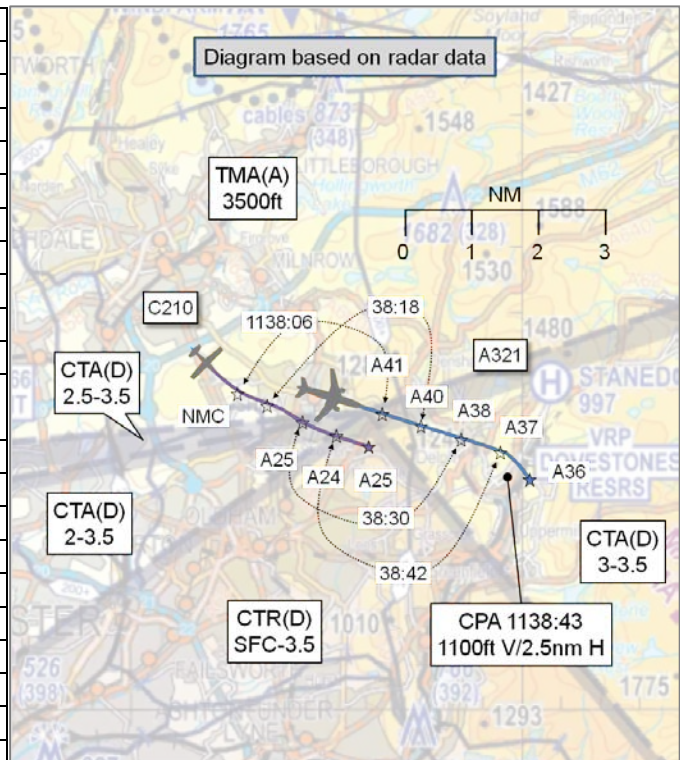


**AIRPROX REPORT No 2017112**

Date: 25 May 2017 Time: 1139Z Position: 5333N 00200W Location: 15nm NE Manchester Airport

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	A321	C210
Operator	CAT	Civ Pte
Airspace	Manchester TMA	Manchester CTR
Class	A	D
Rules	IFR	VFR
Service	Radar Control	None
Provider	Manchester	N/A
Altitude/FL	FL033	FL022
Transponder	A, C, S	A, C
<b>Reported</b>		
Colours	White, yellow, grey	White, blue
Lighting	NK	NK
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4000ft	3000ft
Altimeter	QNH (1024hPa)	NK
Heading	160°	'Easterly'
Speed	180kt	155kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
<b>Separation</b>		
Reported	500ft V/NK H	NK
Recorded	1100ft V/2.5nm H (CPA(1))	



**THE A321 PILOT** reports being under radar vectors for the ILS to Manchester RW23R when he was given 'immediate avoiding action' due to an unknown aircraft 'infringing the zone' 500ft below them. The pilot noted that the other aircraft indicated 3nm astern on TCAS after they had completed the avoiding action.

He assessed the risk of collision as 'Medium'.

**THE C210 PILOT** reports he had unintentionally infringed CAS in the Oldham area. He stopped his cruise climb at 3000ft and left CAS at the eastern end of the zone but was unaware of an Airprox incident.

He assessed the risk of collision as 'None'.

**THE MANCHESTER FINAL DIRECTOR** reports vectoring the A321 downwind right hand for RW23R when an aircraft squawking 7000 infringed CAS in the Oldham area. The traffic was in the 'starboard quarter' of the A321, about 2 miles astern. He gave avoiding action onto a heading of 090°. The infringing aircraft stopped its climb at 3000ft and left controlled airspace at the eastern edge of the zone. The A321 was vectored back onto the ILS for RW23R.

**THE WARTON CONTROLLER** did not submit an Airprox report, however, UKAB received information that the Warton controller had advised that the C210 had experienced some 'transponder issues'. The pilot was asked whether he would be contacting Manchester and was subsequently requested to select A7000 and contact Manchester Approach. The C210 pilot did not subsequently contact Manchester Approach.

## Factual Background

The weather at Manchester was recorded as follows:

METAR EGCC 251150Z AUTO VRB04G21KT 9999 BKN038 24/15 Q1023=

## Analysis and Investigation

### CAA ATSI

The A321 (code 5346) was within the Manchester TMA, being provided with radar vectors for an ILS approach to RW23R by the Manchester Final controller. The C210 (code 3650) had been in receipt of a Basic Service from Warton LARS but had left their frequency at 1137:14 with the apparent intention of contacting Manchester, although this does not appear to have been actioned by the pilot. The C210 was in Class G airspace, 3.5nm northwest of the boundary of the Manchester CTR, but over 42nm southeast of Warton, and effectively outside their radar cover (Figure 1).

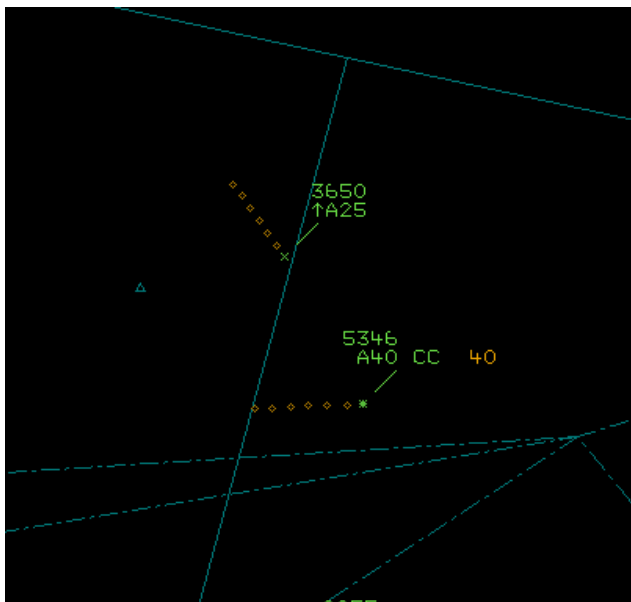


Figure 1 – 1137:14

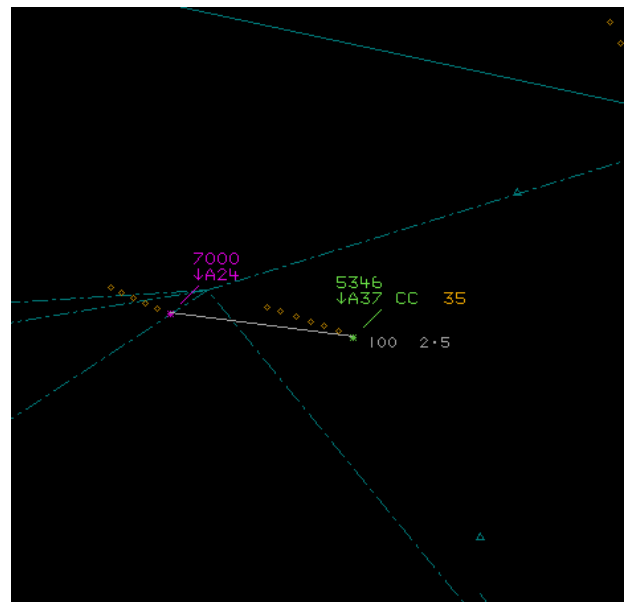


Figure 2 – 1138:43

The C210 track reverted to PSR only at 1137:32 and did not reappear with SSR until 1138:21 (also confirmed by the Manchester unit investigation report) now transponding the General Conspicuity code 7000. At 1138:43, the C210 entered the Manchester CTR, causing the Controlled Airspace Infringement Tool (CAIT) to be activated (Figure 2).

In response to the infringement by the C210, the Manchester controller issued an avoiding action turn to the A321 pilot at 1138:47, from a heading of 145° left onto 090°, together with Traffic Information on the C210.

Manchester radar controllers are required to provide a minimum separation of 3nm laterally or 3000ft vertically against infringing aircraft but, as the C210 had entered the Manchester CTR astern of the A321, standard separation was immediately lost. For one sweep of the radar, lateral separation reduced to 2.3nm and 1100ft vertically, and then increased to not less than 2.5nm and 1000ft. The Manchester controller updated the Traffic Information to the A321 pilot on the C210 at 1139:08, advising that the other aircraft was slower, and that the separation would not reduce any further. The left turn issued to the A321 pilot was not immediately evidenced on the radar replay, as the A321 was still completing a right turn onto a heading of 145° for base leg to RW23R which had been issued by the Manchester controller 17 seconds earlier. The A321 pilot reported the Airprox apparently as a result of being given an avoiding action turn by the Manchester controller.

CPA after that instruction was issued was considered to be at 1139:06, with the aircraft separated by 2.5nm laterally and 1100ft vertically (Figure 4).

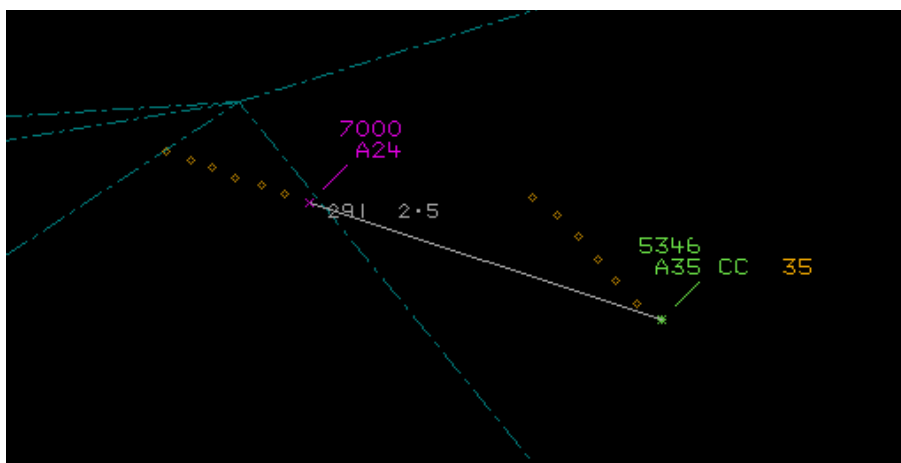


Figure 4 – 1139:06 – CPA (1)

The A321 pilot subsequently turned left onto a heading of 090° and the C210 left the CTR at 1139:11. At 1139:30 the controller turned the A321 right again onto a heading of 150°.

At 1139:55 the C210 pilot, who had earlier commenced a climb from 2400ft, entered the Manchester CTA (base of 3000ft) again reactivating CAIT (Figure 5).

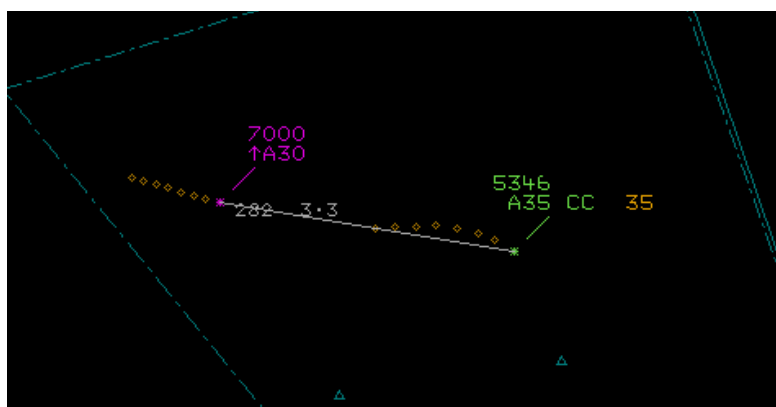


Figure 5 – 1139:55

At 1140:00, with a lateral separation of 3.3nm between the aircraft, the controller issued a further right turn to the A321 pilot, onto a heading of 270°. At 1140:39 the lateral separation again reduced below 3nm, with a vertical separation of 400ft (Figure 6).

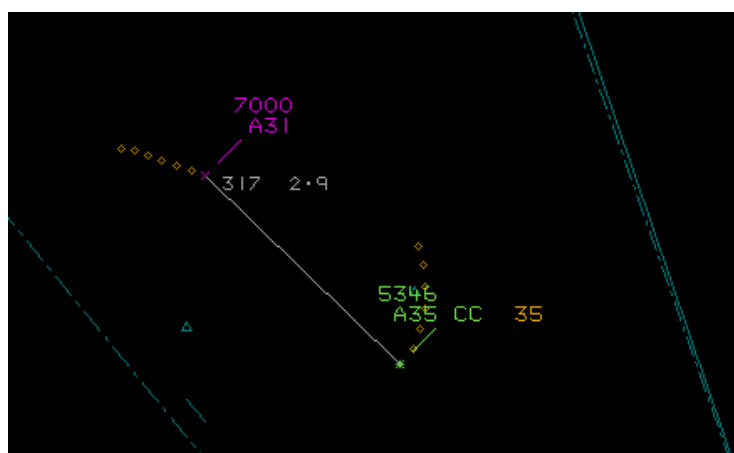


Figure 6 - 1140:39

Separation between both aircraft reduced to 2.3nm and 500ft at 1140:57 (Figure 7).

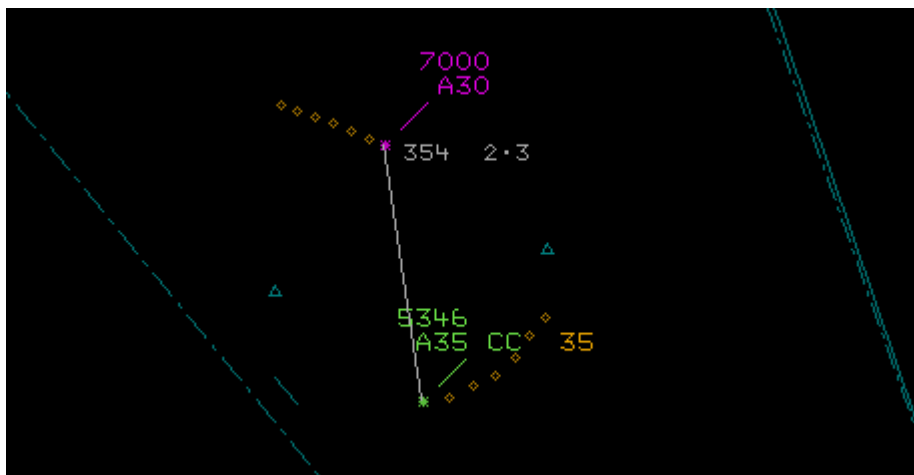


Figure 7 - 1140:57 – CPA (2)

### UKAB Secretariat

The A321 and C210 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. The C210 pilot was required to remain outside of controlled airspace unless clearance was agreed with the appropriate ATC agency. The A321 pilot filed an Airprox in response to his safety concern associated with the avoiding action turn, which occurred near CPA(1). This has therefore been taken as the Airprox time and CPA, despite separation at CPA(2) being less.

### Summary

An Airprox was reported when an A321 and a C210 flew into proximity at 1139 on Thursday 25<sup>th</sup> May 2017. Both pilots were operating in VMC, the A321 pilot under IFR in receipt of a Radar Control Service from Manchester and the C210 pilot under VFR in receipt of a Basic Service from Warton.

### **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 ATC authority.

Members first discussed the Manchester controller's actions and agreed that he had been faced with an unknown aircraft entering the CTR and that his initial avoiding action had been effective. Turning to the pilots, the C210 pilot was apparently unaware of his position and members felt that he would have been far better placed contacting Manchester Approach (as the controller of his previous service from Warton believed he was going to do), rather than continue 'with a transponder problem'. In the event, the C210 pilot entered the Manchester CTR without clearance which resulted in a loss of separation with the A321, causing concern to its pilot due to the avoiding action turn. The Board agreed that this was the cause of the Airprox and agreed that there had been no inherent risk of collision due to the geometry of the aircrafts' tracks.

### **PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS**

Cause: The C210 pilot entered controlled airspace without clearance resulting in a loss of separation with the A321 and concern to its pilot.

Degree of Risk: C.

<sup>1</sup> SERA.3205 Proximity.

## Safety Barrier Assessment<sup>2</sup>

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

### Flight Crew:

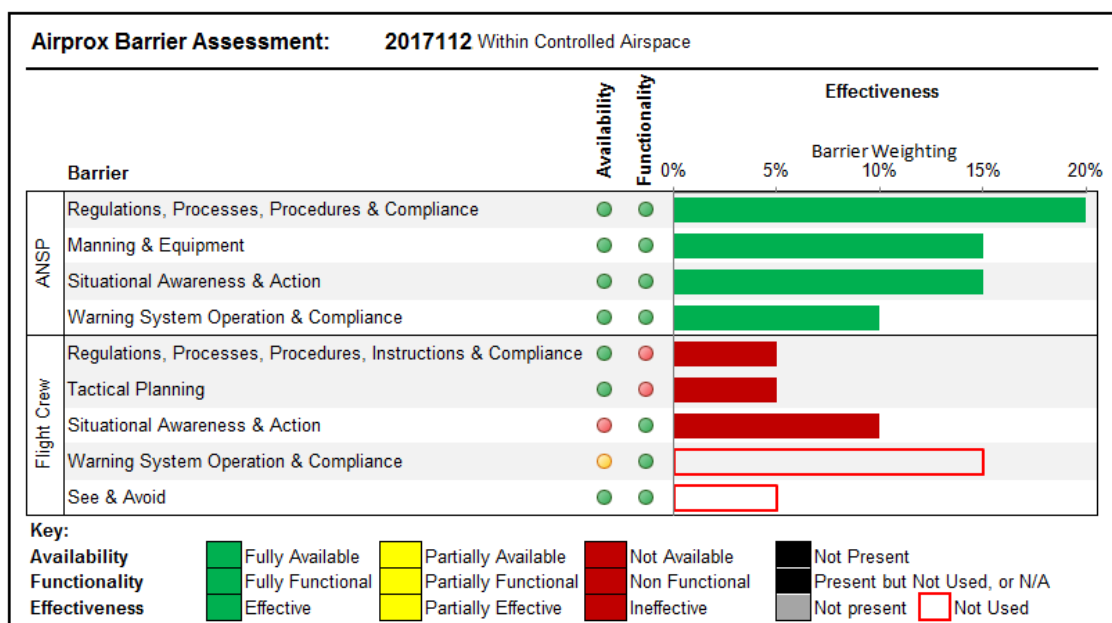
**Regulations, Processes, Procedures, Compliance and Instructions** were assessed as **ineffective** because the C210 pilot did not obtain a clearance before entering the Manchester CTR or TMA.

**Tactical Planning** was assessed as **ineffective** because the C210 pilot's route took him through the Manchester CTR and TMA.

**Situational Awareness and Action** were assessed as **ineffective** because the C210 pilot was not aware that he had entered the Manchester CTR, and subsequently the Manchester TMA, and did not take action to avoid the CAS.

**Warning System Operation and Compliance** were assessed as **not used** because the aircrafts' separation was such that the A321's TCAS did not generate an alert.

**See and Avoid** were assessed as **not used** because the aircrafts' separation was such that this barrier was not employed.



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