

## Consolidated Drone/Balloon/Model/Unknown Object Summary Sheet for UKAB Meeting on 9th November 2022

Total	Risk A	Risk B	Risk C	Risk D	Risk E
11	3	2	5	1	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
2022223	31 Aug 22 1723	A320 (CAT)	Unk Obj	5124N 00006W Thornton Heath 6000ft	London TMA (A)	<p><b>The A320 pilot</b> reports that during departure out of LHR, while in level flight, a red drone passed closely above the aircraft. Distance was less than 50m.</p> <p><b>Reported Separation:</b> '&lt;50m' <b>Reported Risk of Collision:</b> NR</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> 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
2022226	17 Sep 22 1415	B737 (CAT)	Unk Obj	5212N 00205W Grafton Flyford 7500ft	Birmingham CTA (D)	<p><b>The B737 pilot</b> reports descending through FL75 when the First Officer, who was acting as PM, sighted what they believed to be a medium-size drone passing down the starboard side of the aircraft. They described it as a dark/black colour, and likely bigger than a typical personal-use drone. They were not certain that it was a drone due to the late sighting and high relative velocity but were concerned enough that it should warrant a report. The Captain did not see the object. The position of the sighting and a description was passed to ATC and the event reported through the operator's SMS.</p> <p><b>Reported Separation:</b> 100ft V/200m H <b>Reported Risk of Collision:</b> Low</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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2022227	7 Sep 22 1658	A319 (CAT)	Drone	5134N 00006W Arsenal VRP 6000ft	London TMA (A)	<p><b>The A319 pilot</b> reports that on base leg/loc intercept into LHR, a drone was spotted by the Captain above the aircraft to the right-hand side. The Captain exclaimed and FO also sighted the drone. Estimated proximity was 50-100ft above and laterally positioned within the wingspan of the aircraft. It was only sighted within a second or two of crossing. They were only able to discern black/dark colour, drone shape with estimated size of 70-120cm across.</p> <p><b>Reported Separation:</b> 50-100ft V / &lt;36m H <b>Reported Risk of Collision:</b> NR</p> <p><b>A NATS investigation</b> found that the pilot of the A319 reported the encounter at 1658:42. Analysis of NODE radar displayed a primary contact within the vicinity of the A319 at 1658:20 as the aircraft was descending through altitude 6000ft. Identification of this contact was not possible, therefore could not be corroborated as the reported 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, 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
2022228	17 Sep 22 1615	A319 (CAT)	Drone	5150N 00128W 6NM W Oxford FL165	Daventry CTA (A)	<p><b>The A319 pilot</b> reports that during the initial stages of descent, the rate of descent was increased to achieve the altitude constraint. Shortly after doing so, at FL165 and approximately 4NM NW of KIDL1, a drone was seen to pass from ahead directly overhead the aircraft. The closing speed was such that they believe it was on a reciprocal course. Because it was hard to gauge the size of the drone, it was difficult to estimate the range at which it passed, but it was certainly within 500ft and possibly much closer. The drone was black with a silver trim, and at best estimate was between half a metre to a metre in diameter. ATC was notified and a description of the drone was given. Both the captain and FO saw the drone and were startled by it. Had the drone been at the same level as the aircraft, there would have been insufficient time to react.</p> <p><b>Reported Separation:</b> &lt;500ft V / 0m H <b>Reported Risk of Collision:</b> NR</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, 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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2022229	25 Sep 22 1702	A320 (CAT)	Drone	5127N 00003W IVO Catford 4700ft	London TMA (A)	<p><b>The A320 pilot</b> reports that the ATIS information for Heathrow indicated possible drone activity on approach for RW27L, therefore RW27R was in use. They were on their intercept heading of 300°, about 2NM south of the centreline and about 12NM final when the F/O spotted a drone on their right-hand side, same altitude, about 5m right of the winglet. It happened very quickly so it was hard to see details of the drone however they believe it was a dark colour and about 30cm in diameter. ATC was informed immediately.</p> <p><b>Reported Separation:</b> 0ft V / 5m H</p> <p><b>NATS Safety Investigations</b> reviewed the radar at the time the pilot of [the A320] reported the sighting, however, no radar contacts were visible. The pilot reported the encounter [to the controller] at 1701:41, it has been estimated that the UAS was at 4700ft.</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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2022232	29 Sep 22 0831	B737 (CAT)	Unk Obj	5149N 00031E 11NM ESE Stansted 9000ft	London TMA (A)	<p><b>The B737 pilot</b> reports that they were climbing out of [departure airfield]. Passing 9000ft, the captain, as PM saw a glinting object at the relative 11 o'clock position. They continued to observe the object as it passed down their left-hand side, just outside 2 wing lengths, approximately 50m at the closest point, same altitude. They first thought it was a balloon but on second thought at 9000ft that is highly unlikely, and it was too solid looking to be that, based on 15+ years of commercial aviation career and seeing balloons and such like in the skies. It appeared to be a medium sized drone in controlled flight. No avoidance was needed as it was clearly going to miss the aircraft, but the captain immediately informed London ATC, who then passed on the information to the aircraft behind on the same routing.</p> <p><b>Reported Separation:</b> 0ft V / 50m H <b>Reported Risk of Collision:</b> High</p> <p><b>The London Radar controller</b> reports that the B737 pilot reported seeing a drone pass down their left-hand side at approximately 9000ft, 50m away. They advised the next aircraft, but nothing was seen.</p> <p><b>NATS Safety Investigations</b> reviewed the radar at the time the pilot reported the sighting, however, no radar contacts were visible. It has been estimated that the UAS was at altitude 9000ft.</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> 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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2022235	3 Oct 22 1217	F406 (Civ Comm)	Drone	5249N 00123W Donnington Park 1000ft	East Midlands CTR (D)	<p><b>The F406 pilot</b> reports climbing out from RW27 at East Midlands, starting a left turn to follow the southwest VFR departure, when they noticed a white object to the left. They suspected it was a drone because its position was static. The object was white and shining. They questioned it with the two operators in the back; one could see it and thought it was a drone for the same reasons and the other couldn't see it. Once they were happy to say it was a drone, it was reported to ATC with its position and altitude. It appeared to be flying above the superbike factory at the racetrack at about 1000ft amsl. The flight continued with nothing further to report</p> <p><b>Reported Separation:</b> 0ft V/200m H <b>Reported Risk of Collision:</b> Low</p> <p><b>East Midlands Airport Investigation</b> reports that whilst departing RW27, and having executed a left turn towards the south in accordance with the clearance given by ATC, the F406 pilot reported that they had seen a drone operating over the superbike factory at Donnington Park. The pilot reported the drone was roughly the size of a football and was operating approximately 1000ft above the factory. ATC could not detect the drone or see it on radar. Airport Operations vehicles were able to visually acquire the drone 10min after the pilot reported seeing it. The Drone Alert Policy was followed immediately with the Airport Police and Leicestershire Police being informed.</p>	<p>In the Board's opinion the description of the object was sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 3, 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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2022236	5 Oct 22 1043	EC175 (Civ Comm)	Drone	5709N 00203W 2NM E Bridge of Don 1000ft	Aberdeen CTR (D)	<p><b>The EC175 pilot</b> reports that on initial sighting they saw what they thought was a large bird and so made a turn to avoid. As the object drew closer it looked like a drone, bright blue in colour and on a steady trajectory. The object appeared to have a line suspended from it. They reported the sighting to Aberdeen Tower straight away.</p> <p><b>Reported Separation:</b> 200ft V/20m H <b>Reported Risk of Collision:</b> Low</p> <p><b>The Aberdeen Watch Manager</b> reports that the Tower controller informed them at approximately 1040 that [EC175 C/S] had reported a drone flying underneath them, while they were over flying Aberdeen harbour at 1000ft. This area is outside the FRZ but within the CTR. After the aircraft had landed, they reported that they estimated the drone to be 150ft below them, the size of a dinner plate and blue in colour. They reiterated that it was "well above" the 400ft allowed.</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, 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 as a result of the avoiding action taken by the EC175 pilot.</p>	C
2022243	10 Sep 22 0951	A320 (CAT)	Unk Obj	5121N 00108W Tadley FL195	Southern CTA (C)	<p><b>The A320 pilot</b> reports that they were at approximately FL195 when a large silver object was spotted that raced over the top of the windshield roughly 5-10m above. The F/O and captain saw it and both crew thought it was a drone due to the size, shape and reflective silver colour. It was reported to London Control who said they would file a report and check the area.</p> <p><b>Reported Separation:</b> 10-15ft V / 0m H</p> <p><b>The London Radar controller</b> reports that the A320 pilot reported being overflown by a drone, approximately 100ft above. The pilot described it as 'large and silver' as the aircraft passed FL195.</p> <p><b>NATS Safety Investigations</b> reviewed the radar at the time the pilot reported the sighting, however, no radar contacts were visible. The pilot reported being overflown by a drone, approximately 100ft above. The pilot described it as "large and silver" as the aircraft passed FL195 in the climb.</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> 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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2022244	23 Sep 22 1106	B737 (CAT)	Drone	5552N 00426W Glasgow Airport 50ft	Glasgow CTR (D)	<p><b>The B737 pilot</b> reports they were pilot monitoring, number 2 to another aircraft on TCAS 6NM ahead. They also noticed a 2nd contact on TCAS below, near Glasgow airport on the north side and at an altitude coincident with the surface. Once landing clearance had been given at about 3NM, there was still a white TCAS contact indicating north of the runway, abeam the threshold and still lower than them. There is no taxiway on the north side at the RW23 end, however, there was an operations vehicle on the perimeter track, abeam the PAPIs. The PM could not identify an aircraft correlating with the TCAS track which was now amber. It was only at about 150ft that a drone was seen manoeuvring near a field 0.5NM away at about 50ft. The drone correlated to the TCAS track location. After landing, this information was passed to ATC. They were met on stand by the airport manager and subsequently the police.</p> <p><b>Reported Separation:</b> 50ft V/0.5NM H <b>Reported Risk of Collision:</b> Low</p> <p><b>The Glasgow controller</b> reports they were advised at 1109 that [B737 pilot] reported a drone, approximately just to the north of a 1/2 mile final at approximately 50-100ft. They checked the approach with binoculars but could see nothing.</p> <p><b>The Glasgow Watch Manager</b> reports that, after landing, the B737 pilot reported sighting a drone north of the RW23 centreline at around half a mile final operating at approximately 50-100ft. The incident was reported to police and the aerodrome authority.</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, 3, 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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2022245	25 Sep 22 1420	A319 (CAT)	Unk Obj	5114N 00033W Guildford FL085	London TMA (A)	<p><b>The A319 pilot</b> reports that at approximately FL90, on arrival, 5NM prior to OCK, a white object passed down the left-hand side of the aircraft. The object was in close proximity, white in colour, rectangular in shape (long and thin).</p> <p><b>Reported Separation:</b> NR <b>Reported Risk of Collision:</b> NR</p> <p><b>The NATS TC controller</b> reports that the A319 inbound to OCK was given an instruction which was not read back. On the second attempt it was readback correctly and the pilot advised that they had been distracted by an object passing the aircraft which was either a balloon or a drone. The pilot later reported to the Tower 'white object, considered to be a threat'. The flight landed without further incident.</p> <p><b>A NATS Investigation</b> reports that the A319 was tracking toward OCK in the descent to FL80. The level of the encounter was at FL085. The pilot of [A319 C/S] advised they were distracted "<i>because we just flew past something quite close to the aircraft, either a balloon or drone.</i>" The crew later described the object as likely to be a balloon or an inflatable, with the crew subsequently describing the object to Tower as a "<i>white object considered threat to aircraft.</i>" Analysis of the radar by Safety Investigations indicated that 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 there was insufficient information to make a sound judgement of risk.</p>	D



## 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)	