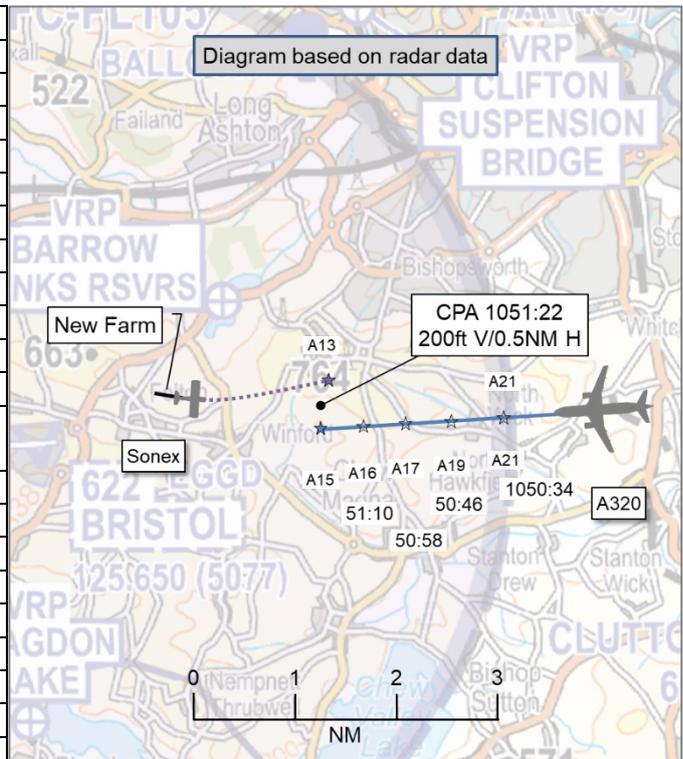


AIRPROX REPORT No 2024052

Date: 14 Apr 2024 Time: 1051Z Position: 5123N 00238W Location: 3NM E Bristol Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A320	Sonex
Operator	CAT	Civ FW
Airspace	Bristol CTR	Bristol CTR
Class	D	D
Rules	IFR	VFR
Service	ACS	ACS
Provider	Bristol Tower	Bristol Tower
Altitude/FL	1500ft	1300ft
Transponder	A, C, S+	A, C, S
Reported		
Colours	White, orange	Orange
Lighting	Nav, strobe, landing	Not fitted
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	~1500ft climbing
Altimeter	QNH (NK hPa)	QNH (NK hPa)
Heading	270°	090°
Speed	NK	80kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation at CPA		
Reported	200ft V/1NM H ¹	0ft V/0.5NM H
Recorded	200ft V/0.5NM H	



THE A320 PILOT reports that, when at 4NM on an ILS approach to RW27, the Tower controller advised them of 2 light-aircraft operating in the area. The nearest traffic was cleared by ATC to maintain 1200ft on departure from an airstrip and to remain north of the centreline. On final approach, passing 1000ft AGL, they had a TCAS TA followed very quickly by an RA. The light-aircraft appeared to be in a climbing left turn towards the centreline. The Captain saw the TCAS RA activate with the conflict indicating 500ft directly beneath and climbing. The TCAS RA was flown, followed by a missed approach. They were not visual with the conflicting traffic. The Tower controller was informed of the manoeuvre and no further calls were heard from them until frequency change back to Approach, although they heard the conflicting traffic pilot say they had visually identified them when asked by the Tower controller. The subsequent approach was uneventful. Neither crew saw the conflicting traffic.

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

THE SONEX PILOT reports they had planned a VFR flight from New Farm to [destination]. Because New Farm is in the Bristol ATZ [sic], departure was advised to Bristol ATC via a phone call approximately 20min prior to departure. After start up and pre-take-off checks, they called Bristol ATC on Tower frequency to state 'ready for departure'. ATC started to reply but then stated 'standby'. ATC came back after calls to other aircraft with the departure clearance, which was standard for New Farm operations, VFR, not above 2000ft, departure VRP Chew Valley (in this case), QNH and squawk. After reading back the departure clearance, ATC responded with 'read-back correct' and 'report airborne'. After take-off they called airborne and climbed to the east (take-off direction). At about 600ft AGL they called ATC to request crossing of the RW27 centreline. ATC requested they report visual with an aircraft on final and, as ATC finished the request, they became visual with an A320 at a range of about 1NM on approach to Bristol RW27. They replied 'visual with traffic, will position to cross behind'. ATC

¹ Other aircraft not seen. Separation estimated from TCAS.

instructed them to 'cross above and behind the A320' which was read back. By this time they were at about the same altitude as the A320, on a reciprocal heading and about 0.5NM to the north. After passing the A320 they heard a report of 'going around' on frequency and noticed the A320 begin to climb. When they judged it was safe to cross the A320 track, from a wake turbulence point of view, they turned south towards Chew Valley, now at about 1800ft. The flight continued as planned.

The pilot assessed the risk of collision as 'None'.

THE BRISTOL AERODROME CONTROLLER reports [Sonex C/S] wanted to depart from New Farm with [A320 C/S] on final 27 in sight of the controller and given traffic information on 2 aircraft. Clearance given to [Sonex C/S] to remain north of final approach and report the [A320 C/S] in sight. [Sonex C/S] confirmed in sight and reported airborne. [Sonex C/S] asked if they could cross final approach. They said negative and to confirm they had the aircraft in sight to which they said negative. They told [Sonex C/S] to remain north of final approach and to report the traffic in sight. [Sonex C/S] reported in sight. They told [Sonex C/S] to cross above and behind the [A320 C/S]. [A320 C/S] reported TCAS RA and went around.

Factual Background

The weather at Bristol was recorded as follows:

METAR EGGD 141050Z AUTO 26009KT 230V290 9999 SCT028 SCT043 11/04 Q1025=

The New Farm LoA with Bristol Airport contains the following paragraph:

'Procedures & Responsibilities

The Airfield Operator shall ensure pilots flying from New Farm are aware of their responsibilities and the procedures for operating from the airstrip.

Pilots planning to depart New Farm shall contact NATS Bristol ATC by landline and provide appropriate details of the proposed flight.

Prior to departure, pilots shall call Bristol Tower on 133.850 to request QNH, surface wind and an appropriate zone clearance. NATS Bristol ATC will endeavour to provide the pilot with their requested zone clearance.

Aircraft inbound to and outbound from New Farm will be integrated into the Bristol visual circuit as operationally required by NATS Bristol ATC.

Traffic information regarding aircraft on final approach RWY27, departing aircraft RWY09 and any traffic operating within the Bristol visual circuit will be passed to aircraft arriving/departing from New Farm.

Aircraft shall not be permitted to depart from New Farm when IFR aircraft are on final approach to RWY27 until the IFR aircraft has been sighted by both ADC and the pilot of the New Farm aircraft, and separation can be achieved.'

Analysis and Investigation

CAA ATSI SUPPLEMENTARY REPORT

The Bristol RTF was reviewed by ATSI, and the following are the relevant RT exchanges between the controller and the pilots:

At 1047:30 the Sonex pilot called on the Tower frequency advising that they were ready for departure. The controller instructed the pilot to standby while they dealt with an inbound aircraft and issued a controlled airspace entry clearance to an unrelated aircraft.

At 1048:45 the A320 crew reported on the Tower frequency and were instructed to continue approach, number two.

At 1049:10 the Sonex pilot was cleared to, *“join Bristol controlled airspace not above altitude 2000 feet, VFR, squawk 5070.”* The pilot responded, *“that’s 5070, and (unintelligible words) cleared to take off.”*

At 1049:20 the controller asked the Sonex pilot which runway they were departing from, and the pilot responded that it was the easterly runway. The controller responded, *“roger traffic information, an A320 on 7 mile final for Runway 27 at Bristol.”* The pilot responded, *“copied and we’ll report airborne.”*

At 1050:00 the controller passed the following information to the A320 crew, *“traffic information, light-aircraft from the northeast, will be arriving at a private airfield north of Bristol by 1.5 miles, and further traffic, aircraft will be departing from the same aerodrome 1.5 miles north of final approach, to remain north of the final approach track.”* The crew responded, *“copied.”* The controller turned their attention to other traffic.

At 1050:50 the Sonex pilot reported airborne and requested to turn through the approach for RW27. The controller responded, *“report the A320 in sight.”* The pilot responded, *“negative visual at this point.”* The controller instructed the pilot to, *“remain north of the final approach track until you have the traffic in sight, please.”*

At 1051:18 the Sonex pilot said, *“yeah have traffic in sight and I will continue to the east to pass behind.”* The controller responded, *“roger, you’re cleared to cross the final approach above and behind the A320 on 3 mile final, and further traffic, an A320 just establishing on 10 mile final for RW27.”* The pilot responded, *“er copied.”*

CPA occurred during the above RT exchange (1051:17)

At 1051:25 the A320 pilot advised the controller, *“going around, TCAS RA.”* The controller responded, *“roger.”*

The Sonex did not display on the NATS radar replay until 1051:30, thirteen seconds after the reported CPA, when it was on a reciprocal track to the A320 and displaced laterally by 0.5NM (Figure 1 below).

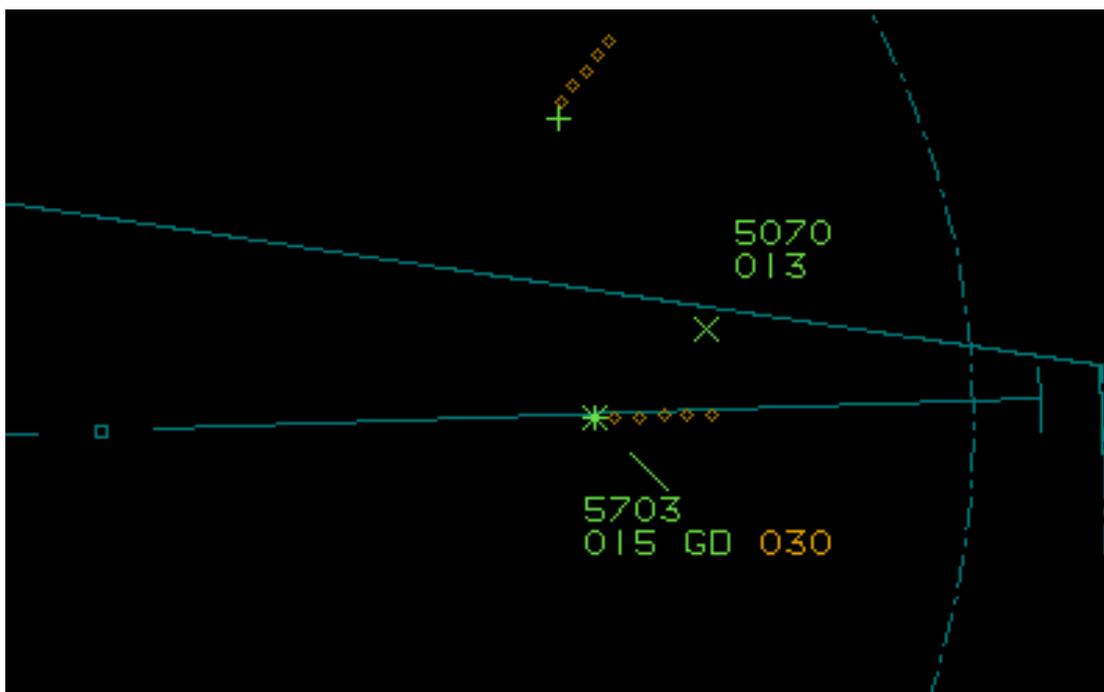


Figure 1 – 1051:30

Relevant entry from the Bristol MATS Part 2

2.4.1 Operations From 'New Farm', Felton

A private landing strip is situated within the Bristol ATZ at **New Farm** (grid ref. 527 661). The landing area is 27/09 orientated, approximately 1 mile east of, and 1/2 mile north of the threshold of Bristol's runway 27.

Aircraft inbound to and out bound from the **New Farm** landing strip will be integrated into the Bristol visual circuit in accordance with current procedures (ADC 2.3).

Traffic information on aircraft arriving and departing **New Farm** is to be passed to aircraft in Bristol visual circuit and vice versa.

Aircraft are not permitted to depart from **New Farm** when IFR aircraft are on final approach to Bristol RWY 27 until the IFR aircraft has been sighted by both the ADC and the pilot of the **New Farm** aircraft and separation can be achieved.

VFR and SVFR flights to or from **New Farm** shall not be permitted when weather conditions are below the required minima (MATS PT 1 ,Section 1, Chapter 2).

The Bristol QNH, surface wind and an appropriate clearance are to be passed to aircraft inbound to and outbound from **New Farm**.

The Bristol MATS Part 2 procedures at 2.4.1 above do not permit departures from New Farm when IFR aircraft are on final approach to Bristol RW27 until the IFR aircraft has been sighted by both the Aerodrome controller and the pilot of the New Farm aircraft and separation can be achieved. The Sonex pilot had departed without having the A320 in sight. In the same MATS Part 2 procedures, the New Farm site is described as being approximately one mile east and half a mile north of RW27 threshold.

The traffic information passed to the A320 crew was that the Sonex would be departing from a site 1.5 miles north of the final approach; information was not included as to the expected direction of the departure. The New Farm site is 0.5NM north of the final approach. One and a half miles north of the final approach could be anywhere along the length of the final approach. The A320 crew were therefore unlikely to know exactly where to look for the Sonex.

The A320 crew believed that the Sonex aircraft would be maintaining 1200ft and would be remaining north of the centreline. The clearance given to the Sonex pilot was not above altitude 2000ft and was issued immediately after the A320 crew checked in on the Tower frequency. This may indicate that the crew experienced difficulties assimilating the Traffic Information passed. They did not receive updated Traffic Information on the Sonex when the pilot was instructed to pass above and behind them. This may have been due to the timing of the RT transmissions i.e., CPA occurred during the latter stages of the RT transmission ending at 1051:18 where the Sonex reported the A320 in sight and the controller issued the clearance to pass above and behind.

When the Sonex got airborne and started climbing and tracking east, it was on a reciprocal track to the A320, with just 0.5NM lateral displacement. There was only 27sec between the Sonex pilot reporting airborne (1050:50) and CPA occurring (1051:17). The Sonex was already within the TCAS TA envelope as it got airborne and, very soon after, entered the RA envelope. Due to the pop-up nature of the Sonex, the A320 crew will have had insufficient time to visually acquire the Sonex before having to respond to the TCAS RA.

The Sonex pilot had complied with the conditions of their VFR clearance.

It may be prudent for Bristol ATC to review their New Farm procedures and consider the appropriateness or otherwise of opposite direction departures and their effect on TCAS-equipped inbound traffic. Consideration could also be given to including a warning of activity at New Farm with the Bristol UK AIP entry at EGGD AD 2.20.

UKAB Secretariat

The A320 and Sonex pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.² Traffic information and instructions shall be passed to aircraft on any occasion that a controller considers it necessary in the interests of safety, or when requested by a pilot. In particular, Aerodrome Control shall provide:

- (1) generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;
- (2) specific traffic information appropriate to the stage of flight and risk of collision;
- (3) timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.³

Summary of Bristol Airport Unit Investigation Report

Executive Summary: [A320 C/S], an A320 inbound to Bristol IFR, received, and reacted to, a TCAS RA whilst on final approach for runway 27, against [Sonex C/S] departing VFR from the private landing strip at New Farm, which is located approximately 1.5NM [sic] northeast of the airport. The controller mistakenly issued [Sonex C/S] an incomplete joining clearance, rather than a departure clearance, and in not challenging the incomplete readback by the pilot of [Sonex C/S], did not pick up on the mistake. The controller also did not adhere to the procedures for New Farm departures, laid down in Bristol's MATS Pt 2.

Conclusions: [Sonex C/S] on the ground at New Farm, "Ready for departure", was incorrectly issued an incomplete joining clearance without the QNH. [Sonex pilot] did not challenge or [query] this instruction and only read back the squawk code and asked if the clearance was a take-off clearance. [Sonex pilot]'s incomplete readback was not challenged by [Aerodrome controller] and was asked which direction [they] would be departing, indicating that [Aerodrome controller] was aware this was a departure. [Sonex pilot] advised that [they] would be using the easterly runway to which [Aerodrome controller] passed traffic information on the A320 on a 7 mile final to Bristol and at no time confirmed if [Sonex pilot] was visual, whilst on the ground. No instruction or attempt was made to hold [Sonex C/S] on the ground.

[Aerodrome controller] should have been aware of the procedure written in MATS Pt2, which is available for reference in the tower, stating "Aircraft are not permitted to depart New Farm when IFR aircraft are on final approach to Bristol runway 27 until the IFR aircraft has been sighted by both ADC and the pilot of the New Farm aircraft and separation can be achieved" not knowing this led to the non-conformance. [Sonex pilot] should also have been aware of this requirement, which is stated in the letter of agreement between the General Manager of NATS Bristol and the Owner Operator of New Farm.

[Aerodrome controller] was aware that [Sonex C/S] was departing as this information was passed, along with other traffic information, to [A320 pilot] flying [A320 C/S]. When [Sonex C/S] [Sonex pilot] asked if they were clear to turn through final approach towards Chew Valley Lake, it was only then [Aerodrome controller] asked if they were visual with the A320, which they were not. [Aerodrome controller] instructed [Sonex pilot] to remain north of final approach and then, in the same transmission, continued with "until you have the traffic in sight" which added ambiguity to an otherwise positive instruction. [Sonex pilot] then confirmed visual with the A320 and advised that [they] would continue east and pass behind. [Aerodrome controller] did not conform with MATS Pt1 and pass a warning to wake turbulence or recommended distances and issued a non-standard clearance to cross "above and behind". [A320 C/S] received a TCAS RA and [A320 pilot] advised of this with the "Go Around" transmission.

² (UK) SERA.3205 Proximity.

³ CAP 493 Manual of Air Traffic Services (MATS) Part 1, Section 2 (Aerodrome Control), Chapter 1 (Aerodrome Control), Section 7 (Information to Aircraft), 7A (Traffic Information and Instructions), para 7A.1, dated 28th December 2023.

[...]

[Aerodrome controller] did not appear to be familiar with procedures laid down in MATS Pt2 and allowed a light-aircraft to depart VFR from New Farm with an A320 on final, IFR, to Bristol. [Aerodrome controller] did not appear to be in control of the situation and reacted, incorrectly, by not issuing any wake turbulence cautions and recommended distances, but by instructing the lighter aircraft to pass above and behind the larger aircraft. [...] [Aerodrome controller] did not challenge incomplete readbacks by the New Farm departure throughout. [...]

Summary

An Airprox was reported when an A320 and a Sonex flew into proximity 3NM east of Bristol Airport at 1051Z on Sunday 14th April. Both pilots were operating in VMC in receipt of an Aerodrome Control Service, the A320 pilot under IFR and the Sonex pilot under VFR.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate 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.

Board members quickly agreed that this Airprox came about as the result of a TCAS RA in the approaching A320 which in turn was the consequence of errors by the Bristol Aerodrome controller and the Sonex pilot and, in the Board's opinion, the wording of the relevant regulations and agreement. On the face of it, neither the Bristol Aerodrome controller nor Sonex pilot had complied with the relevant regulation and LoA respectively, in that the Sonex pilot had taken-off before they had been visual with the approaching A320 IFR traffic (**CF5, CF6**) and the Bristol Aerodrome controller had not ensured the Sonex pilot had been visual and had issued an incomplete and incorrect clearance (**CF1, CF3, CF4**) without detecting read-back errors. Members felt that the Sonex pilot should perhaps have been aware that the Bristol controller could not issue a take-off clearance for a pilot not at Bristol Airport and that they would only ever have received clearance to enter Class D airspace. Members thought that common practice may have evolved over time such that rigorous application of the regulation/LoA for New Farm airstrip had been eroded. The net result of these errors had been inadequate conflict resolution between the A320 and the Sonex in terms of a TCAS RA (**CF9**) and subsequent go-around (**CF2**). In the event, the A320 pilot had had only generic situational awareness of the Sonex (**CF7**) and had been concerned by its proximity (**CF8**), no doubt at least in part because of the activation of a TCAS RA. Members noted that, although a TCAS RA had been activated, the Sonex pilot had had the A320 in sight and that any risk of collision had been averted, Risk C. Members discussed the following wording of the MATS Part 2 regulation (and LoA):

'Aircraft are not permitted to depart from New Farm when IFR aircraft are on final approach to Bristol RWY 27 until the IFR aircraft has been sighted by both ADC and the pilot of the New Farm aircraft, and separation can be achieved.'

They noted that the wording 'and separation can be achieved' was not specific in terms of how much separation might be required to avoid a TCAS interaction and that, if the Sonex pilot had been visual with the A320 before take-off, they could have departed in compliance with the regulation but with the same result as this Airprox. Members also discussed whether to make a recommendation that New Farm airstrip be included on Bristol IAP plates and decided that this would likely be less effective than revised regulation/LoA [Post-Board Note: The Bristol Airport Unit Investigation Report recommended that New Farm departures should follow a route that would take them away from the Bristol runway centreline unless traffic permitted otherwise and Tower and Radar coordination had been completed].

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

2024052				
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	• Conflict Resolution-Inadequate	An event involving the inadequate provision of conflict resolution	
3	Human Factors	• Inappropriate Clearance	An event involving the provision of an inappropriate clearance that led to an unsafe situation	
4	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
5	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
• Tactical Planning and Execution				
6	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
• Situational Awareness of the Conflicting Aircraft and Action				
7	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
8	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				
9	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

Degree of Risk: C.

Safety Barrier Assessment⁴

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 **ineffective** because the Bristol controller issued a clearance to the Sonex pilot without first confirming they were visual with the inbound IFR A320.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the conflict was not detected by the Bristol controller.

Flight Elements:

⁴ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Sonex pilot did not comply with the requirement to be visual with inbound IFR traffic before take-off.

Tactical Planning and Execution was assessed as **partially effective** because the Sonex pilot got airborne before they were visual with the inbound IFR A320.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the A320 crew received generic situational awareness on the Sonex.

		Airprox Barrier Assessment: 2024052		Within Controlled Airspace						
						Effectiveness				
						Barrier Weighting				
Barrier		Provision	Application	0%	5%	10%	15%	20%		
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✗	[Red bar from 0% to 20%]						
	Manning & Equipment	✓	✓	[Green bar from 0% to 15%]						
	Situational Awareness of the Confliction & Action	✓	✗	[Red bar from 0% to 15%]						
	Electronic Warning System Operation and Compliance	○	○	[Grey bar from 0% to 10%]						
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✗	[Red bar from 0% to 5%]						
	Tactical Planning and Execution	✓	!	[Yellow bar from 0% to 5%]						
	Situational Awareness of the Conflicting Aircraft & Action	!	✓	[Yellow bar from 0% to 10%]						
	Electronic Warning System Operation and Compliance	!	✓	[Green bar from 0% to 15%]						
	See & Avoid	✓	✓	[Green bar from 0% to 5%]						
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used				
Provision	✓	!	✗	○	○					
Application	✓	!	✗	○	○					
Effectiveness	Green	Yellow	Red	Grey	Red box					