

## Consolidated Drone/Balloon/Model/Unknown Object Report Sheet for UKAB Meeting on 11 September 2019

Total	Risk A	Risk B	Risk C	Risk D	Risk E
15	6	3	6	0	0

Airprox Number	Date Time (UTC)	Aircraft (Operator)	Object	Location Description Altitude	Airspace (Class)	Pilot/Controller Report Reported Separation Reported Risk	Cause/Risk Statement	ICAO Risk
2019148	17 Jun 19 0920	B787 (CAT)	Drone	5128N 00014W 8NM E London Heathrow 2600ft	London TMA (A)	<p><b>The B787 pilot</b> reports seeing a large white 'box-like' drone of 'cuboid construction' whilst on final approach to RW27L. It appeared to have an upper and lower surface propeller but this may have been an illusion. The drone was approximately 8nm from the airfield almost exactly between the 2 runways at around 2000ft agl.</p> <p><b>Reported Separation:</b> 200ft V/NK H <b>Reported Risk of Collision:</b> Medium</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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
2019149	16 Jun 19 1125	A319 (CAT)	Drone	5118N 00006E BIG Hold FL100	London TMA (A)	<p><b>The A319 pilot</b> reports that while holding at FL100 in the BIG hold, the aircraft immediately below reported a sighting of a drone at his (the A319's) level within the holding pattern. The drone was clearly visible abeam his starboard wing at a range of about 50ft. It was noted that the 'quad' designed drone was able to hold an altitude of approximately 10,000ft even in a 50kt wind. Rather than continue in the hold and turning towards the drone, he exited the hold.</p> <p><b>Reported Separation:</b> 0ft V/18m H <b>Reported Risk of Collision:</b> Low</p> <p><b>The Swanwick controller</b> reports that an aircraft in the BIG hold reported a drone passing over him, about 300ft above. Approximately 2mins later the A319 pilot reported that a drone had just passed over his right wing, about 50ft above and requested vectors away from the hold.</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 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

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2019153	16 Jun 19 1445	B737 (CAT)	Drone	5356N 00146W 6nm RW14 Leeds Bradford 2900ft	Leeds Bradford CTR (D)	<p><b>The B737 pilot</b> reports that he was 6nm on the ILS RW14 passing 2900ft when the crew noticed a drone flying past the aircraft on the Captain's side, it missed the left wing-tip by a matter of metres. The drone was orange and black.</p> <p><b>Reported Separation:</b> 0ft V/'few' m H <b>Reported Risk of Collision:</b> High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 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>	A
2019155	22 Jun 19 1923	A320 (CAT)	Drone	5144N 00005W BPK waypoint 6000ft	London TMA (A)	<p><b>The A320 pilot</b> reports that when abeam the BPK waypoint, initiating a climb from 6000ft, he saw a drone on his right-hand side, just below. The drone was round and black with red and green lights and was about 50cm in diameter.</p> <p><b>Reported Separation:</b> 300ft V/ 100m H <b>Reported Risk of Collision:</b> Low</p> <p><b>The Swanwick Controller</b> reports that at about 1924, the A320 climbing on departure reported a drone in the BPK area at about 6000ft.</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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
2019166	17 Jun 19 1308	C180 (Civ FW)	Drone	5146N 00001W Hoddesdon 2100ft	Stansted CTA (D) (TMZ)	<p><b>The C180 pilot</b> reports in level cruise in receipt of a radar control service from Essex Radar when he saw an object in his peripheral vision in the right 2 o'clock position at a range of about 100m. He initially thought it was a bird but the passenger also saw it and confirmed that it was a dark coloured drone at exactly the same level. The pilot noted that this was a very high risk encounter because a slight difference in track laterally could have resulted in a collision.</p> <p><b>Reported Separation:</b> 0ft V/100m H <b>Reported Risk of Collision:</b> Very High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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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2019167	23 Jun 19 1205	A319 (CAT)	Balloon	5128N 00047W Heathrow Approach 3400ft	London TMA (A)	<p><b>The A319 pilot</b> reports that he was on a standard arrival to Heathrow RW09. The First Officer and Captain saw what looked like a large rectangular box suspended by 3 balloons, orange and white in colour. The preceding aircraft had reported seeing the object but described it as a drone, however the A319 crew were not sure it was a drone. Approach mode was disengaged and an avoiding left bank was made using autopilot. The approach was regained after the event.</p> <p><b>Reported Separation:</b> 10ft V/ 20m H <b>Reported Risk of Collision:</b> High</p> <p><b>The Swanwick Controller</b> reports that a DH8 reported seeing a drone at 3000ft at 12nm final, however the subsequent A319 pilot reported it as 3 large balloons carrying a box.</p>	<p>The Board were unable to determine the nature of the 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 providence had played a major part in the incident and/or a definite risk of collision had existed.</p>	A

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2019168	27 Jun 19 1831	A319 (CAT)	Balloon	5602N 00327W Rosyth 8300ft	Scottish TMA (D) (TMZ)	<p><b>The A319 pilot</b> reports on departure, in the climb approaching GOW30, when an unknown object, apparently metallic and suspected to be a drone or balloon, came within 20-50ft of aircraft and passed down the left hand side. There were no signs of collision and engine parameters were normal. Object reported to ATC and subsequent aircraft kept clear.</p> <p><b>The Prestwick controller reports:</b> At about FL100 the aircraft reported that they had flown in close proximity to an unknown object. The subsequent aircraft already working him was vectored off the SID to the north. Further questioning revealed that [A319 C/S] had flown in close proximity to what they thought was a silver balloon, that they hadn't come into contact with the object and they were happy to continue.</p> <p><b>NATS Investigation:</b> [A319 C/S] was following the track of the GOSAM 1D SID when they reported that they <i>'had just had an a AIRPROX with an unknown object approximately two miles ago'</i>, to the Galloway sector at Prestwick Centre. The controller missed this message and asked for a repeat. [A319 C/S] responded that they <i>'just had an unknown object just pass off our left hand side. Very close proximity'</i>, without mentioning that they considered this an AIRPROX. When asked if they thought the object were a drone or a balloon, the crew responded <i>'We're not sure. We think it may have been a balloon. It looked a little bit metallic but might have been one of those silver reflective ones'</i>. A following aircraft was advised of the sighting and vectored off the SID. The location corresponded to Rosyth dockyard, on the north bank of the Forth Estuary. [A319 C/S] was passing FL83 at that point. Radar analysis of MRT and Kincardine radars showed no associated Primary returns +/- 30 minutes of the time of the event (18:30:37). There are no published radiosonde balloon launch sites in the area, and no NOTAMs could be found for balloon launches in the Scottish FIR on the date of the event.</p> <p><b>Reported Separation:</b> '20-50ft'  <b>Reported Risk of Collision:</b> Medium</p>	<p>The Board noted that that there were no Met balloons airborne in that area at that time and date. The Board were therefore not able to ascertain the origin of the 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 providence had played a major part in the incident and/or a definite risk of collision had existed.</p>	A

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2019171	27 Jun 19 1752	A319 (CAT)	Drone	5131N 00019W Wembley 3800ft	London TMA (CAT)	<p><b>The A319 pilot</b> reports that on passing 4000ft on departure from RW09R, a drone was spotted operating to the south of Wembley at around 3500-4000ft close to the departure track. No avoiding action was required as the drone passed below and to the left of the aircraft as it climbed.</p> <p><b>Reported Separation:</b> 200-400m H <b>Reported Risk of Collision:</b> NK</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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
2019172	23 Jun 19 0716	B747 (CAT)	Drone	5108N 00046W 7.5NM NW MID 10400ft	London TMA (A)	<p><b>The B747 pilot</b> reports in the descent when he saw a large black circular object at a range of about 2nm. As it passed the aircraft it was identified as a drone with no lights or visible markings.</p> <p><b>Reported Separation:</b> 0ft V/&lt;0.5NM H <b>Reported Risk of Collision:</b> High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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
2019173	13 Jun 19 1123	B737 (CAT)	Drone	5150N 00036E Stansted FL110	London TMA (CAT)	<p><b>The B737 pilot</b> reports he was departing Stansted on a radar heading of 070°. On passing FL110 the FO spotted a drone pass close to the left-hand side of aircraft at the same height. It was difficult to judge the distance, although it was close enough to see it was square with legs. ATC were advised.</p> <p><b>Reported Separation:</b> 0ft V/ Not known H <b>Reported Risk of Collision:</b> High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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

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2019174	30 Jun 19 1631	CS100 (CAT)	Drone	5131N 00001W 3NM WNW LCY 3000ft	London TMA (A)	<p><b>The CS100 pilot</b> reports departing from RW27 at LCY when they encountered a drone. The drone was at the right hand side and flying slightly higher. It was a small black drone but it was close enough for him to identify the 4 propellers. ATC were informed.</p> <p><b>Reported Separation:</b> NK <b>Reported Risk of Collision:</b> NK</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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
2019185	30 Jun 19 1220	B777 (CAT)	Drone	5128N 00015W Barnes 2400ft	London CTR (D)	<p><b>The B777 pilot</b> reports that at about 7NM on the ILS to RW27R, P3 spotted a large black drone slightly to the right at about ½nm. PM (the co-pilot) was immediately made aware and saw the drone in the right 1 o'clock position. ILS maintained as the drone appeared to be parallel to the aircraft's track. P3 and PM monitored the drone as it passed down the right hand side. The drone appeared to be possibly in a hover due to the slow passing speed. The approach was continued, ATC were informed and a Police statement given on arrival at the gate. The Captain did not see the drone.</p> <p><b>Reported Separation:</b> 0ft V/100-200m H <b>Reported Risk of Collision:</b> High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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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2019186	04 Jul 19 1600	Avro RJ (MoD ATEC)	Drone	5109N 00145W Boscombe Down 400ft	Boscombe ATZ (G)	<p><b>The Avro RJ pilot</b> reports that he was established on a PAR to RW05. At 1nm and 400ft agl, the PNF observed a small object just above the aircraft for only a split second. The approach was continued to a touch and go for further PAR. On climb-out he reported an Airprox with an unknown object, believed to be a drone, to ATC. Shortly afterwards the App Controller reported that drone activity was spotted near a local golf club and hotel by the Runway Caravan Controller.</p> <p><b>Reported Separation:</b> 50-100ft V <b>Reported Risk of Collision:</b> Medium</p> <p><b>The Boscombe Talkdown Controller</b> reports that the talkdown was uneventful and he was not aware of the drone.</p> <p><b>The Boscombe Supervisor</b> reports that after the RJ pilot reported the drone the Caravan Controller was asked to conduct a visual inspection of the approach lane. He observed a drone overhead the golf course, which then descended and landed in a field obscured by trees. Operations were informed, they spoke to the golf club, who were not aware of any activity.</p>	<p>The reported drone was being flown within the lateral and vertical limits of an FRZ and within the ATZ such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 3, 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
2019189	03 Jul 19 1631	B777 (CAT)	Drone	5129N 00042W Fifield 2500ft	London CTR (D)	<p><b>The B777 pilot</b> reports on final approach when he saw a flash of sunlight glint off something shiny directly ahead and just below the aircraft. His initial observation was it could be a shiny silver helium balloon. He called it out to the co-pilot and 'Heavy' co-pilot. It passed under the nose with no obvious velocity itself, but as they were passing it at 160Kts that was to be expected. It was seen to be a drone in the last second of view as the dazzle of sunshine off it faded. Had it been at our height there would have been insufficient time to manoeuvre to avoid.</p> <p><b>Reported Separation:</b> 100ftV/0m H <b>Reported Risk of Collision:</b> High</p>	<p>The reported drone was being flown above the maximum permitted height of 400ft and within controlled airspace such that it was endangering other aircraft at that location.</p> <p><b>Applicable Contributory Factors: 1, 2, 3, 4, 6</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

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2019200	18 Jul 19 1852	Saab 340 (CAT)	Balloon	5344N 00206W Abeam POL FL140	Manchester TMA (A)	<p><b>The Saab 340 pilot</b> reports that he was abeam Pole Hill at FL140 routing north when he saw a dark round object coming towards them. As it got closer they realised it was a weather balloon, it passed below and slightly right of the aircraft; the closing speed was quite high, and the object passed them before they could react. It was a semi-inflated grey or black balloon, with an elliptical appearance when viewed from the front and pear shaped when observed from above. He estimated it was 1m wide and 3m long.</p> <p><b>Reported Separation:</b> 50ft V/ 50m H <b>Reported Risk of Collision:</b> Medium</p> <p><b>A NATS investigation</b> found that at 1852 the pilot reported seeing a black balloon to the controller. He reported it as being '4 times the size of the football' and it went in the opposite direction just below the right engine. A review of the radar showed a few intermittent primary returns just before and just after the time of the event, but that the returns could not be conclusively identified as the balloon.</p> <p><b>The Met office</b> reported that there were no Met office balloons in the air at that time, furthermore the position was some way from any of their release sites.</p>	<p>The Board noted that the Met Office confirmed that there were no Met balloons airborne in that area at that time and date. The Board were therefore not able to ascertain the origin of the 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 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	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.