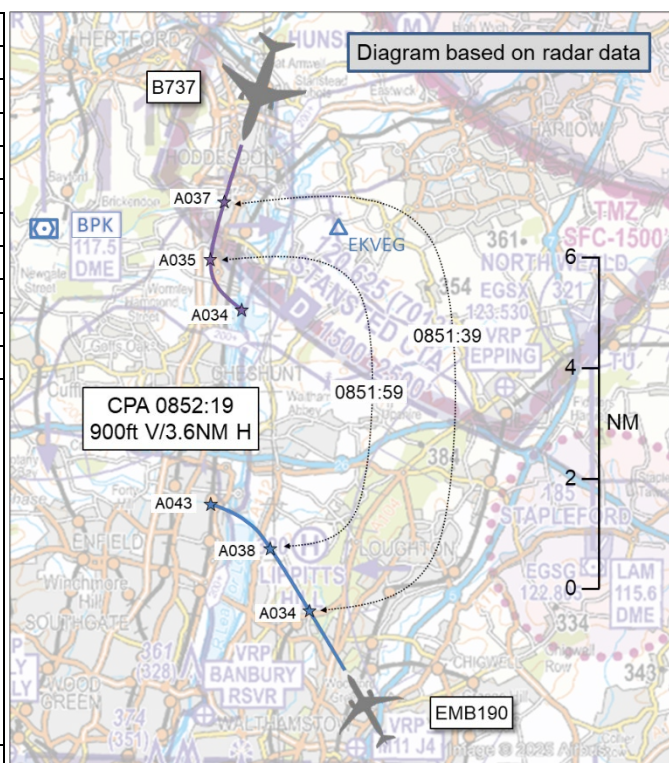


AIRPROX REPORT No 2024234

Date: 13 Sep 2024 Time: 0852Z Position: 5141N 00002W Location: Cheshunt

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EMB190	B737
Operator	CAT	CAT
Airspace	London TMA	London TMA
Class	A	A
Rules	IFR	IFR
Service	Radar Control	Radar Control
Provider	London TC	Stansted Radar
Altitude/FL	4300ft	3400ft
Transponder	A, C, S+	A, C, S+
Reported		
Colours	Blue, white	Not reported
Lighting	Strobes, beacon, nav, landing	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	4000ft	
Altimeter	QNH (1028hPa)	
Heading	NR	
Speed	250kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation at CPA		
Reported	0ft V/2NM H	NR
Recorded	900ft V/3.6NM H	



THE EMB190 PILOT reports that they were [routeing] to BPK on the BPK1A departure. They were issued with a climb to 4000ft and free-speed/no ATC speed, and were accelerating to 250kt in Vertical Speed mode. ATC issued "*Avoiding action: turn left heading 310 degrees*". They kept the autopilot in and used Heading Mode to make the left turn. They became visual with traffic slightly right of their 12 o'clock, heading in a southerly direction, roughly towards their original position prior to the turn. It also showed as proximate traffic on TCAS about 100-200ft below their level. The traffic looked like a small jet and they saw it make a left turn to the east. A further ATC instruction was issued "*expedite climb to altitude 6000ft*", upon which they selected 6000ft and Flight Level Change mode to give a good rate of climb. Once clear of traffic, they were given heading 325°.

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

THE B737 PILOT reports that, as this flight [had taken place] almost two weeks [previously], they checked with the First Officer that had been on the flight and they confirmed [that they were also not] aware of an Airprox incident occurring.

They do not have any information to provide, because as far as they were aware, the flight was uneventful.

THE LONDON TERMINAL CONTROLLER reports that, at approximately 0850, [the pilot of the EMB190] called them on a BPK departure from London City climbing to 3000ft. At that time they noticed that a Stansted inbound (downwind, left-hand) was out of position, descending to 3000ft towards BPK. They instantly gave avoiding action to [the pilot of the EMB190] to turn left onto 290° and then, once the [EMB190] was clear of Heathrow downwind traffic, they gave an expedited climb to get [the EMB190] above the [B737].

When they had time, they passed Traffic Information to [the pilot of the EMB190] and then, once vertical separation was achieved, they resumed the [EMB190] back towards its routeing, advising the pilot that they were clear of traffic. No separation was lost.

THE STANSTED RADAR CONTROLLER reports that, operating RW04 at Stansted, the TWR advised that they would be grass cutting and, therefore, RNP approaches would be the only available option. [The B737] was downwind for RW04 at altitude 3000ft during a busy session, and missed the first call to turn and close to EKVEG. A second call was issued, and the aircraft began the turn. At that time, [the EMB190] was outbound from London City, passing through BPK at 3000ft. TMA North called to report that [the pilot of the EMB190] had been issued avoiding action. It was considered unnecessary to issue [avoiding action] to the pilot of the [B737] as the aircraft was already turning.

The CPA was measured at the time at 3.8NM, and this was confirmed in a radar replay. It has since been reported that the pilot of [the EMB190] has filed an Airprox and, therefore, this report has been generated.

Factual Background

The weather at London City was recorded as follows:

METAR EGLC 130850Z AUTO 31005KT 280V010 9999 NCD 12/05 Q1028

Analysis and Investigation

NATS Safety Investigations

Executive summary: [The EMB190], a London City departure via BPK climbing to 4000ft, was issued an avoiding action turn by the TC NE controller to ensure separation with [the B737], a Stansted RW04 inbound which was being vectored for an RNP approach descending to 3000ft. [The pilot of the B737] was already turning onto a base leg so the Stansted INT controller assessed an avoiding action turn was not necessary. Separation was maintained throughout the event, however, the pilot of [the EMB190] subsequently filed an Airprox report.

Description of the event: Stansted Radar was being operated in a bandboxed configuration with Intermediate Director and Final Director positions combined (SS INT). Stansted RW04 was in use, with the ILS serviceable. However, there was grass cutting occurring at the time of the event and therefore the ILS was unavailable and inbounds were being vectored for Required Navigation Performance (RNP) approaches. The SS INT controller coordinated with TC North East (TC NE) for [an uninvolved] Stansted inbound to be high downwind for RW04 at 0844:27. At 0847:25 the pilot of [the B737], a Stansted inbound following [the uninvolved aircraft] downwind for RW04, was instructed by the SS INT controller to descend to 3000ft. The SS INT controller then instructed the pilot to turn left heading 180° at 0849:22.

[The B737] crossed BPK DME 9NM at 0849:24 at 5400ft with a rate of descent of 600fpm (see Figure 1).



Figure 1

The SS INT controller then instructed the pilot to turn right heading 200° at 0850:20.

The pilot of [the EMB190], a London City BPK departure level at 3000ft, checked in with the TC NE controller at 0850:27. The pilot was instructed to climb to 4000ft at 0850:59.

The SS INT position was handed-over to an incoming controller, and the incoming SS INT controller instructed the pilot of [the B737] to turn left direct to EKVEG at 0851:28. The pilot responded, *"Can you say again?"* before reading back the repeated instruction correctly.

At 0851:45 the TC NE controller instructed the pilot of [the EMB190], *"Avoiding action, turn left immediately heading of two nine zero degrees"* (see Figure 2).

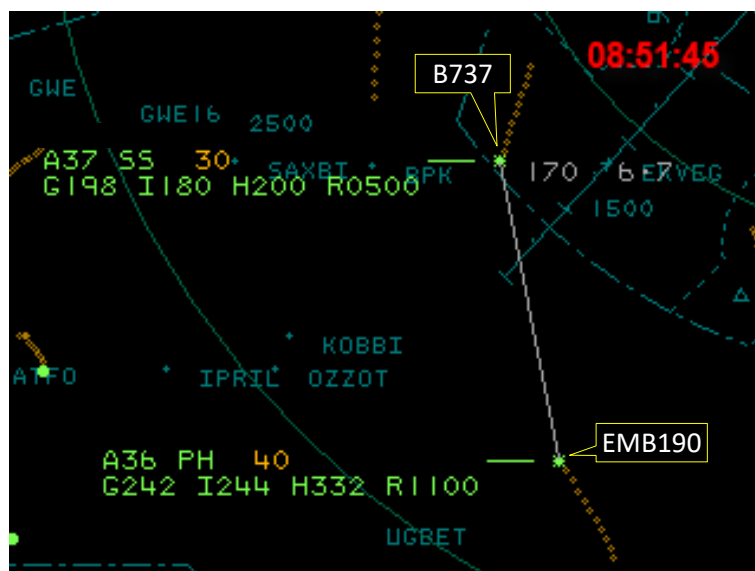


Figure 2

The pilot read-back the instruction correctly and the controller responded with a further instruction for [the pilot of the EMB190] to expedite climb to 6000ft. The controller then informed the pilot, *"Traffic in your 2 o'clock, range of 5 miles, opposite direction."*

As the initial instruction to turn left to EKVEG was given by the SS INT controller (0851:28), [the B737] was abeam the line displayed on the radar map which is 3NM from the CPT/BPK London City SID track. The left turn resulted in the aircraft positioning south of the line (see Figure 3, which shows the aircraft's position 40sec after the initial instruction was given).

Note: The referenced radar-displayed line has been extended (red line) in Figure 3 by Safety Investigations.

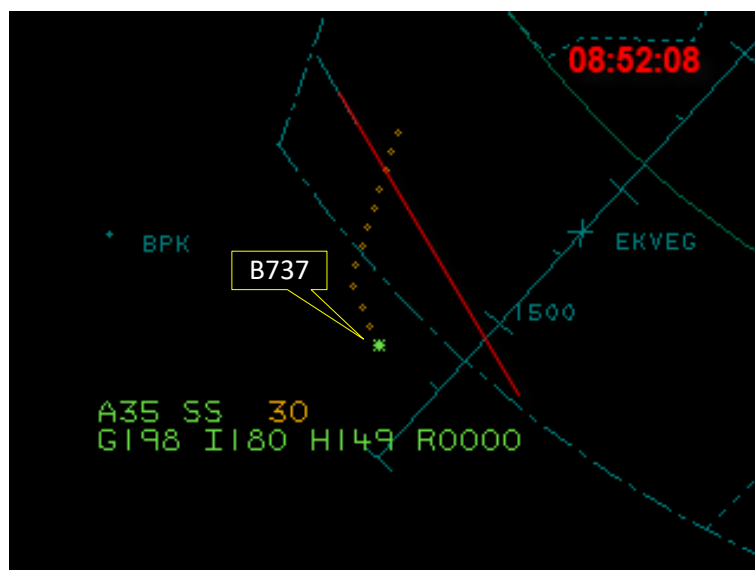


Figure 3

The TC NE Coordinator telephoned SS INT at 0851:55 and informed the SS INT controller that the TC NE controller had issued an avoiding action left turn to the pilot of [the EMB190]. The SS INT controller responded that [the B737] was also turning left.

At 0852:19 the TC NE controller informed the pilot of [the EMB190] they were clear of traffic and instructed them to turn right heading 325° (see Figure 4).

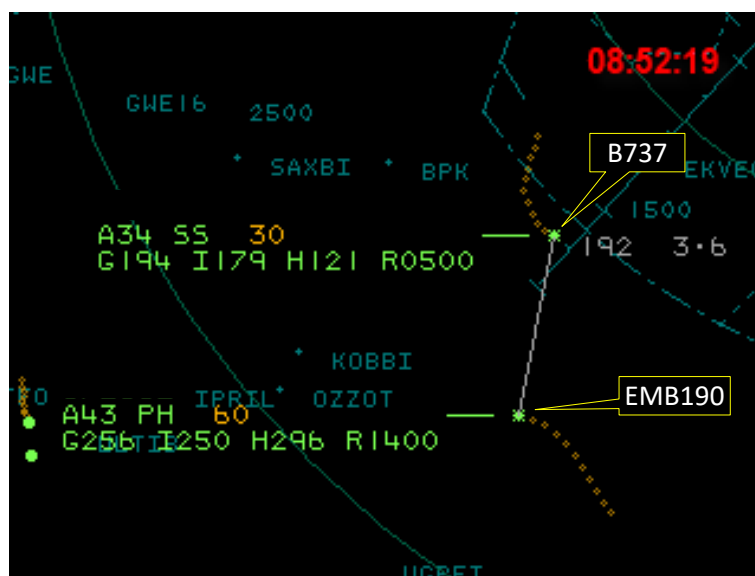


Figure 4 – CPA at 0852:19

Separation was maintained throughout the event and the pilot of [the EMB190] subsequently submitted an Airprox report. The minimum lateral distance between the two aircraft was 3.6NM (see Figure 4), where 3NM was required.

Investigation: Information available to the investigation included: CA4114 from the TC NE controller, CA4114 from the SS INT controller, NATS4118 Initial Watch Management Investigation Report, TC MATS Part 2 and [redacted copies of] Airprox narrative reports.

Stansted RW04 ILS approaches were unavailable at the time of the event due to grass cutting on the airfield. Therefore, inbound traffic was being vectored for an RNP approach. The SS INT controller coordinated with TC NE for [an uninvolved aircraft] to be high downwind for RW04. The pilot of the following aircraft, [the B737], was instructed by the SS INT controller to descend to 3000ft with no 'level by' restriction, and no coordination was made with TC NE for the aircraft to be high. [The B737] subsequently passed BPK DME 9 at 5400ft.

The TC MATS Part 2 STN 5.2.2 Procedures RMA-E stated:

'When giving descent clearance for aircraft downwind left for RW04, Stansted FIN shall give a descent instruction as follows: "(callsign...) descend to altitude 3000ft to be level by BPK DME 9 (BKY DME 8)'.

The pilot of [the B737] was instructed to turn left heading 180°. The NATS4118 detailed 'this turn [had been] to ensure the B737 stayed within the RMA western boundary.' The pilot was later instructed to turn right heading 200°.

The NATS4118 noted that a controller handover occurred at some time between 0850:20 and 0851:20 and stated, 'The event was compounded by a handover on Stansted Approach just before the incident' before adding that both the outgoing and incoming controllers, 'were unable to recall whether there were any specific things noted about the [B737] in terms of height, preparedness for the approach, speed etc.'

[The pilot of the B737] continued downwind, descending to 3000ft, before the SS INT controller instructed the pilot to turn left to EKVEG. EKVEG is the Intermediate Fix on the RNP approach for RW04 and is located on the RW04 extended centreline at 10.4NM. The NATS4118 stated, 'The aircraft are required to be at 3000ft and turned before a certain point marked on the radar in order to ensure separation from the LC [London City] BPK departure.'

TC MATS Part 2 STN 5.2.2 Procedures RMA-E further detailed 'TC Stansted will ensure that aircraft in the 3000ft portion of the Stansted RMA are separated from London City departures via BPK. To assist in compliance with this requirement, a line has been added to the Stansted radar map to denote a position 3NM from and parallel to the London City - CPT/BPK SID track.' (Figure 3)

The NATS4118 noted that remaining inside the Stansted RMA can be, 'difficult to achieve, often involving significant skill and judgement on the part of the Stansted controllers and judicious use of the full RMA, as the RNP approach needs to run further downwind than the downwind for the ILS due to the position of the RNP point EKVEG at 10.4NM and the requirement to approach from a 45° angle.'

TC MATS Part 2 STN 4.2.4 Radar Vectors to RNP Approach specified, 'When released on own navigation, the track to TOTVO/EKVEG should be within 45° of the final approach track. It will be necessary to vector an aircraft onto the final approach track at a range in excess of 10.4NM prior to passing a clearance to fly the RNP procedure. This is in order that the pilot is able to perform the RAIM (Receiver Autonomous Integrity Monitoring) check to ensure the correct functioning of the GNSS equipment.'

The TC NE controller issued an avoiding action left turn to the pilot of [the EMB190]. They stated in their CA4114 they, 'noticed that a SS inbound [the B737] on a DWLH [downwind left-hand] was out of position descending to 3000ft towards BPK' and so they issued an immediate avoiding action left turn to maintain separation, before passing Traffic Information to the pilot. The TC NE coordinator then telephoned the SS INT controller and informed them of the avoiding action. The SS INT controller stated in their CA4114 that they opined issuing avoiding action to the pilot of [the B737] was, 'considered unnecessary...as the aircraft was already turning.'

The pilot of [the EMB190] subsequently filed an Airprox report in which they stated that they 'Became visual with traffic slightly right of 12 o'clock, heading in a southerly direction, roughly towards our original position prior to turn [the avoiding action left turn instruction].' They also added the traffic, '...showed as prox traffic on TCAS about 100-200 below our level when looking.'

Conclusions and causal factors:

1. The SS INT controller, prior to handover, instructed the pilot of [the B737] to descend from 6000ft to 3000ft without ensuring they would be level by BPK DME 9, as per the procedure, and without coordination with TC NE.
2. The SS INT controller, after the handover, did not ensure [the pilot of the B737] had turned base leg prior to the line marked on the radar display which denotes 3NM from the London City BPK/CPT departure track.
3. The SS INT position was handed over a short time before the event, just prior to the avoiding action instruction by the TC NE controller. Neither SS INT controllers were able to confirm whether a full handover regarding the 'height, preparedness for the approach, speed etc.' of [the B737] was completed.
4. The TC NE controller issued effective avoiding action to the pilot of [the EMB190] which ensured separation was maintained with [the B737].

The incident was resolved by the TC NE controller issuing avoiding action to the pilot of [the EMB190], which ensured separation between the aircraft was maintained.

UKAB Secretariat

The EMB190 and B737 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.¹

Summary

An Airprox was reported when an EMB190 and a B737 flew into proximity at Cheshunt at 0852Z on Friday 13th September 2024. The EMB190 pilot was operating under IFR in VMC in receipt of a Radar Control Service from London Terminal Control and the B737 pilot was operating under IFR in VMC in receipt of a Radar Control Service from Stansted Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and a report from the appropriate operating authority. 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 considered the actions of the pilot of the EMB190. Members noted that they had been in a climb to 4000ft when they had been issued an avoiding action turn by the London TC controller (TC NE controller). It was noted that the pilot of the EMB190 had subsequently visually acquired the B737 and it had been displayed as proximate traffic on their TCAS. Whilst the minimum separation between the EMB190 and B737 had been 3.6NM, members appreciated that the pilot of the EMB190 may have been startled to have been given an avoiding action turn.

Members turned their attention to the actions of the pilot of the B737 and noted that they had not recalled anything unusual about the flight in question, which they had described as 'uneventful'. It was therefore concluded by members that the pilot of the B737 had not been concerned by their position as they turned onto base leg or by the proximity of the EMB190. Nevertheless, a member with significant experience of Terminal Control operations commented on the requirement for all pilots approaching RW04 at Stansted to be at 3000ft by BPK D9 to provide separation against traffic departing London City working a different sector, as had been the case in this Airprox. The member explained that this restriction is not shown on the RW04 ILS or RW04 RNP Z plate, and neither is the BPK VOR/DME frequency. The member explained further that an unanticipated ATC instruction to be 'level by' may

¹ (UK) SERA.3205 Proximity.

create additional workload or even confusion on the flight deck if the crew is unable to easily reference their position relative to BPK. The member suggested that it may be helpful if a note could be added to the approach plates, giving the BPK frequency and advising crews to expect the level restriction, albeit with the actual descent clearance to be issued by ATC. Additionally, and in respect of the procedure to vector traffic through a turn-in point to allow a 45° intercept that can be particularly time-sensitive, it may improve matters if the RW04 RNP Z approach could be amended to have the usual 'T' or 'Y' shaped intermediate tracks which would allow crews to follow their own navigation and turn onto base leg following the RNP approach profile that is common to many airports. The position of a new fix, north-west abeam EKVEG, and an associated 3000ft altitude restriction, would ensure that an aircraft would remain within the correct sector (i.e. east of the red line shown in Figure 3) and levels without the need for ATC intervention.

Members next considered the actions of the Stansted INT controller and noted that, due to grass cutting at the airfield, only RNP approaches had been available. Members next noted that an instruction had been issued to the pilot of the B737 for them to descend to 3000ft but that no 'level by' restriction had been specified. Additionally, the Stansted INT controller had not coordinated with the TC NE controller for the B737 to have been 'high downwind for RW04' as they had previously done for the preceding aircraft that had been inbound to Stansted. Members next noted that the Stansted INT controller had issued appropriate heading instructions for the pilot of the B737 to have remained within the RMA western boundary, but also noted that the B737 had subsequently been 'out of position' and abeam the line on the radar display that denoted 3NM separation from the CPT/BPK London City SID track. Consequently, members noted that the subsequent issue of a 'left turn to EKVEG' had resulted in the B737 having passed through the aforementioned line. Members appreciated that it had, perhaps, been a case of unfortunate timing that a handover of the Stansted INT controller position had just occurred but, nonetheless, agreed that the Stansted INT controller had not complied with the applicable procedure to have maintained separation between aircraft inbound to Stansted and those outbound from London City routeing to BPK. Members agreed that the instructions issued by the Stansted INT controller to the pilot of the B737 (and, in particular, the timeliness of those instructions) had contributed to the Airprox.

Members next turned their attention to the actions of the TC NE controller and noted that, although there had not been coordination with the Stansted INT controller regarding the B737, they had observed that the B737 had been 'out of position' and had reacted swiftly to have issued avoiding action to the pilot of the EMB190.

Members appreciated that the pilot of the EMB190 had been concerned by the proximity of the B737. However, members were satisfied that normal safety standards had pertained insofar as the 'out of position' B737 had been noticed by the TC NE controller and immediate action had been taken to remedy the reduction of separation. Noting that the separation at CPA had been 900ft vertically and 3.6NM horizontally, members were in full agreement that there had not been a risk of collision. The Board assigned Risk Category E to this event and agreed on the following contributory factors:

CF1: The Stansted INT controller had not ensured that the pilot of the B737 had been separated from London City departures (via BPK) in accordance with the applicable MATS Part 2 procedure.

CF2: The instructions issued by the Stansted INT controller had contributed to the Airprox.

CF3: The pilot of the EMB190 had been concerned by the proximity of the B737.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024234			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			

1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
• Situational Awareness and Action				
2	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
3	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E.

Safety Barrier Assessment²

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Stansted INT controller had not ensured that the pilot of the B737 had been separated from London City departures (via BPK) in accordance with the applicable MATS Part 2 procedure.

Flight Elements:

See and Avoid were assessed as **not used** because both pilots had not been expected to have visually acquired the other aircraft.

Airprox Barrier Assessment: 2024234				Within Controlled Airspace					
		Provision	Application	Effectiveness					
Barrier				Barrier Weighting					
				0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	✔	⚠	100%					
	Manning & Equipment	✔	✔	75%					
	Situational Awareness of the Confliction & Action	✔	✔	75%					
	Electronic Warning System Operation and Compliance	✔	✔	50%					
Flight Element	Regulations, Processes, Procedures and Compliance	✔	✔	25%					
	Tactical Planning and Execution	✔	✔	25%					
	Situational Awareness of the Conflicting Aircraft & Action	✔	✔	50%					
	Electronic Warning System Operation and Compliance	✔	✔	75%					
	See & Avoid	✔	○	0%					
Key:									
Full		Partial		None		Not Present/Not Assessable		Not Used	
Provision		✔		⚠		✖		○	
Application		✔		⚠		✖		○	
Effectiveness		■		■		■		■	

² The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).