<p><b>The A220 pilot</b> reports that [an Airbus] that had taken off in front had reported a drone at low altitude. When [the A220 pilot] got take-off clearance for RW09R, they looked carefully out to see if they could spot it as well. Indeed, they spotted the drone at the end of the runway as they overflew it. The drone was hovering in the proximity of the Concorde parking at an altitude of about 500-1000ft and had a diameter of approximately 50-100cm. It was bright and reflective in the middle with 4 or 6 black arms for the propellers. As they were already at around 2000ft when overflying the drone, there was no risk of collision. Nevertheless, they immediately informed ATC, confirmed the drone sighting and forwarded all details to them.</p> <p><b>Reported Separation:</b> 1000ft V/100m H <b>Reported Risk of Collision:</b> None</p> <p><b>The Heathrow controller</b> reports that at 1927, [the A220 pilot] departed 09R. They [had been] made aware of a drone sighted by the [pilot of] the previous departing [aircraft] and were happy to continue. Shortly after takeoff, the [A220 pilot] reported sighting a drone at approximately 1000ft. [The controller] asked for a description but the [pilot] was unable to provide one.</p> <p>[The Heathrow controller] informed the Tower Supervisor who was already aware of the situation. The next departure did not report sighting the drone.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 3, 5</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where although safety had been reduced, there had been no risk of collision.</p>	C

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2023163	29 Jul 23 1315	B737 (CAT)	Drone	5557N 00320W 1.7NM NE EDI 500ft	Edinburgh CTR (D)	<p><b>The B737 pilot</b> reports that a drone [had been] first sighted low and to the left of the aircraft while at approximately 500ft agl on the ILS approach to EDI RW24. The drone passed down the left side of the aircraft, slightly low. No avoiding action was taken, as by the time the drone was seen and the crew realised it was a drone that was actually very close to the aircraft, it was abeam and passing down the left side of the aircraft. They described the drone as a quadcopter, white, possibly a DJI Phantom.</p> <p><b>Reported Separation:</b> 50-100ft V/50-100ft H <b>Reported Risk of Collision:</b> High</p> <p><b>The Edinburgh Controller</b> reports that the crew of [the B737] reported sighting a drone on a 1.7NM final for RW24 around a height of 600-700ft. They [the controller] or the Tower ATSA (they could not remember who) informed Airside Ops. They had no warnings on the [drone detection equipment] and declared no drone status. They passed the information to subsequent landing aircraft. There were no further reports from pilots of following aircraft.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b>1, 2, 3, 4, 7</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where safety had been much reduced below the norm to the extent that safety had not been assured.</p>	B

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2023164	19 Jun 23 1129	A321 (CAT)	Unk Obj	5132N 00023E 10NM E of London City Airport 8000ft	London TMA (A)	<p><b>The A321 pilot</b> reports that during the ferry flight (no PAX and no cabin crew) from LTN to LGW they spotted a drone approximately 50-100ft below them. Due to its size, they saw it in the very last moment. No avoiding action was required. Situation was reported to the ATC immediately. Description - black, square-shaped.</p> <p><b>Reported Separation:</b> 50-100ft V / NR H <b>Reported Risk of Collision:</b> Medium</p> <p><b>The London TC BIG controller</b> reports that the A321 pilot had checked in on frequency 10 miles east of LCY enroute to LGW at FL80 and reported a black square drone 50ft beneath them. The controller acknowledged the call and informed Thames Radar, LHR INT North and TC North.</p> <p><b>The NATS investigation</b> reports that their analysis of the radar by Safety Investigations indicated that there were no primary or secondary contacts associated with the drone report, visible on radar at the approximate time of the event.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were such that they were unable to determine the nature of the unknown object.</p> <p><b>Applicable Contributory Factors:</b> 4, 6</p> <p><b>Risk:</b> 5132</p>	B
2023166	3 Aug 23 1009	Texan (HQ Air Trg)	Drone	5208N 00301W 8NM SW Shobdon 600ft	London FIR (G)	<p><b>The Texan pilot</b> reports that 30min into a low-level sortie SW of Shobdon airfield, the aircraft was tracking west at 400ft agl [they recall] and 240kts. While looking out, the handling pilot noticed a small drone (less than 1 metre), passing above and to the left of the aircraft, initially picking it up in their 10.30 (clock code) and around 100ft vertically displaced from the aircraft. Horizontal distance was more difficult to gauge without knowledge of the exact size and speed of the drone. The drone was identifiable by its block-like shape and the forward tilt in its direction of travel (east). Contact with the drone was lost as it passed through the handling pilot's 4 o'clock.</p> <p><b>Reported Separation:</b> 100ft V/NR H <b>Reported Risk of Collision:</b> Medium</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 4, 5</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where although safety had been reduced, there had been no risk of collision.</p>	C

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2023173	12 Jul 23 1925	A320 (CAT)	Drone	5128N 00001W 15NM E Heathrow 5000ft	London TMA (A)	<p><b>The A320 pilot</b> reports that a drone passed 10-20m above their aircraft when at 15NM final Heathrow RW27R. They were at 5000ft. The drone was about 30-50cm in diameter and black/grey.</p> <p><b>Reported Separation:</b> 30-60ft V/ 0M H <b>Reported Risk of Collision:</b> High</p> <p><b>A NATS Investigation</b> reports that the pilot of the A320 reported sighting a drone that had passed them reportedly about 20/30m above. The LL FIN controller acknowledged the report and requested further details on the size and colour. The pilot reported that it was black and size about 1.5m. The A320 was at 5500ft on QNH 1012hPa and 0.6NM from an 18DME final for RW27R at the time of the reported sighting. Details were passed to Heathrow Tower, who relayed details to airport police.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 3, 4, 7</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where providence had played a major part in the incident and/or a definite risk of collision had existed.</p>	A

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2023180	10 Aug 23 0830	Prefect (HQ Air Trg)	Drone	5255N 00017W 10NM SE Cranwell 3400ft	London FIR (G)	<p><b>The Prefect pilot</b> reports that they were recovering to [their destination] and, for sequencing, they had been turned on to a westerly heading and descended from 5000ft to 3000ft. Following a minor heading change directed by ATC, when they cross-checked the student's use of the HSI heading bug, they looked forwards to see an object co-altitude at a range of about 200m. Recognising the risk of a possible collision with said object, they immediately took control and actioned aggressive avoiding action upwards and to the right. Reversing the turn, they saw the object pass close, down the left-hand side of the aircraft. As the object was only visible for a split second it was difficult to ascertain exactly what it was, but it did look similar to drones encountered in the past. It was orange in colour, about 50cm to 1m across, square in shape and around 30cm deep. Unlike a balloon, this object was flying in a flat plane like a drone. The student also briefly sighted the object and identified it as a drone.</p> <p>The sighting was reported as per the Station's UAV response plan (reported to ATC on the Approach frequency at the time). The crew also spoke with the Supervisor when they landed. TATCC informed the civilian Police and Stn Ops notified the RAF Police.</p> <p><b>UKAB Secretariat:</b> An analysis of the NATS radar replay was undertaken and a primary-only contact was observed in the vicinity of the Prefect for one radar sweep only.</p> <p><b>Reported Separation:</b> 200ft V/100m H <b>Reported Risk of Collision:</b> High</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 4, 7</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where safety had been much reduced below the norm to the extent that safety had not been assured.</p>	B

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2023181	12 Aug 23 1848	A320 (CAT)	Drone	5128N 00028W IVO Heathrow 1100ft	London CTR (D)	<p><b>The A320 pilot</b> reports departing RW27L on a MAXIT departure. They were cleared for take-off behind a company aircraft. The First Officer was PF and flew the take-off, engaging the AP shortly after airborne. Approaching 1000ft, the PM spotted a drone, moving from left to right and coming directly into their path. The Captain took control, disengaged autopilot and flew a small evasive manoeuvre to the right to avoid contact with the drone. The drone passed down the left-hand side at the same altitude. Once avoided, AP2 was re-engaged and control handed back to FO. It was reported to Tower immediately for pilots of subsequent aircraft to consider. The drone was medium sized and black in colour. The FO did not see the drone (monitoring PFD on climb-out and then the drone passed down the left).</p> <p><b>Reported Separation:</b> 50ft V/100m H <b>Reported Risk of Collision:</b> Medium</p> <p><b>The Heathrow controller</b> reports that the A320 departed from RW27L and reported a drone in the departure path at 1000ft. The crew also advised that they had to avoid the drone as it was in their path. Subsequent departures were advised.</p>	<p>In the Board's opinion the reported altitude and/or description of the object were sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 3, 4, 7</p> <p><b>Risk:</b> The Board considered that the pilot's overall account of the incident portrayed a situation where safety had been much reduced below the norm to the extent that safety had not been assured.</p>	B

## Relevant Contributory Factor (CF) Table

CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
1	Human Factors	• Flight Crew ATM Procedure Deviation	An event involving the drone operator deviating from applicable Air Traffic Management procedures	The drone operator did not comply with regulations by flying above 400ft and/or in controlled airspace/FRZ without clearance
<b>• Tactical Planning and Execution</b>				
2	Human Factors	• Action Performed Incorrectly	Events involving the drone operator performing the selected action incorrectly	The drone operator was flying above 400ft without clearance.
3	Human Factors	• Airspace Infringement	An event involving an infringement / unauthorized penetration of a controlled or restricted airspace	The drone pilot was flying in controlled airspace/FRZ without clearance.
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, generic, or late Situational Awareness
<b>• See and Avoid</b>				
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
<b>• Outcome Events</b>				
6	Contextual	• Near Airborne Collision with Other Airborne Object	An event involving a near collision by an aircraft with an unpiloted airborne object (unknown object or balloon)	
7	Contextual	• Near Airborne Collision with RPAS	An event involving a near collision with a remotely piloted air vehicle (drone or model aircraft)	