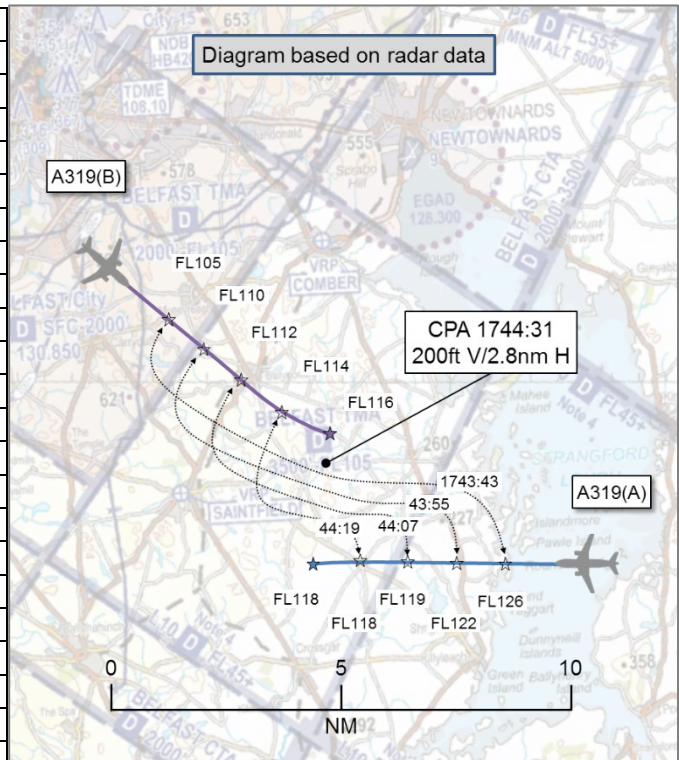


AIRPROX REPORT No 2019051

Date: 03 Apr 2019 Time: 1744Z Position: 5428N 00545W Location: 15nm SE Belfast Aldergrove

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A319(A)	A319(B)
Operator	CAT	CAT
Airspace	Belfast TMA	Belfast TMA
Class	D	D
Rules	IFR	IFR
Service	Radar Control	Radar Control
Provider	Belfast	Belfast
Altitude/FL	FL118	FL116
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	Company
Lighting	Strobes, beacon, nav	Strobes, beacon
Conditions	NK	IMC
Visibility	NK	NK
Altitude/FL	FL100	FL140
Heading	NK	140°
Speed	270kt	NK
ACAS/TAS	TCAS II	TCAS II
Alert	TA	TA
Separation		
Reported	Not seen	Not seen
Recorded	200ft V/2.8(2.9 ¹)nm H	



THE AIRBUS A319(A) PILOT reports that they observed an aircraft on their TCAS showing ‘proximate’ 900ft below in their 1 o’clock just inside 10nm in a climb. At 500ft vertical separation a TA was generated and they pressed vertical speed ‘0’. They continued with normal TCAS procedures iaw standard procedures. ATC issued a heading of 220° (90°to the left), which was complied with. The other aircraft continued to climb. The closest point was 2.5nm horizontal in their 1 o’clock, with 200ft vertical separation. When the conflict was resolved, ATC issued headings for an RNAV approach to RW07.

He assessed the risk of collision as ‘Medium’.

THE AIRBUS A319(B) PILOT reports that the Aerodrome controller initially gave the crew direct to RINGA but then, after departure, told crew to maintain heading 140° on request of the next sector. Changing to the next sector (Scottish Control) the controller first cleared them to FL140, then FL150 and then told them to maintain FL140. The captain spotted opposite traffic descending on TCAS towards their cleared level of FL140. The controller requested a left turn and the Captain informed the controller of a potential traffic issue and to clarify the heading. The heading given was 120°. The Captain told the First Officer (FO) to be ready for an RA. At the same time, the opposite traffic was given an avoidance heading. TCAS informed the crew of traffic and the FO, who was Pilot Flying, monitored the level-off. The two aircraft came within 200ft vertical and less than 2nm horizontal separation. No RA was activated. The controller went silent and the crew from both aircraft briefly discussed loss of separation. The flight continued with the next controller.

He assessed the risk of collision as ‘High’.

THE BELFAST APPROACH RADAR CONTROLLER reports that he was acting as an On the Job Training Instructor (OJTI). A319(B) departed Belfast on a heading of 110° from RW07. After departure

¹ Belfast Radar recording.

the aircraft was turned onto a heading of 130°. The inbound A319(B) came over from Scottish Control on heading 300°. Climb coordination was requested for A319(B) against A319(A); FL140 was issued. At the same time the Antrim controller offered climb for an aircraft departing from Belfast City airport and FL130 was coordinated for this flight. As the aircraft converged, the Aerodrome controller called to suggest that they may get close. The pilot of A319(B) was instructed to turn left heading 110°, which the pilot queried due to 'a traffic situation'. He asked for confirmation of the heading. He was informed again heading 110°. A319(A)'s pilot was instructed to turn left heading 220°. The pilot of A319(B), before he was transferred, reported that, in his opinion there may have been an Airprox. From ATC's perspective there was a temporary loss of separation for one radar sweep, approximately 2.9nm horizontally and 200ft vertical. (Radar separation required was 3nm.)



Figure 1 Belfast Radar recording. A319(A) (5470); A319(B) (6224).

Factual Background

The weather at Belfast was recorded as follows:

METAR EGAA 031720Z 02010KT 9999 -RA SCT012 BKN0-22 05/03 Q0995=

Analysis and Investigation

CAA ATSI

Screenshots in this report have been taken from the Area Radar replay and are not necessarily indicative of what was displayed to the Aldergrove controller, who was using the Aldergrove Radar at the time of the Airprox. The Radar Control Services provided to both pilots by the Aldergrove controller were delivered by a trainee controller, under the supervision of an OJTI. All ATC instructions to pilots were subject to an accurate readback by the relevant pilot.

At 1740:20, the pilot of A319(B) called the Aldergrove Radar controller on departure, advising that they were passing altitude 2000ft, climbing to altitude 5000ft and heading 110°. The controller instructed the pilot to climb to FL90.

At 1740:50, the Prestwick Centre (PC) controller instructed the pilot of A319(A) to report their heading to Aldergrove and transferred the pilot to the Aldergrove frequency. The pilot had previously been instructed to descend to FL100.

At 1741:00, the controller instructed the A319(B) pilot to turn right heading 130°.

At 1741:20 (Figure 2), the pilot of A319(A) made initial R/T contact with the Aldergrove Radar controller, advising that they were inbound for an RNAV approach RW07 via LIRGU and in the descent to FL100, heading 300°. The controller confirmed that they would provide radar vectors for the RNAV approach RW07, advised the pilot that information 'Hotel' was current and that they would be number one for the approach.

At 1741:40 (Figure 3), the pilot of a 3rd aircraft (departing from Belfast City Airport) called the Aldergrove Radar controller, advising that they were airborne and climbing to 3000ft. The controller instructed the pilot to squawk ident.

At 1741:50, the Aldergrove controller called the PC controller and requested a coordinated level for A319(B) and FL140 was agreed. During the same call the PC controller offered FL130 for the 3rd aircraft (Belfast City departure) and this was agreed.

At 1742:20, the controller instructed the third aircraft (Belfast City departure) to stop turn heading 130° and climb to FL90.

At 1742:30, the PC controller called the Aldergrove controller and asked whether they now had A319(A) on frequency, the controller confirmed that they had.

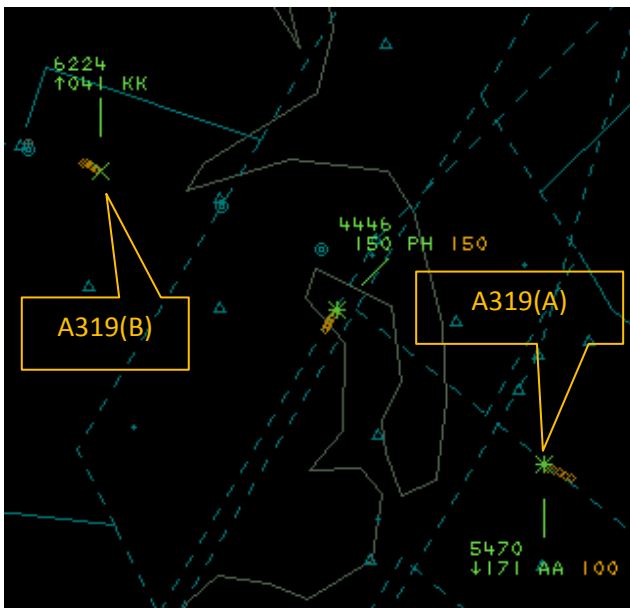


Figure 2 - 1741:20.



Figure 3 - 1741:40.

At 1742:40 the controller instructed the A319(A) pilot to turn left heading 280° (Figure 4).

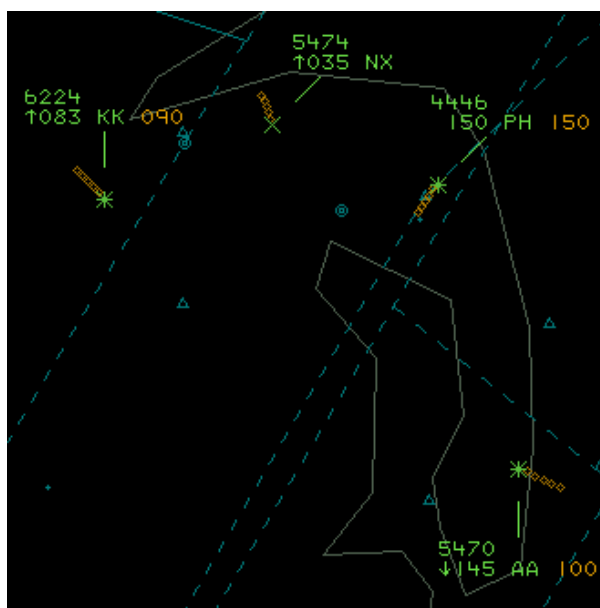


Figure 4 - 1742:40.

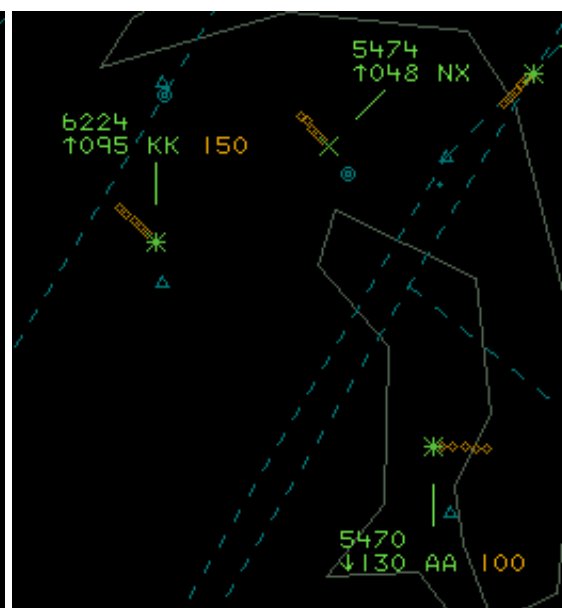


Figure 5 - 1743:30.

At 1743:00, the controller instructed the A319(B) pilot to climb to FL140. This was immediately followed with an instruction to climb to FL150.

At 1743:20, the controller apologised and instructed the A319(B) pilot to stop climb at FL140.

At 1743:30 (Figure 5), the controller instructed the 3rd aircraft to climb to FL130.

At 1743:35, the controller received a call on the landline from the Aerodrome controller who advised that they thought the spacing between A319(A) and A319(B) was a bit tight. The controller responded with a pause followed by "Oh yeah I'll turn him left".

At 1743:50, the controller keyed the transmitter, started to transmit an aircraft callsign and then released the transmitter switch.

At 1744:00 (Figure 6), the controller instructed the A319(B) pilot to turn left heading 110°. The pilot responded that they had a traffic situation and asked the controller to repeat the requested heading. The controller confirmed that the heading was 110°. The controller then turned their attention to A319(A) and instructed the pilot to turn left heading 220°.

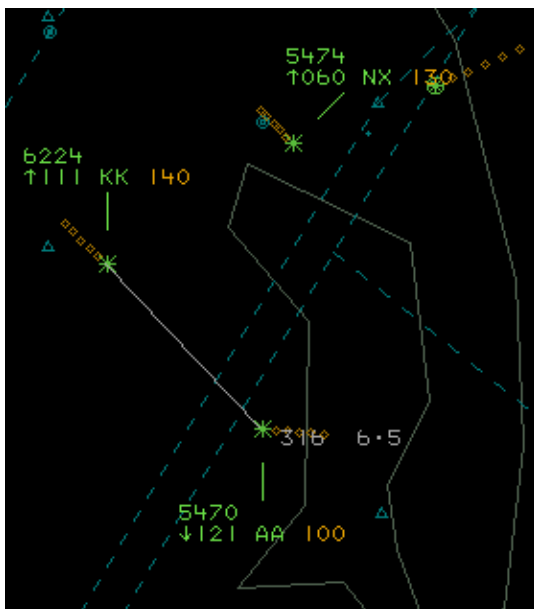


Figure 6 - 1744:00.

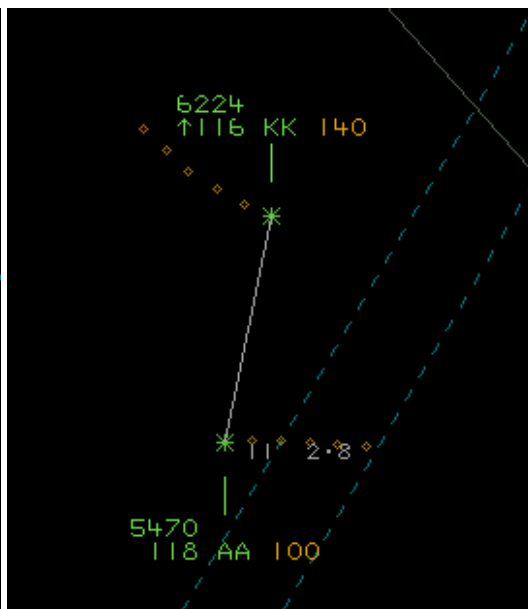


Figure 7 - 1744:31 (CPA).

CPA occurred at 1744:31 (Figure 7), with the aircraft separated laterally by 2.8nm and vertically by 200 feet. The required lateral separation was 3nm.

At 1744:50, the controller instructed the A319(A) pilot to turn right heading 310°.

At 1745:10, the controller instructed the pilot of A319(B) to turn right heading 145°. The pilot readback the requested heading and advised the controller that they thought that what they had just experienced was an Airprox. The controller acknowledged.

At 1745:40, the A319(A) pilot asked the A319(B) pilot if they had received an RA and the A319(B) pilot responded that they had not received an RA but that they had come within 200ft and 2.5nm.

The Airprox took place within Class D airspace for which CAP 493 states:

'Standard vertical or horizontal separation shall be provided, between:

- (1) all flights in Class A airspace;*
- (2) IFR flights in Class C, D and E airspace; '*

and,

'If, for any reason, a controller is faced with a situation in which two or more aircraft are separated by less than the prescribed minima, e.g. ATC errors or differences in the pilot's estimated and actual times over reporting points, he is to:

(1) use every means at his disposal to obtain the required minimum with the least possible delay;

and

(2) when considered practicable, pass traffic information if an ATS surveillance service is being provided, otherwise, pass essential traffic information. '

Notwithstanding the confusion regarding the climb instructions issued to the pilot of A319(B), which had no bearing on the event, the controllers initial plan was reasonable in that they made provision for vertical separation of both departing aircraft from the inbound A319(A) and then provided sufficiently separated parallel tracks to enable the Belfast City departure and A319(B) departing Aldergrove to climb to their coordinated levels. However, when attempting to laterally offset the tracks of A319(A) and A319(B) to enable their respective descent and climb, the headings provided were not quite sufficient to ensure the required 3nm separation. The situation was compounded by what appeared to be insufficient monitoring of the effectiveness of the allocated headings by the OJTI, together with the delay in the trainee controller providing further instructions to the pilots when the proximity of the two aircraft had been brought to their attention. Standard avoiding action may have been more appropriate at this point, followed by Traffic Information to both pilots.

The Aerodrome controller should be commended for their vigilance and team work in raising their proximity concern with the Radar controller.

UKAB Secretariat

The A319(A) and A319(B) pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². Notwithstanding ATC were required to ensure separation was achieved between the 2 IFR aircraft in Class D airspace.

Summary

An Airprox was reported when A319(A) and A319(B) flew into proximity near Belfast at 1744hrs on Wednesday 3rd April 2019. Both pilots were operating under IFR and were in receipt of a Radar Control Service from Belfast Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities. 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 noted that both A319 pilots were in receipt of Radar Control Services in Class D airspace from Belfast Approach and that the position was manned by a mentor and trainee. As A319(B) climbed, the Belfast controller coordinated a level of FL140 with the Prestwick Centre and both aircraft were placed on radar headings intended to provide standard radar separation of 3nm as A319(B) climbed through A319(A)'s level; shortly afterwards, the Aerodrome Controller called the Approach controller to warn him that he thought the spacing between the two A319s was a 'bit tight'. A civil ATC Airfield member commented that this warning call was an indication of good teamwork within ATC, and that

² SERA.3205 Proximity.

the Aerodrome Controller should be commended for his proactive input. Shortly afterwards the Approach Controller instructed A319(B) pilot to turn left heading 110° to provide greater separation. In response, A319(B) pilot asked the controller to repeat the heading because of the traffic situation affecting his aircraft (presumably based on his TCAS display). Although right to query the turn if he had concerns, the Board were conscious that azimuth information on TCAS can be subject to errors due to antenna performance and that pilots should also bear this in mind; the Board were unsure whether A319(B) pilots enquiry had delayed him turning onto the required heading, if it had then this might also have contributed to the loss of separation in itself.

After the heading change for A319(B) had been confirmed, A319(A)'s pilot was also instructed to turn left heading 220°. The Board noted that the Belfast local radar replay showed the minimum separation at CPA as 2.9nm, and that the CAA ATSI report (using NATS multilateral radar recordings) indicated a separation of 2.8nm for one radar sweep. Although both recordings were subject to radar measurement tolerances, both of these sources indicated that, albeit marginally, the required separation of 3nm had not been achieved (**CF1 & CF4**). Ultimately, although there was a fine line between letting students make mistakes and ensuring overall safety, the Board considered that responsibility for ensuring that separation was achieved lay with the OJTI mentor, who should have acted earlier to ensure that the headings issued by his trainee would be sufficient (**CF2**). Consequently, it was also apparent to the Board that the controller's instructions had contributed to the conflict (**CF3**).

The Board agreed that both pilots had been concerned by the proximity of the other aircraft (**CF5**); the pilot of A319(B) reported to the controller that they had had what they considered to have been an Airprox and A319(A)'s pilot had also filed an Airprox report. In briefly discussing the situation on the frequency, both pilots confirmed that they had not received TCAS RAs, although both had received a TA (**CF6**).

Turning to the risk of the Airprox, the Board quickly agreed that because there had been a loss of separation, albeit by a minor amount, it could not be said that normal safety standards and procedures had pertained (Category E). Therefore, although they quickly agreed that there had been no risk of collision, because safety had been marginally degraded the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
• Manning and Equipment			
2	Human Factors	• Mentoring	Sub-Optimal
• Situational Awareness and Action			
3	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
4	Human Factors	• Separation Provision	Not Achieved
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
5	Human Factors	• Interpretation of Automation or Flight Deck Information	Pilot was concerned by the proximity of the other aircraft
• Electronic Warning System Operation and Compliance			
6	Contextual	• ACAS/TCAS TA	TCAS TA/CWS indication

Degree of Risk:

C.

Safety Barrier Assessment³

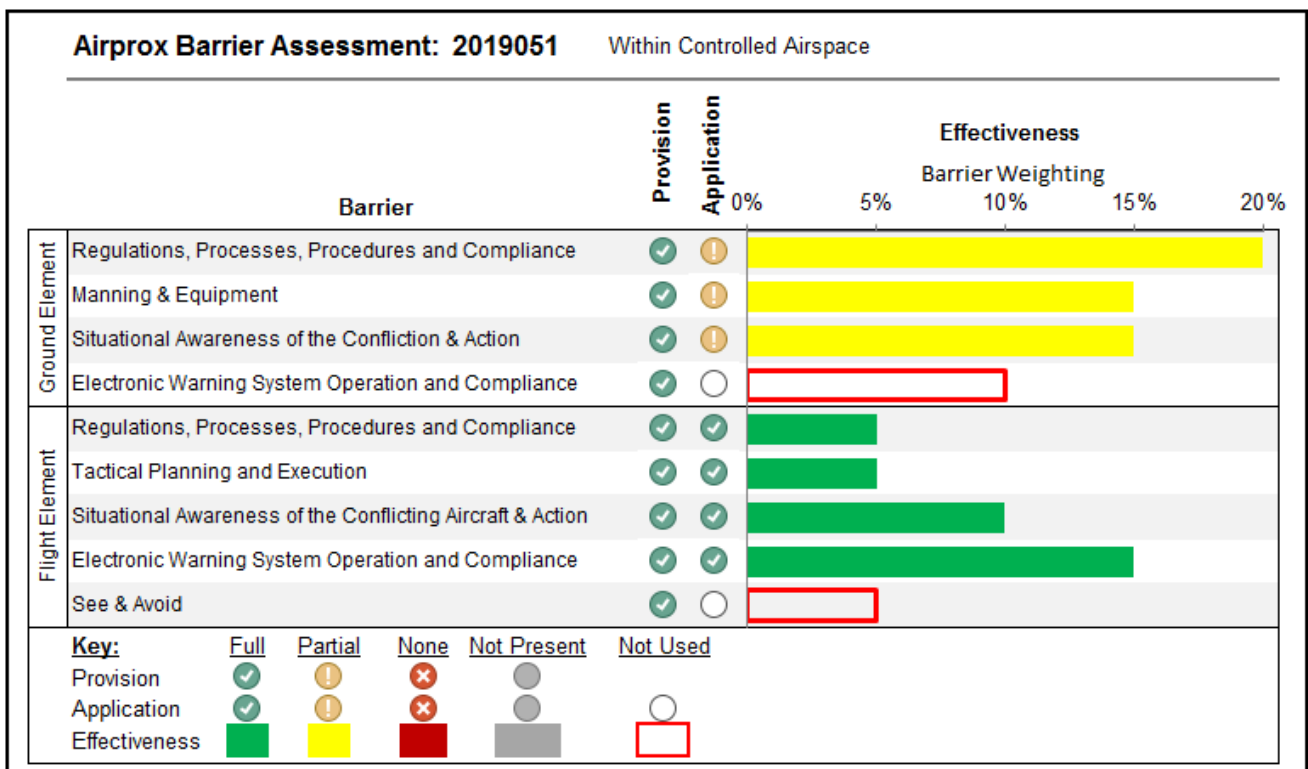
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the controller did not provide the required radar separation, albeit by a small margin.

Manning and Equipment were assessed as **partially effective** because the OJTI did not monitor his trainee’s actions closely enough.

Situational Awareness and Action were assessed as **partially effective** because the Aerodrome controller warned the Approach Radar controller of the potential proximity of the two aircraft before the latter controller had taken any action. The subsequent headings issued by the controller only partially resolved the situation.



³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).