

## Consolidated Drone/Balloon/Model/Unknown Object Report Sheet for UKAB Meeting on 11<sup>th</sup> December 2019

Total	Risk A	Risk B	Risk C	Risk D	Risk E
16	4	5	7	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	Cause/Risk Statement	ICAO Risk
2019270	11 Sep 19 1750	EC145 (Civ Helo)	Drone	Wakefield 5342N 00127W 1300ft	London FIR (G)	<p><b>The EC145 pilot</b> reports they were about to enter the Leeds Bradford CTR. When they turned SE towards their base. The weather was good, clear visibility with cloud well above them. As they passed Wakefield (N5342.35 W00127.32), directly in their path, travelling towards them was a drone. It was about 50cm in diameter with a clear dome and a yellow/orange main body, with two black thin legs. The left seat called it and the pilot applied collective and flared the aircraft. The drone went directly below the aircraft at less than 3m. He circled the area at a distance and tried to identify the drone with no success. The details were passed to Leeds ATC and the flight was continued without further incident, but all crew members were visibly shaken.</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, 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
2019272	15 Sep 19 1511	PA28 (Civ FW)	Drone	South of Gravesend 5123N 00021E 2200ft	London FIR (G)	<p><b>The PA28 pilot</b> reports that he was flying VMC and looking out for other aircraft when he saw a grey drone with red LEDs heading towards him and he turned right.</p> <p><b>Reported Separation:</b> 50ft V/50m 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, 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

<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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2019276	16 Sep 19 1545	EMB175 (CAT)	Unk Obj	MCT 250 10nm 5334N 00159W 3000ft	Manchester CTR (D)	<p><b>The EMB175 pilot</b> reports they were on base leg, just prior to being given final vector for the ILS, a small red object was observed directly in front of and below the aircraft. It appeared to be red, with possibly a red beacon, however this could this could have been glare/reflection from the sun. Within 2 seconds the EMB175 had passed over the intruder, with an estimated separation 1000ft, however due to the relative speed of the contact and perspective this could be an over estimation. They reported it to ATC immediately.</p> <p><b>Reported Separation:</b> 1000ft V/0nm 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> 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
2019277	13 Sep 19 1736	C130 (HQ Air Ops)	Unk Obj	Brize Norton 5152N 00150W 3600ft	London FIR G	<p><b>The C130 pilot</b> reports that on descent through 4500ft whilst positioning for an approach to Brize Norton, a drone was spotted. It was head-on, within 50ft and passed overhead. It had a bright light on it but was too small to detect the colour. There was no time to take avoiding action.</p> <p><b>Reported Separation:</b> 50ft V/ 0m 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 such that they were unable to determine the nature of the unknown object.</p> <p><b>Applicable Contributory Factors:</b> 5</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
2019286	21 Sep 19 0946	B777 (CAT)	Drone	Windsor 5128N 00036W 1600ft	London CTR (D)	<p><b>The B777 pilot</b> reports that when descending through 1560ft on finals RW09L, a drone was sighted passing down the left-hand-side about 200-300m away, and approximately 100-200ft lower. It looked like a large quadcopter with a bright green light on it and something dangling from a pole beneath it.</p> <p><b>Reported Separation:</b> 100-200ft V/ 200-300m H <b>Reported Risk of Severity:</b> Low</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, 6</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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2019288	21 Sep 19 1220	CS100 (CAT)	Drone	5nm west LHR 5128N 00037W 1600ft	London CTR (D)	<p><b>The Bombardier CS100 pilot</b> reports that he was on final approach to RW09L, when the Commander spotted a white drone. It was positioned about 200m left of the centreline, about 500ft below the aircraft altitude. The drone was steady moving west at a speed of about 25kts. The incident was reported to ATC</p> <p><b>Reported Separation:</b> 500ft V/200m H <b>Reported Risk of Collision:</b> Not reported</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, 6</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
2019289	21 Sep 19 1240	A320 (CAT)	Drone	Enfield 5139N 00005W 6000ft	London TMA (A)	<p><b>The A320 pilot</b> reports that on departure from Heathrow a small dot was seen ahead and on the left-hand-side, initially thought to be a balloon, but it came alongside very rapidly and identified as a small white quadcopter drone, thought to be a DJI Phantom. Although the distance and height were difficult to judge, it was clearly identifiable as a drone. It was not possible to avoid due to the late sighting. ATC were advised.</p> <p><b>Reported Separation:</b> 200ft V/ 400m 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, 3, 4, 6</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
2019299	20 Oct 19 1423	PA28 (Civ FW)	Drone	Coventry Airport 5220N 00127W 1300ft	Coventry ATZ (G)	<p><b>The PA28 pilot</b> reports that he was conducting an instructional circuit sortie. On the second circuit he was late downwind when the student observed what he initially thought was a bird straight ahead and slightly below. It very quickly became very close and he was able to identify it as a drone. It passed under the port wing at the mid-point, heading in the opposite direction. Had the student flown the circuit at the correct circuit altitude (he had allowed the aircraft to climb slightly while completing pre-landing checks) they believed they would have collided with the drone.</p> <p><b>Reported Separation:</b> 50ft V/ 10m 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, 3, 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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2019301	20 Oct 19 1631	H145 (HEMS)	Drone	Swansea 5137N 00356W 1300ft	London FIR (G)	<p><b>The H145 pilot</b> reports that whilst transiting over Swansea at 1300ft, a drone was seen to pass approximately 20m down the right-hand-side of the aircraft at the same altitude. The drone was a large red quadcopter, estimated to be in the 4-6kg weight range. The pilot was maintaining a good look-out in excellent visibility and he saw the drone when it started moving relative to the windscreen at approximately 50m in the 1-2 o'clock. He initiated a left-turn, which hadn't altered the flight path by the time the drone passed them. Details were immediately passed to another aircraft operating at Swansea aerodrome.</p> <p><b>Reported Separation:</b> 0ft V/ 20m 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, 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
2019305	28 Oct 19 1122	A321 (CAT)	Drone	BIG Hold 5129N 00000W FL080	London TMA (A)	<p><b>The A321 pilot</b> reports that a drone was spotted by the FO in the centre of the BIG hold. It was a consumer style quadcopter drone, red and white with a flashing light on top. It appeared to be in stable, level flight and did not appear to be moving towards any of the aircraft in the hold. It was positioned almost directly in the centre of the stack.</p> <p><b>Reported Separation:</b> 1000ft V/ &lt;1nm 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 sufficient to indicate that it could have been a drone.</p> <p><b>Applicable Contributory Factors:</b> 1, 2, 3, 4, 6</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
2019306	29 Oct 19 1543	SK92 (Civ Helo)	Balloon	7nm NNE Aberdeen 5716N 00204W 3000ft	Scottish FIR (G)	<p><b>The SK92 pilot</b> reports the after levelling off at 3000ft he saw a reflecting object on the forward left-hand-side. It approached rather quickly and passed down the left-hand-side at the same altitude. The top half appeared to be a glass/silver type balloon, the bottom part was cone-shaped with a small construction hanging from underneath.</p> <p><b>Reported Separation:</b> 0ft V/ 50m H <b>Reported Risk of Collision:</b> Medium</p> <p><b>The Aberdeen controller</b> reports the SK92 was outbound from Aberdeen when the pilot reported having to take avoiding action to avoid an object at 3000ft. the crew were unsure whether it was a drone or a weather balloon but indicated it looked more like the latter. Nothing was seen on radar nor were there any prior notifications.</p>	<p>In the Board's opinion the reported altitude or description of the object were sufficient to indicate that it was probably a balloon.</p> <p><b>Applicable Contributory Factors:</b> 5</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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2019307	31 Oct 19 1140	A319 (CAT)	Balloon	Overhead SUBUK 5423N 00317W FL310	London UIR (C)	<p><b>The A319 pilot</b> reports being in the cruise at FL310 when a balloon was spotted in his peripheral vision below and right of his aircraft. The balloon passed quickly below and outside the right wing. The size of the balloon, and therefore the separation, were very hard to determine at altitude due to lack of perspective.</p> <p><b>Reported Separation:</b> 500ft V/0nm H <b>Reported Risk of Collision:</b> Medium</p> <p><b>The Swanwick controller</b> reports the A319 pilot informed him of a balloon passing close underneath the aircraft around the SUBUK area.</p>	<p>In the Board's opinion the reported altitude or description of the object were sufficient to indicate that it was probably a balloon.</p> <p><b>Applicable Contributory Factors: 5</b></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
2019308	3 Nov 19 1400	Wildcat (JHC)	Drone	Preston 5345N 00240W 2000ft	London FIR (G)	<p><b>The Wildcat pilot</b> reports that a pair of Wildcat helicopters were on a northbound transit at 900ft and in receipt of a Basic Service from Blackpool. The crewman in the lead aircraft spotted a large black drone with 4 rotors pass down the right-hand-side of the aircraft at a similar height. It was in a nose-down forward flight southbound, the drone rotors were protected by a black cage and no lights were seen. The crew estimated the drone to be 150-200m from the aircraft.</p> <p><b>Reported Separation:</b> 0ft V/ 150-200m 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: 1, 2, 4, 6</b></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
2019311	12 Nov 19 1308	A319 (CAT)	Unk Obj	MCR 055R/19nm 5332N 00150W 5,500ft	Manchester TMA (A)	<p><b>The A319 pilot</b> reports being at 5,500ft on the ILS approach to Manchester runway 23R when a red and white drone was spotted within 1/2nm of his aircraft and approximately 500ft below. No avoiding action was necessary and the sighting was reported to ATC.</p> <p><b>Reported Separation:</b> 500ft V/0.5nm 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 such that they were unable to determine the nature of the unknown object.</p> <p><b>Applicable Contributory Factors: 5</b></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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2019314	20 Oct 19 1600	A320 (CAT)	Unk Obj	2NM NE OCK 5122N 00021W 5,000ft	London TMA (A)	<p><b>The A320 pilot</b> reports that at 5,000ft during a SID a drone was sighted to the left of and approximately 150ft below the aircraft.</p> <p><b>Reported Separation:</b> 150ft V/200m H <b>Reported Risk of Collision:</b> Not reported</p> <p><b>The London TCC controller</b> reports the A319 was outbound from Heathrow on the GASGU SID when the pilot reported sighting a drone 'a couple of hundred metres' on their left side. The controller requested the aircraft altitude and noted the position, which was then reported to the police.</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: 5</b></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
2019316	4 Nov 19 1446	A321 (CAT)	Unk Obj	LCY 320R/3.5nm 5133N 00000W 5,000ft	London TMA (A)	<p><b>The A321 pilot</b> reports that the aircraft was descending through 5,000ft and turning onto base leg for RW27L at Heathrow when a drone or balloon at around 4,500-5,000ft on the left side of the aircraft was sighted.</p> <p><b>Reported Separation:</b> NR V/50m 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: 5</b></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

## Relevant Contributory Factor (CF) Table

CF	Factor	Description	Amplification	Notes
	<b>Flight Elements</b>			
	<b>• Regulations, Processes, Procedures and Compliance</b>			
1	Human Factors	• Flight Crew ATM Procedure Deviation	Regulations/procedures not complied with	The drone operator did not comply with regulations due to flying above 400ft and/or in controlled airspace/FRZ without clearance
	<b>• Tactical Planning and Execution</b>			
2	Human Factors	• Action Performed Incorrectly	Incorrect or ineffective execution	The drone operator was flying above 400ft without clearance.
3	Human Factors	• Airspace Infringement		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	Pilot had no, or only generic, or late Situational Awareness	The pilot and drone operator had no, or only generic, situational awareness about each other.
	<b>• See and Avoid</b>			
5	Contextual	• Near Airborne Collision with Other Airborne Object	A conflict in the FIR	An Airprox involving an unknown object or balloon.
6	Contextual	• Near Airborne Collision with RPAS	A conflict in the FIR	An Airprox involving a drone or model aircraft.