Air Accident Investigation Unit Ireland

SYNOPTIC REPORT

SERIOUS INCIDENT

Involving
Diamond Twin Star DA42, G-COBS
& Piper PA 31-350, G-FCSL
5 NM east of Ireland West Airport
Knock, Co. Mayo
22 April 2013

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIU regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13[1] to the Convention on International Civil Aviation, Regulation (EU) No 996/2010[2] and Statutory Instrument No. 460 of 2009[3], safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, it is inappropriate that AAIU Reports should be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose.

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[1] **Annex 13**: International Civil Aviation Organization (ICAO), Annex 13, Aircraft Accident and Incident Investigation.
[2] **Regulation (EU) No 996/2010** of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.
[3] **Statutory Instrument (SI) No. 460 of 2009**: Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.

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In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 and the provisions of SI 460 of 2009, the Chief Inspector of Air Accidents Mr Jurgen Whyte, on the 24 April 2013, appointed himself as the Investigator-in-Charge to carry out an Investigation into this Serious Incident and prepare a Report.

Aircraft Type and Registration:	(1) Diamond Twin Star DA42 MNG, G-COBS (2) Piper PA31-350, G-FCSL
No. and Type of Engines:	(1) 2 x Austro E4-B (2) 2 x Lycoming TIO-540-J2BD
Aircraft Serial Number:	(1) 42.MN020 (2) 31-7852052
Year of Manufacture:	(1) 2011 (2) 1972
Date and Time (UTC):	22 April 2013 @ 12.17 hrs
Location:	5 NM east of Ireland West Airport (EIKN), Knock, Co. Mayo
Type of Operation:	Aerial Work - Navigation Aid Calibration
Persons on Board:	(1) Crew - 2 + 1 Flight Inspector (2) Crew - 2 + 1 Flight Inspector
Injuries:	(1) None (2) None
Nature of Damage:	(1) None (2) None
Commander's Licence:	(1) Airline Transport Pilot's Licence (ATPL), UK (2) Commercial Pilot's Licence (CPL), UK
Commander's Details:	(1) Male, aged 62 years (2) Male, aged 32 years
Commander's Flying Experience:	(1) 13,300 hours, of which 312 were on type (2) 3,900 hours, of which 2,000 were on type

NOTIFICATION

The AIRPROX was initially reported by the Commander of G-COBS to EIKN Air Traffic Control (ATC) on breaking off the approach. A Mandatory Occurrence Report (MOR) was raised by EIKN ATC. The Irish Aviation Authority (IAA) subsequently reported the AIRPROX to the AAIU. In addition the Commander of G-COBS filed an AIRPROX Report with the UK Civil Aviation Authority (CAA).

SYNOPSIS

While in the process of conducting separate flights for the calibration of navigation aids at EIKN, the lateral separation between two calibrating aircraft reduced to 0.42 nautical miles (NM) with no vertical separation. One aircraft initiated avoiding action following a Traffic Advisory System (TAS) warning and subsequently declared an AIRPROX. Both aircraft landed without further incident. There were no injuries. A total of five Safety Recommendations have been made as a result of this Investigation.

1. FACTUAL INFORMATION

1.1 History of the Flight

1.1.1 Background

The Airport Technical Services at EIKN had arranged with a UK calibration company to have the Instrument Landing System (ILS) calibrated on the 22 April 2013. The aircraft G-FCSL was assigned to this task and is henceforth referred to in this report by the callsign CAL01.

The IAA Engineering Unit based at Shannon arranged the completion of an unfinished programme with a different UK calibration company. This involved the calibration of the Very High Frequency (VHF) Omni-Direction Range (VOR) at EIKN on the same day. The aircraft G-COBS was assigned this task and is henceforth referred to in this report by the callsign CLB205. There was no prior notification by IAA Engineering Shannon to Airport Technical Services EIKN or ATC EIKN with regard to completing the unfinished calibration of the VOR at EIKN, nor was there prior notification by Airport Technical Services EIKN to ATC EIKN of the planned ILS calibration.

At the time of the occurrence EIKN was not equipped to provide a radar service and procedural control was in effect.

1.1.2 Sequence of Events

CLB205 departed on an IFR[4] flight plan from Teeside in the UK, with the intention of conducting two standard VOR calibration approaches at EIKN. Twenty minutes prior to arriving overhead the airport, CLB205 called EIKN ATC and advised the Air Movements Controller (AMC) of their intention to begin the calibration with an approach to Runway (RWY) 09, go-around and then fly an approach to RWY 27. This was approved by the AMC.

[4] **IFR:** Flight conducted or obliged to be conducted in accordance with the Instrument Flight Rules.

At approximately 12.04 hrs, as CLB205 was commencing the inbound turn for the VOR approach to RWY 09, the ILS calibrating aircraft CAL01 became airborne from RWY 27 at EIKN on a VFR flight and was instructed by the AMC to hold southeast of the airport not above 2,000 ft. CAL01 had also been advised by the AMC prior to take-off of the necessity to hold and await the completion of the CLB205 VOR calibration.

At approximately 12.07 hrs, an Irish Coast Guard Rescue helicopter (callsign R118) en-route from Sligo to Galway Hospital requested clearance to route through the EIKN Control Zone. This was approved and traffic information was issued to R118 regarding the calibrating aircraft and later the calibration aircraft were advised of the routing of the helicopter across the airport.

On completion of the VOR approach to RWY 09, CLB205 carried out a go-around and was instructed to climb straight ahead, maintain 3,000 ft and report turning inbound for RWY 27.

At 12.07:43 hrs CAL01, which had been holding approximately 5 to 7 NM south of the airport, advised the AMC that they were ready to start the initial calibration run which was identified as Profile 04 (Graphic No. 1). The AMC instructed CAL01 to continue to hold due to the transiting R118 traffic.

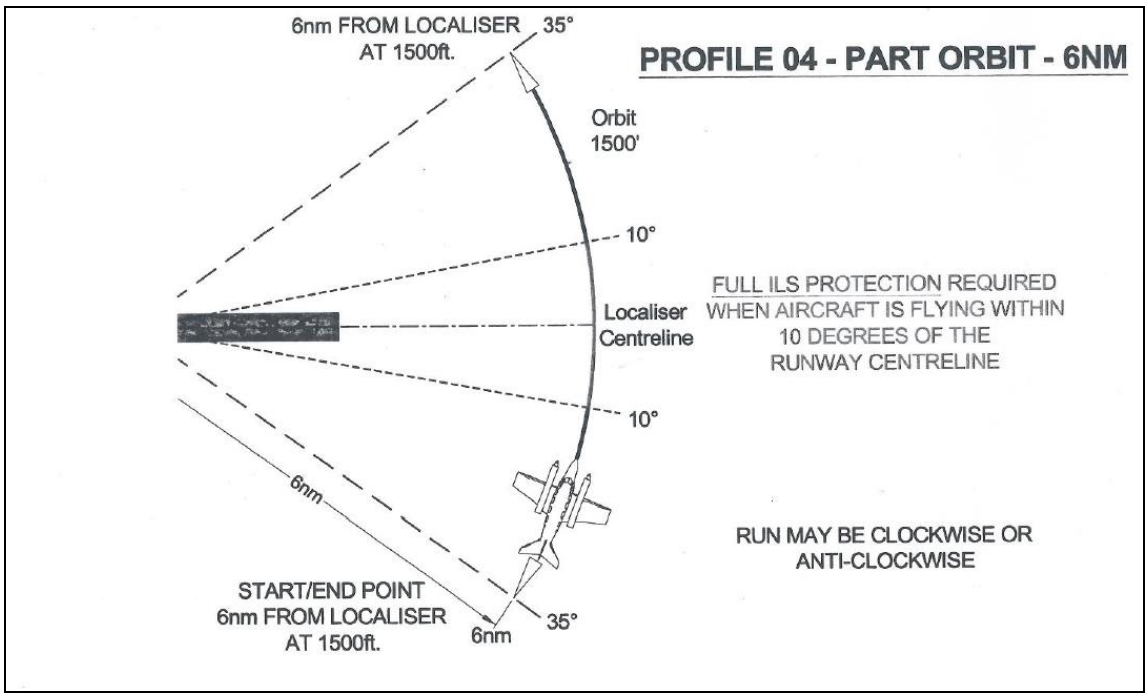
At approximately 12.13 hrs, CLB205 reported turning left inbound on the approach to RWY 27. CLB205 was then instructed to maintain 3,000 ft and report at 7 NM from touchdown. This was acknowledged by CLB205. Shortly thereafter R118, which was in sight of the AMC, was instructed to route directly overhead the airport.

When CLB205 was mid-way through the left inbound turn, CLB205 advised the AMC that in order to maintain the correct descent profile for the calibration they would have to commence descent at 7.8 NM from touchdown. The AMC then cleared CLB205 for the approach, thus lifting the restriction on the aircraft to maintain 3,000 ft. At 12.14:42 hrs CLB205 advised the AMC that after the approach he would like to go-around and make a visual circuit and land.

At 12.14:54 hrs, following a call from CAL01 to ATC EIKN, the AMC advised CAL01 that "I am just going to turn you in behind the ah other calibrator" [CLB205] it's kinda very unusual for us to have both of ye here at the same day".

Twenty four seconds later at 12.15:18 hrs, CAL01 reported at the start point of the Profile 04 and requested to the AMC that "if you are happy we would like to continue out passing behind the other calibrator". The AMC acknowledged this and instructed CAL01, "you can report the profile complete". The AMC did not refer to CLB205 being on the approach to RWY 27 at that time. Profile 04, involves the aircraft performing a south to north arc at a height of 1,500 ft QFE[5]/2,100 ft QNH[6] at right angles across the approach path of RWY 27 at a distance of approximately 5 NM from the threshold of the runway and approximately 6 NM from the localiser (**Graphic No. 1**).

[5]**QFE:** Atmospheric pressure at the aerodrome elevation or the runway threshold – altimeter will indicate zero height on the ground.
[6]**QNH:** Atmospheric pressure reduced to sea level pressure as calculated – altimeter will indicate height above mean sea level.



Graphic No. 1: Profile 04 being performed by CAL01

When CLB205 was at 7.8 NM it commenced its descent as planned. At the same time CAL01 was 3.1 NM south of the final approach path RWY 27 and level at 2,200 ft (**Section 1.6.2 Flight Path Information**).

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At 12.17:27 hrs when CLB205 was at 5 NM, the Commander reported to the AMC that they were breaking off the approach and requested a full stop landing. CLB205 advised the AMC that they would be filing an AIRPROX. CLB205 landed without further incident.
CAL01 continued on the Profile 04 procedure and very soon afterwards reported that, *"we're finished with the protection*". CAL01 subsequently landed without further incident.

A copy of the relevant EIKN ATC transcript is presented at **Appendix A.**

1.2 Flight Crew Reports

1.2.1 G-COBS (CLB205)

The Commander, who was the Pilot Flying (PF), held a valid ATPL issued in the UK. He had a total of 13,300 hours of which 312 hours were on type.

He outlined in his report to the Investigation that the task on the day was to complete a flight check of the EIKN VOR. Normally they would call ATC in advance, but as they were conducting normal approaches and were uncertain if they would have the required fuel to conduct the 25-30 minutes of calibration on arrival, he decided not to. Approximately 20 minutes out from EIKN the Flight Crew called EIKN Tower and advised of their intention to carry out standard VOR approaches to RWYs 09 and 27.

It was noted by the PF that on transfer from Shannon ATC they were not advised of the type of ATC service available at EIKN, but as he knew EIKN had no radar, he assumed it to be procedural.

The approach to RWY 09 was uneventful and on the go-around from RWY 09 they became aware of another aircraft requesting a 'Profile 04', which they later discovered was similar to what they term a 'Serial 1'.

Previously, they had been instructed to maintain 3,000 ft and report at 7 NM. They advised the AMC that in order to maintain the correct descent profile they would need to commence descent at the Final Approach Fix (FAF) at 7.8 NM. At this point ATC cleared CLB205 for the approach.

The PF reported that as they approached 7 NM they observed traffic on their Traffic Advisory System (TAS). The traffic was on a 90 degree intercept approaching from the left at 2 to 3 NM and 300 ft above them. Just before 5 NM, they received a 'yellow warning' on TAS indicating traffic was still approaching from the left, at a *"co-altitude" (*same altitude). With this information they deemed that both aircraft were on a collision course. The Pilot-Not-Flying (PNF) called for an immediate right turn and climb. The PF responded with an immediate right turn and, on seeing a gap in the cloud, he descended and became VMC[7]. The Flight Crew of CLB205 reported that in the period prior to taking avoiding action they had been in IMC[8] conditions (within a cloud layer) and subsequently entered VMC conditions, after the descent, to 1,500 ft.

The PF advised that the Flight Inspector, who was seated in the rear left seat beside the bubble canopy, called that he had visual contact with the other aircraft (CAL01) as it passed through the 7-8 o'clock position, slightly high but did not specify a distance. On final approach CLB205 advised the AMC that they were filing an AIRPROX.

The Operator advised the Investigation that a written schedule of planned flights for CLB 205, which included detail on the calibration services to be performed at EIKN on the 22 April 2013, was sent by e-mail by the Chief Flying Instructor (CFI) to the IAA calibration coordinator on the 17 April 2013.

Regarding documentation, it was stated by the Operator that both the IAA and EIKN held a copy of the CFI Flight Check Profile Book (ATC Guide No 5 en-route NAVAID, VOR/NDB Calibration) Issue No. 5.

1.2.2 G-FCSL (CAL01)

The Commander, who was the PF, held a valid CPL issued in the UK. He had a total of 3,900 hours of which 2,000 hours were on type.

He outlined in his report to the Investigation that they arrived at EIKN from Sligo Airport at 10.10 hrs. The Flight Crew carried out ground checks, refuelled, gave a face to face briefing to the Airport Technical Services engineer and telephoned ATC to advise of their intentions.

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[7] **VMC:** Visual Meteorological Conditions expressed in terms of visibility, distance from cloud and ceiling.
[8] **IMC:** Instrument Meteorological Conditions expressed in terms of visibility, distance from cloud and ceiling, less than the minimums specified for VMC.

ATC briefed the Flight Crew that the other calibrator (CLB205) was coming and was about 15 minutes out. The Flight Crew of CAL01 stated that they assumed that CLB205 would land (as they themselves had done) to brief and refuel and thus they planned to get airborne around CLB205's landing time. CAL01 became airborne at 12.05 hrs and positioned south of the field.

Holding south of the field, their intention was, on receipt of ATC clearance, to commence the flight check run (Profile 04) for RWY 27 from a position approximately 5.5 to 6.5 NM south of the localiser at a height of 1,500 ft QFE/2,100 ft QNH. The PF reported that, "weather wise it was scattered around 1,500 ft from the airport, so that for the part orbit (Profile 04) we were kind of in it for a few seconds then out of it generally more out of it than in just keeping underneath the (cloud) base". The PF confirmed that they were aware of the CLB205 conducting a VOR approach to RWY 27.

The PF stated that after 5 minutes of holding they asked for an update and then after 10 minutes holding in response to a query from ATC, the Flight Crew heard the AMC call CLB205 for distance to run which was stated as "6 miles". This was followed by ATC clearing their flight (CAL01) for the Profile 04. CAL01 commenced the Profile 04 accelerating towards 155 kts. When they were about 6 degrees left of centreline his flight inspector called traffic, low in our 8 o'clock position about 0.5 to 1 NM away and 500 ft below, which he considered was no threat and therefore continued on the run.

The Commander stated that EIKN ATC holds a copy of their company 'Flight Check Instructions', a green book containing the various profiles and a controller briefing guide. In addition, the Commander advised the Investigation that G-FCSL (CAL01) had informed Knock ATC of their flight inspection intentions on the preceding Friday (19 April 2013).

1.3 Airport Information

EIKN is an independent commercial airport located in the west of Ireland at an elevation of 665 ft. It has a single runway RWY 09/27 of 2,340 metres in length and is capable of handling large commercial aircraft. The aerodrome control zone (CTR) is the airspace within a circle of radius 10 NM centred on RWY 09/27 with a vertical limit of 5,000 ft above the aerodrome level.

The airspace within the zone is Class C. Within Class C airspace IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights.

VFR flights are separated from IFR flights and receive traffic information in respect of other flights. Separation is maintained through procedural or visual means. Outside of the EIKN Control Zone, air traffic control is provided by the Shannon ATS[9] Unit.

[9] **ATS:** Air Traffic Service.

1.4 Air Traffic Control (ATC)

1.4.1 General

EIKN ATC provides an Aerodrome and Approach Control Procedural service. The Tower and Approach service is provided by a single controller referred to as the AMC who is supported by a Tower Assistant (TA).

1.4.2 Air Movements Controller

The AMC held a current IAA licence with EIKN endorsements for Aerodrome (ADI)[10] and Approach Control Procedural (APP)[11] valid until 22 December 2013. Prior to attending for duty on the day of the AIRPROX, the AMC had been on two rest days.

The AMC stated that the first indication he had with regard to the two calibration aircraft operating at EIKN was when the flight plans arrived into the Tower on the morning in question. Following enquiries he established that the first aircraft (CLB205) was to complete a VOR/DME[12] check on behalf of the IAA. This was later clarified by the Flight Crew of CLB205, on first contact 20 minutes before arrival, as VOR approaches to RWY 09 and RWY 27. The second aircraft (CAL01) was to conduct a flight check on the ILS and NDB[13] RWY 27 on behalf of EIKN airport.

The AMC stated that when the CAL01 got airborne his initial plan was to hold the aircraft south of the airport until the CLB205 detail was complete. Around the same time R118 called ATC at 10 NM north of the airport advising they were en-route to Galway hospital. The direct route would have taken the R118 to the east of the airport and into potential conflict with CLB205. The AMC stated that he was anxious not to delay R118 and as such he originally planned to put CLB205 into the hold at 3,000 ft until R118 had passed the airport.

However, this plan was not implemented as the AMC made visual contact with R118 and instructed the pilot to route directly overhead the airport. At the same time CLB205 advised that they wished to commence descent at 7.8 NM. As there was no longer a conflict with R118, the AMC cleared CLB205 for the approach and he passed on traffic information to CLB205 with regard to R118. The AMC stated that when he approved CAL01 for the Profile 04, he had the two calibrators and R118 in sight.

He further stated that to his mind when CAL01 advised that he was turning in behind the number one (CLB205), this intimated to him that CAL01 had visual contact with the aircraft and would pass behind him. He recognised that he could have verified that CAL01 actually had CLB205 in sight but he was very busy at the time monitoring the transit of R118 across the airport. He also was communicating with another aircraft and an engineering vehicle.

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[10] **ADI:** Aerodrome Control Instrument rating endorsement for EIKN.
[11] **APP:** Approach Control Procedural rating endorsement for EIKN.
[12] **DME:** Distance Measuring Equipment.
[13] **NDB**: Non-Directional Beacon.

The AMC stated that he had experience of aircraft conducting calibration flights before, but not with two aircraft at the same time. He felt that in hindsight he should have grounded one until the first aircraft had completed its task.

At his previous location [Weston] there was a radar feed from Dublin Airport which was utilised solely as an advisory aid to the controllers. He considered that this was very beneficial to the operation, as they could verify position reports and compliance with instructions given to aircraft, and it also served as a "*second pair of eyes*" for the controller.

With regard to documentation on the calibration procedures, the AMC confirmed that he had documentation for the ILS element but not the NDB procedure for CAL01 and in respect of CLB205 he had no documentation for the VOR/DME calibration.

1.4.3 Senior Air Traffic Control Officer (SATCO)

The SATCO was advised of the reported AIRPROX at approximately 12.25 hrs by the AMC. On arrival in the Tower he relieved the AMC from his position and was briefed on the event. The SATCO remained in position for the next 3 hours and in the intervening period he managed to also speak with the flight crews of both calibration aircraft.

He stated that the Flight Crew of CLB205 were quite adamant that it was an AIRPROX whilst the Flight Crew of CAL01 appeared less convinced. He went on to describe the lack of documentation available and short notice received in regard to the calibration. Having spoken to the concerned parties, he assessed that ATC did not contribute to the AIRPROX and he restored the AMC back to active duty. He stated that in his opinion the availability of a display of radar data would have been of benefit in preventing the incident.

1.5 Navigation Aids

1.5.1 General

EIKN is equipped with a CAT[14] I/II ILS with an associated marker beacon and NDB '*OK*' on RWY 27. It also has an NDB *'KNK'* located 3.7 NM from the RWY 09 threshold. The airport is also equipped with a VOR/DME *'CON'* that provides a non-precision VOR/DME approach facility to RWY 09/27. The ILS and NDBs are the property of EIKN airport and the VOR is the property of the IAA. In order to ensure that the navigation aids are operating within certified limits, the ILS is required to be flight checked every 6 months and the VOR every 12 months. The NDBs are checked every 12 and 18 months respectively. Both EIKN and the IAA have individual responsibility for ensuring that the calibration checks are completed within the required time frame. The EIKN Manual of Air Traffic Service (MATS) contained no ATC procedures to address simultaneous calibration operations.

1.5.2 ILS Calibration

On the day of the occurrence CAL01 was conducting a routine 6 monthly check on the ILS and was also inspecting both the NDBs. The calibration checks on the ILS include a series of "profiles" flown by the aircraft. Copies of these profiles are available to the controllers and the flight crew advises which profile is to be flown prior to commencement of each procedure.

[14] **CAT:** Category of ILS

Just prior to the occurrence, CAL01 was performing a Profile 04 (**Section 1.1.2 Graphic No. 1**). When the calibrating aircraft is flying within 10 degrees of the runway centreline, there is a requirement that no other aircraft or vehicle is between the ILS flight check aircraft and the antennae that is being checked. This is to ensure an uninterrupted signal during calibration.

1.5.3 VOR/DME Calibration

Elements of the calibration checks on the VOR include flying standard VOR approaches to each runway followed by go-arounds as required. Just prior to the occurrence, CLB205 was conducting a standard VOR/DME approach to RWY 27.

1.5.4 Flight Inspection Approvals

Both calibration companies were approved by the IAA to carry out flight inspections on navigation equipment on behalf of Air Navigation Service Providers (ANSPs). In addition both companies had conducted flight inspections on navigation equipment at EIKN previously.

1.6 Radar Surveillance

1.6.1 General

At the time of the occurrence there was no displayed radar information provided to air traffic controllers at EIKN. The radar unit at the Shannon Area Control Centre (SNN ACC) had secondary surveillance radar (SSR) capable of tracking traffic at EIKN down to an altitude of approximately 1,500 ft. SSR is capable of interrogating a transponder unit fitted to an aircraft. The aircraft transponder returns electronic information containing a four digit identification squawk code and, along with the 'IDENT', the transponder is capable of transmitting information on altitude and other information. Both CLB205 and CAL01 were equipped with transponder units. CLB205 was assigned code 3226 and CAL01 was assigned code 0024.

1.6.2 Flight Path Information

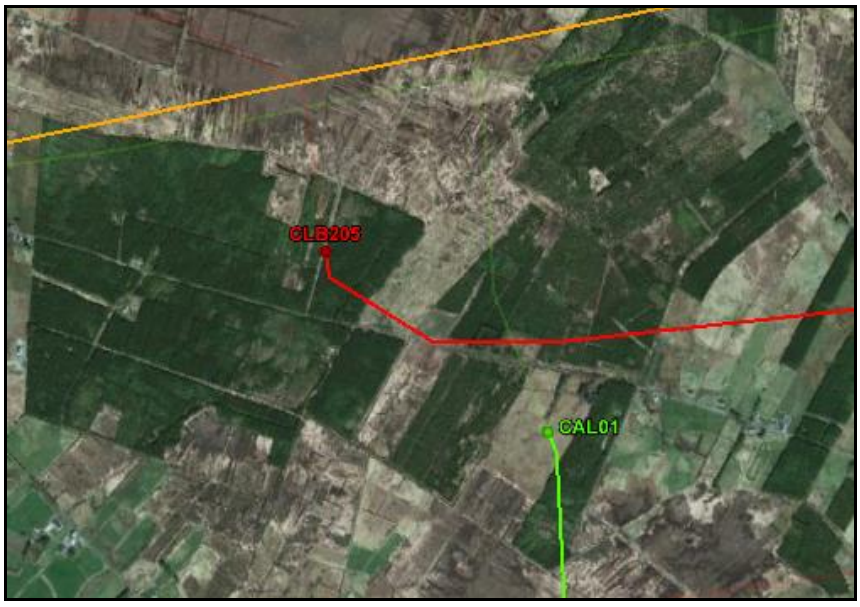
The Investigation utilised a number of different navigation sources to determine the flight path of both aircraft. At 12.15:18 hrs, when CAL01 reported just at the start point of Profile 04, it was 5 NM south of the centreline and CLB205 was approximately 8.5 NM from touchdown on a VOR approach to RWY 27. From this point onwards both aircraft were on converging tracks.

At the point of minimum separation, the uncorrelated radar trace from the Shannon ACC (**Graphic No. 1**) showed that CLB205 (squawk 3226) was at 2,200 ft (A22) descending, while CAL01 (squawk 0024) was level at 2,200 ft (A22) and the two aircraft were 0.4 NM apart.

More detailed analysis of the radar data determined that the minimum separation was 0.42 NM laterally with zero vertical separation.

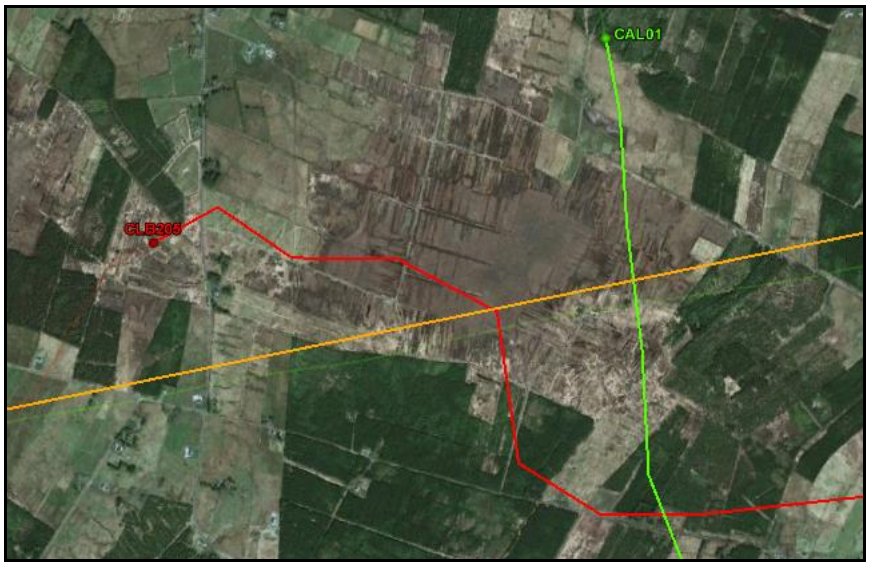
Graphic No. 1: Radar return at minimum separation

Following the completion of the evasive manoeuvre by CLB205, the projected flight path of CAL01 identifies that the aircraft would cross and pass behind CLB205 (**Graphic No. 2**).



Graphic No. 2: Projected flight path of CAL01 (Green) to cross and pass behind CLB205 (Red)
(The amber line indicates the extended centreline for RWY 27)

In calculating an approximate point at which CAL01 reported observing the CLB205 in their 8 o'clock position, the Investigation determined that CLB205 was commencing a left turn back to the runway, while CAL01 was approximately 0.4 NM north of the extended centreline for RWY 27 and continuing on the Profile 04 arc (**Graphic No. 3**).



Graphic No. 3: Approximate point where CAL01 would have observed CLB205 in the 7- 8 o'clock position

1.6.3 Previous Investigation regarding non-availability of Radar Information

1.6.3.1 General

The AAIU previously investigated a serious incident near Kerry Airport (EIKY) in July 2009 where a Controlled Flight into Terrain (CFIT) by a business jet was averted (**AAIU Synoptic Report No: 2010-012**). In that particular case the safe outcome was attributed to the flight crew being alerted to closure with terrain by their Enhanced Ground Proximity Warning System (EGPWS). In addition, there was an intervention by a radar controller in Shannon, who had been monitoring, but not controlling the flight, and who phoned Kerry Tower and directed the controller to instruct the aircraft to climb immediately.

The lack of radar information at EIKY was determined by the Investigation to be a contributory factor in the occurrence and a safety recommendation was made to the aerodrome licensee in conjunction with the IAA with regard to the provision of radar display information at EIKY.

1.6.3.2 Follow up on Safety Recommendation

The IAA informed the Investigation of the following:

"Kerry and Ireland West Airport at Knock (IWAK) have now procured and received Air Traffic Monitor (ATM) equipment. Both Air Navigation Service Providers will commence operations using radar data supplied from the Irish Aviation Authority's surveillance systems located in the Shannon area.

At a later stage, subject to National Supervisory Authority (NSA) acceptance, data from local ADS-B[15] receivers procured as part of this programme will also be integrated into their ATM. At present both Kerry and IWAK are awaiting completion of the commissioning and testing of their radar data lines to Shannon.

[15] **ADS-B:** Automatic Dependent Surveillance – Broadcast.

Kerry provided a draft safety case to the NSA in January 2014 and comments have been provided in response (IWAK are collaborating with Kerry in terms of the development of their safety documentation). A training programme for operational personnel is under development and will be submitted to the NSA shortly.

Subject to NSA acceptance, it is anticipated that both Kerry and IWAK will deploy the ATM monitors operationally in late Q1 or Q2 of 2014".

1.7 Meteorological Information

Met Éireann, the Irish Meteorological Service, provided the following weather situation at EIKN for the time of the occurrence.

EIKN lay within a broad area of low pressure with a decaying occluded front just to the west of Ireland. A moderate to fresh west to northwest flow dominated.

- Surface wind: 270/18 kts
- Visibility: 10+ km
- Cloud: Scattered at 1,600 ft
- Temperature: 12˚C
- Dew point: 9˚C
- QNH: 1009 hPa[16].

13 **1.8 Traffic Advisory System**

CLB205 was equipped with a TAS. This system monitors the airspace around the aircraft and advises the flight crew where to look for a transponder equipped aircraft that may pose a traffic/collision threat.

Traffic information on the display generally includes the range, relative bearing and relative altitude of the intruder aircraft. The system may also provide for aural or visual indications to the flight crew. An amber/yellow warning indicates that traffic is within 0.55 NM and +/- 800 ft of the aircraft. The TAS is limited to traffic information in the form of a 'Traffic Advisory' (TA) only and does not provide 'Resolution Advisory' (RA) information which is available on more advanced systems such as the Traffic Collision Avoidance System (TCAS) that are fitted on larger commercial aircraft. CAL01 was not equipped with TAS or TCAS nor was either aircraft required to carry TAS or TCAS.

[16] **hPa:** Hectopascal – a unit of measurement of atmospheric pressure equal to one millibar.

2. ANALYSIS

2.1 General

An AIRPROX Report is made when, in the opinion of a pilot or ATS personnel, the distance between two aircraft as well as their relative positions and speeds have been such that the safety of the aircraft involved may have been compromised.

In this particular case, a sequence of events led to a situation whereby two calibration aircraft operating towards and across the same runway approach at EIKN narrowly avoided a collision. Crucial elements in the sequence of events were poor communications between all interested parties concerned, the attempt by EIKN ATC to procedurally control two calibration aircraft operating on conflicting flight paths and the fact that neither aircraft questioned this situation.

2.2 Planning/Briefing

The first notification that the AMC at EIKN had with regard to the pending arrival of the two calibration aircraft was when the flight plans arrived in the control tower that morning. While EIKN Airport Technical Services and IAA Engineering Shannon separately arranged to have the calibrations undertaken, neither party communicated this to each other, nor did they pre-advise EIKN ATC of the pending calibration schedule. Had this been done it is considered likely that an alternative arrangement would have been put in place to ensure that two calibration aircraft did not operate together at the same time in a procedural/non-radar environment.

In any event, the details were only subsequently confirmed by ATC following telephone contact with both engineering sections. A safety recommendation has thus been made to relevant parties with regard to planning and scheduling of calibration flights.

The procedures of both calibration companies required that flight check documentation and briefings are provided to ATC. In this particular case, CAL01 documentation was available to ATC (specific to the ILS but not the NDB) and supported by a verbal briefing. While the CLB205 documentation was previously sent to the IAA and EIKN, ATC stated that they did not have the VOR procedures on the day. The actual intentions of CLB205 only became apparent to the AMC some 20 minutes prior to their arrival overhead EIKN. In this regard CLB205 did not comply in a timely manner with its own laid down procedures.

Thus the AMC was presented with an unusual and initially confusing situation which allowed him little time to consider and plan the integration of the traffic in a procedural environment. Consequently, a safety recommendation has been made to relevant parties with regard to the provision of documentation and briefings prior to the commencement of flight calibration operations.

While the AMC had previous experience of flight calibration operations, he had not experienced a situation whereby two calibrator aircraft were operating at the same time in the same airspace. Furthermore, the EIKN Manual of Air Traffic Service (MATS) had no ATC procedures to address simultaneous calibration operations.

The nature of flight calibration is such that the aircraft operates in a non-standard flight path mode, i.e. crossing flight paths to a runway in use and operating in close proximity to the airport. Such operations have the potential to conflict with the normal flow of traffic to the runway being calibrated.

Therefore in a non-radar environment, where separation can only be achieved through, procedural, geographical or visual means, calibration flights should be limited to one aircraft operating on or towards the approach of the particular runway being calibrated. In this regard a safety recommendation has been made to the regulator to review procedures with regard to planning and scheduling of calibration flights in Ireland.

2.3 The Occurrence

As EIKN had no displayed radar information at the time of the occurrence the only methods available to the AMC in providing separation between aircraft was through either visual or geographical reporting means in a procedural environment.

Initially the AMC opted to use geographical reporting by holding CAL01 south of the airport until CLB205 completed the approach to RWY 27. When CAL01 advised ATC that they were holding and ready to start the profile, the AMC instructed CAL01 to continue to hold. At this particular point adequate separation was still being applied by the AMC. Following a second call from CAL01, the AMC stated that; "*I am just going to turn you in behind the ah other calibrator"* (CLB205). This was followed by his comment that; "*it's kinda very unusual for us to have both of ye here at the same day".*

This indicates that the AMC was uncomfortable with the general traffic situation with which he was confronted. However, having allowed CAL01 to get airborne, it is probable that the AMC felt a certain degree of pressure to facilitate both calibration aircraft at the same time.

In the opinion of the Investigation the AMC transmission of; "*I am just going to turn you in behind the ah other calibrator"* did not constitute an actual ATC clearance to commence the profile run, but rather an intention. However, some 24 seconds later (12.15:18 hrs) CAL01 reported; *"Just at the start point now for the Profile 04, if you are happy we would like to continue out passing behind the other calibrator".* The AMC acknowledged this and instructed CAL01, *"you can report the profile complete".* This is the point at which the AMC deviated from his original plan of holding CAL01 to allowing the aircraft to commence the profile.

CAL01 was not on a flight plan but was operating VFR and when CAL01 requested, *"to continue out and passing behind the other calibrator"*; it is probable that the AMC took this to imply that the CAL01 had CLB205 in sight and that CAL01 would maintain its own separation from CLB205. This would have removed the need for the AMC to maintain visual contact with both aircraft. Nonetheless this did not take away the responsibility of the AMC to issue essential traffic information to CLB205, which was IFR at the time, regarding CAL01's intentions.

The Flight Crew of CAL01 stated that CLB205 had reported 6 NM (DME) from the airport before they commenced the Profile 04 procedure. However, no reference was found on the ATC recording of a position report at 6 NM by CLB205.

This mistaken belief led the Flight Crew of CAL01 to believe that as they passed the start point of their Profile 04, CLB205 was well clear of their projected flight path, which would have placed the CLB205 some 2-3 NM from touchdown as CAL01 crossed the localiser/extended centreline.

In reality, at the commencement of the Profile 04, CAL01 was 5 NM south of the localiser for RWY 27 and CLB205 was 8.5 NM from the RWY 27 threshold tracking inbound on the VOR. Whilst the Flight Crew of CLB205 was aware of the other calibration, they were not familiar with the term 'Profile 04' and had no knowledge of CAL01's planned procedure. Their flight was operated on the basis that they were on an IFR flight plan, they had been cleared for the VOR approach and that no other traffic would be allowed infringe on their flight path. Their initial concern for an aircraft in close proximity was generated from the TAS followed shortly thereafter by a 'yellow' warning. This prompted the Flight Crew of CLB205 to initiate the avoiding action involving a sharp turn to the right and descending below 1,500 ft where they became clear of cloud (VMC conditions).

CAL01 had a requirement as per their own procedures to ensure that full ILS protection was available when the aircraft was flying within 10 degrees of the runway centreline. CAL01's belief that CLB205 was 2-3 NM from touchdown impinged on the required protection for Profile 04 as CLB205 would have been between the localiser antenna and the ILS calibration CAL01. Regardless of this, CAL01 proceeded with Profile 04. While the recordings on the day showed no disturbance on the calibration plot by not ensuring the required protection, the Flight Crew of CAL01 was not in compliance with their own written procedures. A safety recommendation has thus been issued with regard to compliance with procedures.

The combination of the AMC's belief that CAL01 had CLB205 in sight and the false understanding by the Flight Crew of CAL01 that CLB205 had reported 6 NM, created a situation whereby both the AMC and the Flight Crew of CAL01 felt that proceeding with the profile was safe and that the required separation between the calibrations was not an issue.

On the basis of the report by the Flight Crew of CLB205, that they were descending in IMC conditions at the time of the AIRPROX, and CAL01 reporting that they were operating in and out of cloud and just beneath the cloud base, it is difficult to reconcile how the AMC could have maintained visual contact with the calibration aircraft during this period. Equally, the prevailing weather conditions were not conducive to CAL01 being able to remain fully VFR while operating in Class C Airspace. Furthermore, it is unlikely that CAL01 was able to remain fully VFR, as instructed by ATC on departure, and to have visual contact with CLB205.

Due to lack of position update checks, it is probable that the AMC was not fully aware of the relative positions of both calibration aircraft when he approved the Profile 04 procedure. Had CLB205 reported at 7 NM, as instructed, it would have updated the AMC of its position and may have alerted CAL01's commander to his erroneous understanding regarding a report of 6 NM.

Similarly, had the AMC provided essential traffic information to CLB205 that CAL01 was commencing the Profile 04 procedure; it may have prompted CLB205 to query ATC regarding the position of CAL01. Nevertheless, when CAL01 commenced its Profile 04 arc approximately 5 NM south of the final approach path (RWY 27) centreline and CLB205 was inbound at approximately 8.5 NM for the VOR approach to RWY 27, both aircraft were on converging tracks.

2.4 Minimum Separation

Analysis of the flight path information determined that at the time the evasive manoeuvre was initiated by CLB205, CAL01 was about to cross and pass behind CLB205 at the same level. The only information available to either flight crew on the position of both aircraft relative to each other at that time was from the TAS on CLB205.

The evasive manoeuvre initiated by CLB205, whilst appropriate in the circumstances, was not deemed by the Investigation to have contributed to the reduction in the risk of a collision, as the manoeuvre was performed after minimum separation had been reached. This evasive action did however increase the rate of divergence in the vertical plane between the two aircraft following minimum separation.

Minimum separation was calculated at a lateral distance of 0.42 NM with no vertical separation and this situation came about without any corrective intervention by either aircraft or ATC. As per ICAO Doc 4444, the risk classification for this particular occurrence was that of an aircraft proximity in which a serious risk of collision existed, i.e. Risk of Collision.

The current requirement for the carriage of TCAS is that it must be fitted to all aircraft with a maximum take-off mass (MTOM) of over 5,700 kg (12,600 lb) or aircraft authorised to carry more than 19 passengers. While CLB205 was carrying TAS, neither aircraft where mandated to carry TAS or TCAS. However, the nature of calibration operations is such that they require non-standard aerodrome traffic manoeuvres, sometimes contrary to the normal flow of line traffic, in close proximity to arriving and departing commercial aircraft. The availability of TCAS in such an operational environment would enhance flight crew situational awareness and reduce the risk of a reduction in separation and a safety recommendation has been made to the European Aviation Safety Agency (EASA) in this regard.

2.5 Post Minimum Separation

The Flight Crew of CAL01 reported visual sighting of CLB205 at a point 6 degrees south of the localiser. However, an analysis of the flight paths determined that the likely position for this reported sighting could only have occurred when both aircraft were to the north of the localiser (Graphic No. 3) i.e. post occurrence. From that position both aircraft went on to land at EIKN without further incident.

2.6 Radar Display Information

At the time of the occurrence no radar display was available at EIKN. Therefore ATC were solely dependent on visual observation and aircraft position reports to maintain situational awareness for aircraft separation in a procedural environment.

While the Investigation recognises that a significant contributory factor in this occurrence was the acceptance of two calibration aircraft conducting operations across and towards the same runway approach in a procedural environment, it is clear that the provision of a radar display feed would have enhanced overall situational awareness for EIKN ATC. This is considered on the basis that such information is utilised solely as an advisory aid to the controllers, so that they can verify position reports/compliance with ATC instructions.

An updated position with regard to the provision of radar information has determined that both EIKY and EIKN are at the final stages of deploying air traffic monitors operationally by Q2 of 2014. Therefore the Investigation considers that no further safety recommendation is required in that regard.

3. CONCLUSIONS

(a) Findings

1. The AMC held a valid and current IAA licence with EIKN endorsements for Aerodrome (ADI) and Approach Control Procedural (APP).
2. The Flight Crew of CLB205 and CAL01 were appropriately licensed.
3. Both aircraft had the appropriate approval for flight inspection/aerial work issued by the IAA Flight Operations Division.
4. There was no prior notification by IAA Engineering Shannon to Airport Technical Services EIKN or ATC EIKN with regard to completing the unfinished calibration of the VOR at EIKN. Nor was there prior notification by Airport Technical Services EIKN to ATC EIKN of the planned ILS calibration.
5. There was a lack of adequate prior notice between the Service Provider of the VOR calibration aircraft (CLB205) and the ATC service in regard to their intentions on the day.
6. The AMC was presented with an unusual and initially confusing situation of two aircraft arriving at EIKN seeking to conduct calibration flights on two different navigation aids serving the same runway.
7. While VMC conditions prevailed, the cloud base conditions at the time of the event in the specific area of conflict were not conducive to visual contact being maintained between both aircraft and between ATC and both aircraft during the calibration operations.

8. In an attempt to accommodate and expedite the calibration traffic, the AMC deviated from his original plan of holding one aircraft and allowed CAL01 to proceed with the Profile 04 procedure while the other aircraft (CLB205) was still established inbound on the VOR to RWY27. This compromised the separation that he previously established between the two aircraft.

9. While the AMC previously passed traffic information to both calibrators and the transiting helicopter, he did not inform CLB205 of essential traffic information regarding CAL01.

10. It is probable that the AMC was of the belief that CAL01 had visual contact with CLB205 as the Flight Crew requested to continue outbound behind the other calibration aircraft.

11. The Flight Crew of CAL01 was of the mistaken belief that CLB205 had reported at 6 NM, prior to commencement of their Profile 04 procedure and the transmission by CAL01 that they would pass behind the other calibration.

12. From a position where CAL01 was 5 NM south of the final approach path (RWY 27) centreline and CLB205 was 8.5 NM inbound on the VOR approach, both aircraft were on converging tracks towards the minimum separation position.

13. CAL01 did not comply with its own procedures to ensure that full ILS protection was available when the aircraft was flying within 10 degrees of the runway centreline.

14. The AMC and the flight crew of both aircraft suffered a loss of situational awareness with regard to the true positions of each aircraft during the calibration operations.

15. The minimum separation was calculated as 0.42 NM horizontal, with zero vertical separation.

16. Neither calibration aircraft made visual contact with each other until after the evasive manoeuvre had been initiated, therefore, it is considered fortuitous that the outcome was not more serious.

17. The ICAO risk classification for this particular occurrence was that of an aircraft proximity in which a serious 'Risk of Collision' existed.

18. The evasive manoeuvre performed by CLB205 did not contribute to a reduction in the risk of a collision between the two aircraft, as the manoeuvre was performed after minimum separation had been reached.

19. At the time of the occurrence no radar display was available at EIKN. Therefore ATC were solely dependent on visual observation and aircraft position reports to maintain situational awareness for aircraft separation in a procedural environment.

20. The use of TCAS for calibration aircraft would enhance flight crew situational awareness and reduce the risk of a reduction in separation while performing such operations.

(b) Probable Cause

Inadequate separation in a procedural environment between two aircraft conducting different calibration flights on navigation aids serving the same runway.

(c) Contributory Cause(s)

1. Lack of prior and timely coordination between the engineering sections, the calibration companies and EIKN ATC with regard to the notification and planning of proposed navigation aid calibration.

2. An attempt by EIKN ATC to simultaneously accommodate two calibration aircraft under visual and instrument flight rules in a procedural environment.

3. The decision by the VFR aircraft (CAL01) to continue to operate in prevailing weather conditions that did not comply with the flight conditions applicable to VFR operations within Class C airspace.

4. The non-availability of displayed radar information to assist EIKN ATC in verifying position reports and compliance with instructions by aircraft operating in its procedural environment.

4. SAFETY RECOMMENDATIONS

No.	It is Recommended that:	Recommendation Ref.
1.	The Licensee of Ireland West Airport at Knock review procedures relating to calibration flights, in particular with regard to planning, scheduling, calibration documentation and the requirement for face to face briefings.	IRLD2014013
2.	The Irish Aviation Authority review procedures with regard to the planning and scheduling of calibration flights in Ireland, to ensure that all such activities are subject to Aerodrome and Air Navigation Service Provider Safety Management System processes, particularly where there may be a requirement for proximate calibration by more than one aircraft.	IRLD2014014
3.	Cobham Flight Inspection Limited conduct a general review of their flight calibration procedures to ensure that an adequate and timely briefing is provided to ATC prior to conducting calibration flights.	IRLD2014015
4.	Flight Calibration Services conduct a general review of their calibration flight procedures and practices and in particular ensure that their VFR calibration flights comply with the flight conditions applicable in Class C airspace.	IRLD2014016
5.	The European Aviation Safety Agency (EASA) should consider a requirement for calibration aircraft operating in Europe to be fitted with TCAS.	IRLD2014017

View Safety Recommendations for Report 2014-005

- END -

Appendix A
Transcript of Ireland West Airport (EIKN)

Date: 22-04-2013		Time: 1203.32 To 1218.07
Time (UTC)	TX By	Transcript
12:03.32	T.3	Tower Tango three vacated at fire access road
12:03.36	130.7	Tango three Tower thanks
12:03.41	130.7	Calibrator two zero five Tower report position
12:03.43	CLB205	Calibrator two zero five turning inbound for the final approach track zero nine
12:03.49	130.7	Roger
12:03.54	130.7	Flight CAL zero one Tower
12:03.57	CAL01	Flight CAL zero one go ahead
12:03.59	130.7	Okay I just got the other calibrator on approach for zero nine at the moment, ah if you wish you can get airborne maintain VFR and just hold to the south and we will get you in for the Profile Four
12:04.08	CAL01	Thanks then were happy with that flight CAL zero one
12:04.11	130.7	Flight CAL zero one roger cleared take off two seven, two seven zero two zero knots make a left turn to hold south of the field maintain VFR not above two thousand feet
12:04:19	CAL01	Cleared take off two seven left turn cleared not above two thousand feet
12:05.24	CAL01	Flight CAL zero one requesting QFE
12:05.27	130.7	QFE for threshold runway two seven is niner eight five hectopascals
12:05.32	CAL01	Niner eight five thanks flight CAL zero one
12:06.12	BEE4GL	Tower hello again its Jersey four golf lima requesting your current weather please
12:06.17	130.7	Jersey four golf lima the wind two seven zero one eight knots runway two seven temperature twelve degrees QNH one zero zero niner and I have your clearance if you are ready to copy
12:06.26	BEE4GL	That's all copied QNH one zero zero nine and go ahead Jersey four golf lima
12:06.32	130.7	Four golf lima cleared to Manchester direct to Liffy flight level two five zero Squawk seven seven two zero
12:06.41	BEE4GL	Cleared to Manchester and after departure direct Liffy climb flight level two five zero Squawk seven seven two zero Jersey four golf lima
12:06.47	130.7	Jersey four golf lima read back correct
12:06.56	R118	Tower good afternoon to you
12:06.57	130.7	Rescue one one eight Connaught
12:07.00	R118	Hello sir just ten miles south of Sligo on route to Galway, We're at twelve hundred feet one double O nine is the QNH our current track takes us between your Oscar Kilo and you're field Rescue one one eight.
12:07.11	130.7	Rescue one one eight roger that's understood., Connaught QNH one zero zero nine report the boundary to the North
12:07.16	R118	OK WILCO thanks anything to affect this morning
12:07.22	130.7	Ah Rescue one one eight I have Calibrator aircraft just holding at the South of the field at not above two thousand feet and a second Calibrator aircraft operating at three thousand one hundred feet inbound for a VOR approach zero nine
12:07.36	R118	That's copied we're at twelve miles Rescue one one eight
12:07.39	130.7	Roger
12:07.43	CAL01	Flight CAL zero one we are holding and we are ready to start our Profile zero four
12:07.48	130.7	Roger will have to hold you ah just , just can you give us a radial and your distance now from where your holding
12:08.03	CAL01	One five zero at five miles flight CAL zero one
12:08.09	130.7	Roger, if you just hold there for the moment I do have a rescue helicopter Rescue one one eight VFR twelve thousand ah twelve hundred feet on route to Galway will be passing between the Oscar Kilo and the field
12:08.21	CAL01	OK Tower holding current position flight CAL zero one
12:08.44	130.7	Calibrator two zero five report position
12:08.50	CLB205	[Unreadable]

12:08.53	130.7	Two zero five say again
12:08.56	CLB205	Thru threshold now two zero five
12:09.00	130.7	Two zero five roger continue straight ahead to ah three thousand feet and report established outbound for the VOR DME approach runway two seven
12:09.10	CLB205	Was that for the Calibrator two zero five Calibrator two zero five
12:09.13	130.7	Continue straight ahead to a three thousand feet
12:09.24	R118	Connaught Tower Rescue one one eight ten miles now we are currently at zero four zero radial
12:09.31	130.7	Rescue one one eight report abeam the field
12:09.34	R118	Roger WILCO Rescue one one eight
12:10.01	130.7	Calibrator two zero five report maintaining three thousand feet and established inbound for the approach
12:10.07	CLB205	Maintain three thousand feet established inbound for the approach Calibrator two zero five
12:10.16	BEE4GL	Jersey four golf lima request start on stand
12:10.20	130.7	Jersey four golf lima with the marshaller start approved
12:10.23	BEE4GL	Start approved with the marshaller Jersey four golf lima
12:10.27	130.7	Flight CAL zero one what's your altitude for this run
12:10.36	CAL01	Ah its two thousand one hundred feet flight CAL zero one
12:10.42	130.7	Roger thanks
12:10.45	CAL01	One thousand five hundred flight CAL zero one
12:10.50	130.7	Roger
12:11.21	CLB205	Tower Calibrator two zero five altitude three thousand feet
12:11.24	130.7	Two zero five roger report established inbound
12:11.28	CLB205	WILCO Calibrator two zero five
12:11.45	130.7	Rescue one one eight just traffic to the ah east and south east of the field will ya just track towards the overhead please
12:11.53	R118	Roger WILCO Rescue one one eight
12:12.10	RYR482	Connaught Tower Ryanair four eight zulu good afternoon
12:12.14	130.7	Ryanair four eight zulu Connaught
12:12.16	RYR482	Can we get the; will be landing at three six, we don't need any fuel and we don't have any specials can we get latest weather update please
12:12.27	130.7	Four eight zulu Tower the wind two seven zero one eight knots visibility ten kilometres cloud scattered at one thousand six hundred feet temperature one two degrees dew point niner QNH one zero zero niner except ILS approach runway two seven
12:12.46	RYR482	That's ah copied QNH one zero zero niner runway two seven in use Ryanair four eight zulu
12:12.53	130.7	Temperature is one two degrees the dew point niner
12:12.58	RYR482	That's copied thanks very much see ya in a bit Ryanair four eight zulu
12:13.08	T.3	Tower Tango three located fire access road request proceed across to the glide
12:13.12	130.7	Tango three tower proceed
12:13.15	T.3	Tango three proceeding thank you
12:13.19	CLB205	Tower Calibrator two zero five is turning inbound for the VOR procedure two seven
12:13.24	130.7	Two zero five roger maintain three thousand feet for the moment please and em report at seven miles
12:13.31	CLB205	Maintain three thousand feet for the moment report seven miles calibrator two zero five
12:13.38	130.7	Rescue one one eight in sight you can take a direct track to Galway now report crossing the extended centreline
12:13.44	R118	…WILCO Rescue one one eight
12:13.58	CLB205	Tower Calibrator two zero five
12:14.00	130.7	Two zero five Tower
12:14.02	CLB205	Ya you asked us your previous was to maintain three thousand till seven DME our approach on the procedure final approach fix is descent at seven point eight confirm please
12:14.11	130.7	Roger you're cleared for the approach now there is traffic just ah crossing ah north to south is about a mile from the threshold two seven

12:14.21	CLB205	Roger cleared for the approach copied traffic calibrator two zero five
12:14.26	T.3	Tower Tango three vacated at the glide
12:14.29		[Cross Transmission]
12:14.34	130.7	Tango three Tower roger
12:14.35	CLB205	That was the Calibrator two zero five
12:14.39	130.7	Calibrator two zero five ah you crossed say again
12:14.42	CLB205	Approach two zero five after this VOR DME approach we would like to do a visual circuit for full stop please
12:14.47	130.7	Two zero five roger that's understood report in the go around
12:14.50	CLB205	Ok Calibrator two zero five
12:14.52	CAL01	Approach flight CAL zero one
12:14.54	130.7	Flight CAL zero one Tower I am just going to turn you in behind the ah other calibrator its kinda very unusual for us to have both of ye here at the same date day
12:15.06	CAL01	We are like busses we are
12:15.10	R118	Tower Rescue one one eight
12:15.12	130.7	Rescue one one eight thank you report the boundary outbound
12:15.14	R118	WILCO
12:15.18	CAL01	Flight CAL zero one just at the start point now for the Profile zero four if your happy we would like to continue outbound out and pass behind the other calibrator
12:15.25	130.7	Calibrator ah flight CAL zero one that's understood and you can report the profile complete
12:15.31	CAL01	WILCO thanks
12:15.36	BEE4GL	Jersey four golf lima request taxi
12:15.39	130.7	Jersey four golf lima taxi alpha hold short runway two seven
12:15.42	BEE4GL	Alpha hold short two seven jersey four golf lima
12:17.05	130.7	Jersey four golf lima the initial waypoint has been cancelled by Shannon on departure now be direct the Dublin VOR
12:17.13	BEE4GL	After departure its direct ah Dublin VOR Jersey four golf lima
12:17.27	CLB205	Connaught tower Calibrator two zero five breaking off the approach request straight in full stop
12:17.32	130.7	Roger cleared to land runway two seven the wind two seven zero one seven knots
12:17.37	CLBL205	Cleared two seven Calibrator two zero five
12:17.45	CAL01	Flight CAL zero one we're finished with protection
12:17.50	130.7	Flight CAL zero one roger
12:17.52	CLB205	Calibrator two zero five we're filing a AIRPROX
12:18.02	CLB205	Ah Calibrator two zero five do you copy
12:18.04	130.7	Two zero five affirm you can ah give us a call when you land
12:18.07	CLB205	Affirm
		-END-

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No. 996/2010, and Statutory Instrument No. 460 of 2009, Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulation, 2009, the sole purpose of this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such investigation and the associated investigation report to apportion blame or liability.

A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.

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