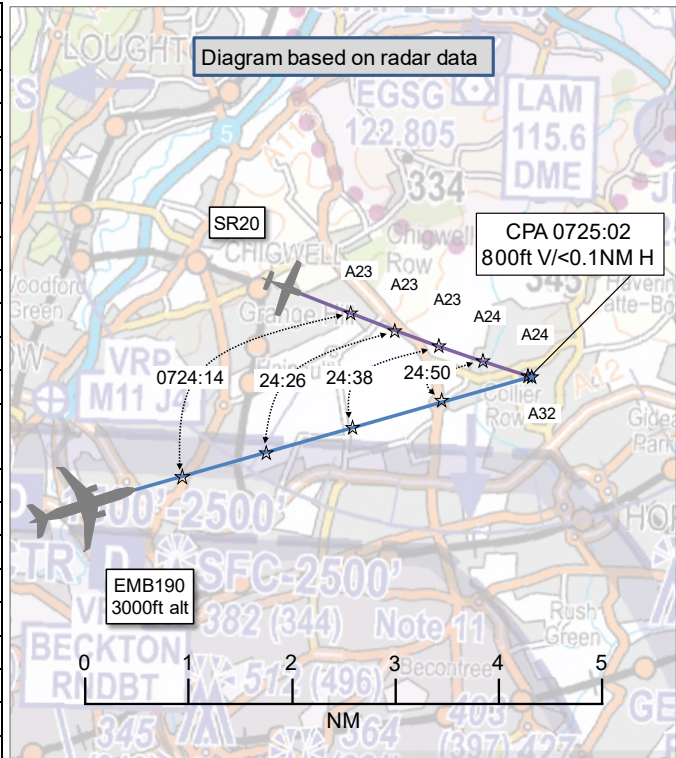


AIRPROX REPORT No 2023146

Date: 10 Jul 2023 Time: 0725Z Position: 5136N 00010E Location: Collier Row

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EMB190	SR20
Operator	CAT	Civ FW
Airspace	London TMA	London FIR
Class	A	G
Rules	IFR	VFR
Service	Radar Control	Basic
Provider	Thames Radar	Farnborough
Altitude/FL	3200ft	2400ft
Transponder	A, C, S+	A, C, S
Reported		
Colours	White/blue	White
Lighting	Nav, strobe, beacon, recog'n	Strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	2400ft </td
Altimeter	QNH (NK hPa)	QNH (NK hPa)
Heading	~080°	~120°
Speed	210kt	~130kt
ACAS/TAS	TCAS II	TAS
Alert	RA	None
Separation at CPA		
Reported	600ft V/0m H	1500ft V/200m H
Recorded	800ft V/<0.1NM H	



THE EMB190 PILOT reports that ‘proximate traffic’ was observed on the TCAS. Visually scanning, the [other] aircraft was [seen] as a clearance to 4000ft was given. The climb was initiated but the opposition aircraft was closing fast with a poor vertical separation, circa 600ft, as they initiated a climb. They observed a TCAS TA and then, promptly, an RA ‘monitor vertical speed’. The aircraft was flown within parameters and ATC advised. [There was] not much information from [ATC], they were told [the other aircraft was] “skirting the zone”. The RA cleared with no further risk to the aircraft.

The pilot assessed the risk of collision as ‘Medium’.

THE SR20 PILOT reports in straight and level cruise in Class G airspace when they saw an airliner in the right 2 o’clock position and about 1500ft above, crossing from right to left. The TAS did not alert and no evasive action was taken or needed. The pilot stated that they remained visual with the traffic and that there was ample vertical separation.

The pilot assessed the risk of collision as ‘None’.

THE THAMES RADAR CONTROLLER reports that [EMB190 C/S] departed [departure aerodrome] and climbed to 3000ft. At the appropriate time it was climbed to 4000ft. The pilot then reported a TCAS RA and was advised of traffic outside and beneath CAS. As they were already in the climb other action was not necessary.

THE FARNBOROUGH LARS NORTH CONTROLLER did not submit a report.

Factual Background

The weather at London/City Airport was recorded as follows:

METAR EGLC 100720Z AUTO 23007KT 200V270 9999 NCD 19/11 Q1021=

Analysis and Investigation

UKAB Secretariat

The EMB190 and SR20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. Separation and geometry at CPA was obtained from the NATS Ltd radar replay.

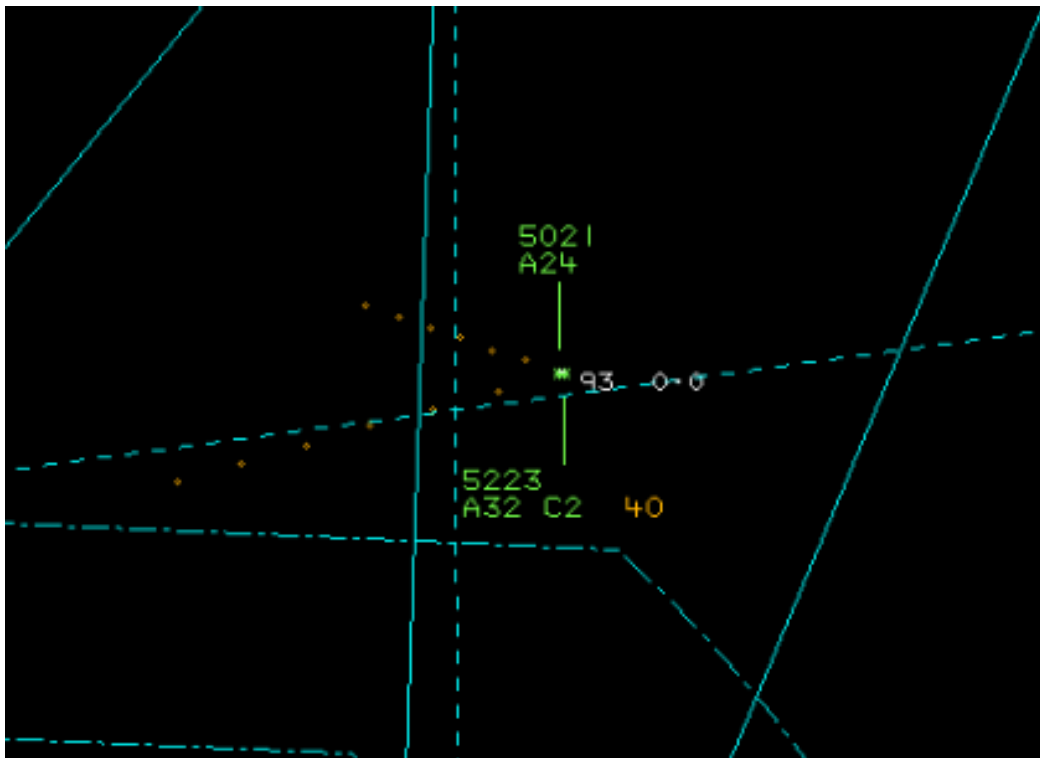


Figure 1

NATS Ltd Occurrence Investigation

Summary

Safety Investigations were informed that the pilot of [EMB190 C/S] had filed an Airprox with an unknown aircraft. [EMB190 C/S] was maintaining 3000ft inside controlled airspace and had been cleared to climb to 4000ft. The pilot reported a TCAS RA as [EMB190 C/S] crossed 700ft above an aircraft displaying the Farnborough LARS squawk operating outside controlled airspace; Traffic Information was passed to the pilot of [EMB190 C/S]. There was no Airprox report made on the RT.

Description and Investigation

Information available to the investigation included:

- Radar and R/T recordings
- CA4114 from the TC Thames controller (TMS)

¹ UK Reg (EU) SERA.3205 Proximity.

[EMB190 C/S] had departed London City and was maintaining altitude 3000ft. The TMS controller issued the pilot of [EMB190 C/S] with a clearance to climb to 4000ft, which was read back correctly and accompanied by a corresponding change in the Mode S Selected Flight Level (SFL).

[SR20 C/S] was an SR20 displaying Mode A code 5021, indicating that the pilot was in receipt of a service from Farnborough LARS. The aircraft was tracking approximately 114° maintaining an altitude of 2300ft, outside controlled airspace (base 2500ft).

The pilot of [EMB190 C/S] reported that they had received a TCAS RA, at 0724:54, against an “aircraft just underneath us six hundred feet”. The controller responded that there was traffic at 2300ft, below controlled airspace to which the pilot replied that the aircraft was “right underneath us”. Analysis of downlinked TCAS data indicated that the pilot of [EMB190 C/S] had received a ‘Preventative’ RA of ‘Monitor Vertical Speed’.

[EMB190 C/S] crossed 700ft above [SR20 C/S], as indicated by Mode C readouts from both aircraft. [EMB190 C/S] remained inside controlled airspace throughout, whilst [SR20 C/S] remained below controlled airspace. As such there were no separation requirements and both aircraft were operating in accordance with standard ATC operating procedures.

The closest point of approach (CPA) between [EMB190 C/S] and [SR20 C/S] occurred at 0724:58 and was measured on the Multi-Track Radar as 0.1NM and 700ft (Figure 2).

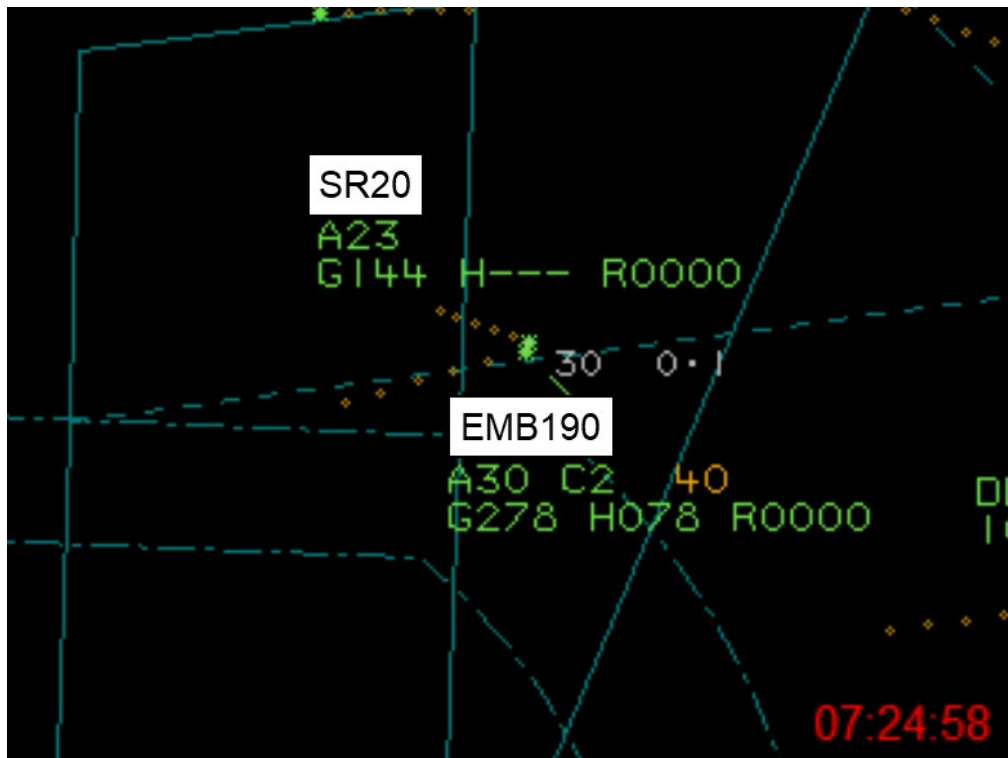


Figure 2

Communication with the pilot of [EMB190 C/S] was transferred to the TC North controller shortly after CPA. The pilot of [EMB190 C/S] did not report an Airprox whilst in communication with either controller.

Conclusions

The Airprox occurred after the pilot of [EMB190 C/S] received a TCAS RA ‘Monitor Vertical Speed’ against an aircraft operating below controlled airspace. The pilot of [EMB190 C/S] had been issued with a clearance to climb to 4000ft.

Closest Point of Approach occurred at 0724:58 and was recorded on Multi-Track Radar as 0.1NM and 700ft.

There were no separation standards applicable as [EMB190 C/S] remained inside controlled airspace and [SR20 C/S] remained outside. Both aircraft were operating in accordance with standard procedures.

Summary

An Airprox was reported when an EMB190 and an SR20 flew into proximity near Collier Row at 0725Z on Monday 10th July 2023. Both pilots were operating in VMC, the EMB190 pilot under IFR in Class A airspace in receipt of a Radar Control Service from Thames Radar and the SR20 pilot under VFR in Class G airspace in receipt of a Basic Service from Farnborough LARS North.

PART B: SUMMARY OF THE BOARD’S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, a report from the air traffic controller 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 discussed the question of required separation between aircraft within and outwith controlled airspace and noted that aircraft operated under such circumstances were ‘deemed separated’, i.e. their presence within the respective classes of airspace conferred the required separation. The concept of ‘deemed’ separation is based on the reasonable assumption that a pilot below CAS will remain below CAS, whilst a pilot within CAS will be cleared no lower than a level at least 500ft above the base of CAS, thereby allowing a separation of at least 500ft between the aircraft. A TCAS RA will be issued if level converging traffic is calculated to pass within a certain vertical separation (600ft if below FL200) and it is an unfortunate consequence of this design that a TCAS RA can be issued in circumstances where safety has not been compromised. Members noted that this TCAS behaviour had been seen in previous Airprox, notably between traffic cleared to transit under VFR across Class D airspace and IFR traffic coordinated 500ft above. Safety had not been compromised but a TCAS RA could be issued if the traffic was converging laterally, albeit separated by 500ft vertically. In this Airprox the EMB190 pilot had assessed that safety may have been compromised, the Board thought probably due to the occurrence of the TCAS proximate traffic and RA (**CF1, CF2**) and the sighting of the SR20, converging (**CF3**) but below them. Members noted that the SR20 pilot had seen the EMB190 and agreed that in this instance there had been no risk of collision and that normal safety standards had pertained, Risk E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

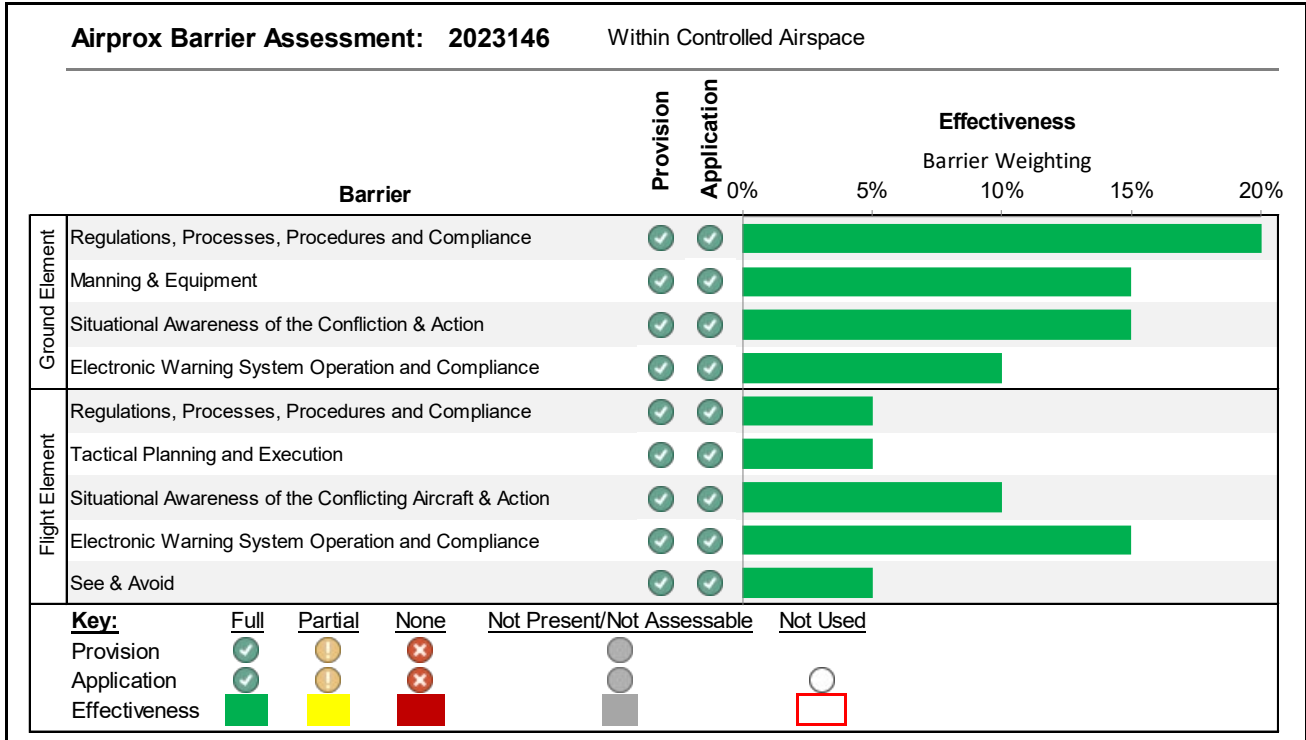
Contributory Factors:

	2023146			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
1	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
• Electronic Warning System Operation and Compliance				
2	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
• See and Avoid				
3	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

Degree of Risk: E.

Safety Barrier Assessment²

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that although the EMB190 pilot had been concerned by the proximity of the SR20, the safety barriers had functioned correctly.



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