

**Final Report  
of the Aircraft Accident  
Investigation Bureau**

concerning the incident (Airprox)

between CRX609 and EZS974

on 24 June 2002

in the region of INDIS, on the ILS of runway 05 at Geneva

AIRCRAFT ACCIDENT INVESTIGATION BUREAU

# FINAL REPORT

## AIR TRAFFIC INCIDENT REPORT (ATIR) AIRPROX (NEAR COLLISION)

THIS REPORT HAS BEEN PREPARED FOR THE PURPOSE OF ACCIDENT/INCIDENT PREVENTION. THE LEGAL ASSESSMENT OF ACCIDENT/INCIDENT CAUSES AND CIRCUMSTANCES IS NO CONCERN OF THE INCIDENT INVESTIGATION. (ARTICLE 24 OF THE AIR NAVIGATION LAW)

PLACE In the region of INDIS, on the ILS of runway 05 at Geneva

DATE/TIME 24 June 2002 / 16:25 UTC

AIRCRAFT 1) CRX609 (SWISS); Embraer ERJ145; Paris-Roissy – Geneva  
2) EZS974 (EASYJET SWITZERLAND); Boeing 737-300;  
London-Gatwick – Geneva

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ATS SERVICE Approach Control

CONTROLLER Arrival Controller

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AIRSPACE C

## HISTORY

On Monday 24 June 2002 at 16:25 UTC, flight EZS974, a Boeing 737-300 type aircraft, made a scheduled commercial flight from London-Gatwick to Geneva. During intermediate approach at Geneva, it was guided by the radar controller for the turn to intercept the final approach path of runway 05, at an altitude of 7000ft.

During intermediate approach, lacks of radar detection of the trajectory of flight EZS974 occurred.

During interception turn of the Boeing 737, an aircraft Embraer ERJ145 type aircraft, flight CRX609, commercial flight from Paris-Roissy to Geneva, was nearing the transition waypoint GG503 at an altitude of 7000ft, following the initial cleared route he had received. It started the interception turn for its final ILS approach on the path of runway 05, on the route to way point INDIS, cutting across the trajectory of the Boeing 737.

The radar controller was surprised at the manoeuvre of the aircraft CRX609 because he was expecting it to continue on its heading as he thought to have cleared it.

He informed it immediately that he should have maintained the heading of 230 degrees and he ordered it to climb to an altitude of 8000ft.

CRX609 turned to its right, climbing to an altitude of 8000ft and informed the controller that he had the traffic in sight.

At that time, the turn executed by the aircraft brought it to cut, in opposite direction, across the converging route of the flight EZS974.

The pilot of the flight EZS974 had a TCAS proximity alert, which was followed by a resolution advisory (RA) ordering him to descend.

The pilot of the flight EZS974 informed the radar controller that he had to descend according the resolution advisory alert of his TCAS.

The minimum distance between the two aircraft as they crossed was 1,4NM and 400ft.

The pilot of the flight CRX609 did not lodge a report.

The pilot of the flight EZS974 filed an internal company report (Air Safety Report).

The radar controller did not file an OIR (Internal Operational Report). He made an annotation in the logbook of the APP Control Service.

An Airprox ATIR was lodged by the Control Tower operations manager.

## FINDINGS

- The runway in service at Geneva was runway 05.
- The 16:20 UTC weather report was as follows: wind 360 degrees at 7 knots, variable between 320 and 060 degrees, visibility 10 kilometers, clouds few at 3500ft, scattered at 4200ft, broken at 7000ft, temperature 23 degrees, dew point 15 degrees, atmospheric pressure 1022 hectopascals, no changes expected.
- Speed limitation was active and the ATIS was informing that turbulences might be expected north-west of PAS and during final approach.
- There was a west wind at flight level 100 (270°/10kts). The meteorological center of la Dôle informed about a wind of 346°/15kts, maximum 18 knots.

- At 16:13:08, first radio call, on the Arrival frequency of Geneva 131.32 MHz, of the flight TOPSWISS 974, which was authorized by the radar controller on the route DINIG 2 NOVEMBRE, for runway 05.
- At 16:15:58, first radio call, on the Arrival frequency of Geneva 131.32 MHz, of the flight SWISS 609, which was authorized by the radar controller on the route DINIG 2 NOVEMBRE, for runway 05.
- *Standard arrival route (RNAV STAR) DINIG 2 NOVEMBRE transition: DINIG (IAF) GG513 KERAD GG503 (left turn FLY BY) INDIS (IF) BELKA (FAP, FLY OVER) FINAL APCH 05.*
- Both aircraft followed an identical route.
- There was heavy inbound traffic. Within 16 minutes, nine aircraft were in approach sequence, seven of them were under radar vectoring,
- At 16:20:05, the aircraft CRX609 was authorized to descend to 7000ft on the QNH 1022, its position was 18 NM from the way point GG503 and it was flying on the heading of 230 degrees, on the left hand downwind leg.
- At 16:20:39, the aircraft EZS974 was authorized to descend to 7000ft on the QNH 1022, its position was 9,5 NM from the way point GG503, on the left hand downwind leg. The radar controller ordered it to maintain the heading of 226 degrees.
- At 16:22:44, the aircraft EZS974 was instructed to fly the radar heading of 140 degrees to its left. Its position was 1 NM from the way point GG503.
- At 16:22:51, the radar controller rectified this heading and ordered a new heading to maintain: 180 degrees.
- At 16:23:07, the aircraft EZS974 was authorized to reduce its speed to 160 knots and to maintain that speed to 4 NM in final approach runway 05.
- At 16:23:10, according to the recording of the radar plots, a lack of radar detection of the trajectory of the flight EZS974 occurred, resulting in an erroneous position.
- At 16:23:35, according to the recording of the radar plots, a lack of radar detection of the trajectory of the flight EZS974 occurred, resulting in two erroneous positions. In consequence of that lack of detection, the following position gave the impression that the track moved backward.
- At 16:23:47, according to the recording of the radar plots, the radar plotting was again presenting the normal trajectory of the flight EZS974.
- At 16:24:03, The aircraft CRX609 started at 1,5 NM before the way point GG503 a left turn heading to the way point INDIS, without mentioning it.
- During the telephone interview with the investigator, the pilot of the flight CRX609 admitted that the control frequency was overloaded at that time and that he tried to avoid a possible blocking of the frequency.
- During his interview, the radar controller declared that his attention was diverted during 15 to 20 seconds by the jumps of the radar plots of the trajectory of the aircraft EZS974 and that he did not notice immediately the initiated turn of the aircraft CRX609.
- At 16:24:19, the aircraft EZS974 was authorized to turn left onto the heading of 050 degrees in order to intercept the final path of runway 05 (localizer) and it was simultaneously authorized for an instrument ILS approach.
- At the same time, the flight CRX609 was turning to its left onto the heading of 180 degrees, at an altitude of 7000ft.

- At 16:24:31, actually 12 seconds later, the radar controller ordered the pilot of the flight CRX609 to take immediately the heading of 230 degrees and to climb to an altitude of 8000ft. He then asked the pilot if he hadn't acknowledged the order to maintain this heading.
- Updated instruction to maintain heading 230 degrees on flight progress strip was recorded.
- It has been established that the radar controller did not order the pilot of the flight CRX609 to maintain the heading of 230 degrees.
- At 16:24:41, the pilot of the flight CRX609 acknowledged the cleared altitude of 8000ft.
- The position of the aircraft was at 4 NM from the center line of the runway 05, perpendicular to it and to the converging trajectory of the aircraft EZS974.
- At 16:24:43, the radar controller ordered the pilot of CRX609 to climb immediately to an altitude of 8000ft and to continue on the heading of 140 degrees in order to position the aircraft south of the approach axis of runway 05.
- At 16:24:50, the pilot replied that he had the traffic in sight and that he was turning to his right for an evasive action.
- At that time, at about 3 NM ahead of him, an AVRO RJ100 type aircraft, the flight CRX1823, was intercepting the final approach axis of runway 05 from the South (track 020°), at an altitude of 6000ft.
- The Approach radar controller replied: "Okay".
- During the telephone interview with the investigator, the pilot of CRX609 declared that he did not follow the instruction to continue on the heading of 140 degrees because he had the traffic in sight.
- The right turn executed by the pilot of CRX609 brought the aircraft to cross in opposite direction the converging route of the aircraft EZS974.
- At this time, the aircraft EZS974 was on an interception heading towards the way point INDIS, at an altitude of 7000ft, north of the axis of runway 05.
- At 16:25:08, the radar controller informed the pilot of CRX609 about "another traffic".
- It concerned the flight EZS974 that was nearing the way point INDIS. He asked the pilot of CRX609 to confirm that he was reaching the altitude of 8000ft.
- The pilot of CRX609 acknowledged positively and reported that he had the traffic in view.
- The radar controller acknowledged the message and authorized the pilot of CRX609 to maintain the heading of 230 degrees to position him behind the aircraft which was on final axis.
- At this time, the position of the conflicting traffic, the flight EZS974, was 2,6 NM in front of him and 500ft below.
- The STCA alert, radar processing function designed to provide with a warning of the imminent loss of separation between aircraft, tripped.
- At 16:25:37, the pilot of the flight EZS974 reported to the radar controller that he had a TCAS alert and a resolution advisory (RA) descent on the runway axis (localizer) 05.
- According to the Air Safety Report of the pilot of the flight EZS974, TCAS ordered him to descend then, in a second phase, to increase his rate of descent. There was a vertical deviation of 800ft. Both pilots had the conflicting traffic in sight.

- At 16:25:43, the radar controller advised the pilot of EZS974 that the conflicting traffic was 1000ft above him and that the problem was resolved. He authorized him for an instrument approach for runway 05 at a speed of 160 knots.
- According to the recording of the radar plots, the minimum distance between the two aircraft as they crossed was 1,4NM and 400ft.
- At 16:28:10, the flight CRX609 was cleared for final instrument approach (ILS) runway 05.
- The radar controller made an annotation in the logbook of the APP Control Service.
- An ATIR ATC was lodged by skyguide.
- The pilot of the flight EZS974 filed an internal company report (Air Safety Report).
- The pilot of the flight CRX609 declared that he filed an internal company report.

## **ANALYSIS**

The incident between the Boeing 737 and the Embraer 145 took place in a dense arrival traffic situation in Geneva; at the time when almost all aircraft in approach sequence were under radar vectoring.

The fact that the radar controller did not maintain the flight CRX609 on its heading when it was on the left hand downwind leg is very likely due to a lapse of memory, all the more because the radar controller adjusted the headings of almost all other aircraft, which could have started untimely inbound turns. He repeated even this order to an aircraft, which did not acknowledge the message.

In consequence, the flight CRX609 which followed the standard approach route DINIG 2 NOVEMBRE started its left turn when nearing the way point GG503, on the way to point INDIS, in compliance with the initial clearance he had received.

Even though the radar controller had forgotten to stabilise him on the heading which he had while flying in the downwind leg, the pilot could have been more watchful with regards to the dense traffic situation in final approach. He could have drawn the attention of the radar controller about his position before starting his base leg turn.

The controller was absolutely sure to have instructed the pilot to maintain his heading while he was on downwind leg. Witness the fact that he recorded it on flight progress strip. He then immediately advised the pilot that he did not comply with his instruction and asked him to verify this fact on his voice recorder.

Furthermore, the controller wrote in the service logbook: " radar detection in this region did not permit to follow accurately the turn (many track jumps, even backward track moving)". It has been effectively established that the radar plotting of the radar trajectory of the flight EZS974 presented some anomalies. This has been analyzed in this report by a radar expert of the Investigation Bureau. It is advisable to note that many malfunctions reports concerning the approach radar were filed and forwarded to the technical service of skyguide before this incident. Radar plotting has been forwarded to the AAIB radar expert.

Even though the controller was disturbed by this radar malfunction that occurred right at the start of the incident, his immediate reaction was to inform the pilot that he should have maintained the heading of 230 degrees and then, he ordered him to climb to an altitude of 8000ft to ensure vertical separation with conflicting traffic EZS974.

The radar controller then tried to resolve the problem by using a new tactical control method to achieve separation. He effectively ordered the pilot of the flight CRX609 to maintain the

heading of 140 degrees and to climb to an altitude of 8000ft. Doing this, the aircraft would have crossed the final approach axis of the runway 05, ahead of the trajectory of the aircraft EZS974, with a standard vertical separation.

However, the pilot advised the controller that he had the traffic in sight and that he was starting a right turn for evasive action. The traffic pointed out by the pilot was very likely not the conflicting traffic.

The controller did not insist because he observed that the turn of the aircraft CRX609 was already initiated and that any correction would have worsened the situation. He informed the pilot about another opposite and conflicting traffic, the EZS974 aircraft.

Given the distance between the parallel and opposite trajectories which was 1,7 NM and the too low rate of climb of the aircraft CRX609 (about 500ft/min, according to the recording of the radar plots), the TCAS alert tripped, followed by a resolution advisory (RA) and the pilot of EZS974 started a rapid descent.

According to the Air Safety Report of the pilot, there was a vertical deviation of the aircraft of 800ft.

Thanks to the TCAS, the distance between the two aircraft was not less than 1,4 NM and 400ft.

### **ANALYSIS of the radar situation at the time of the incident by Roger Monnerat, AAIB radar expert.**

At the time of this incident, the radar system (radar sensors) and the MRT were operating normally.

One of the two radar plotting presents some trajectory jumps, it is not an isolated case, but is frequently met in the area of the approach point GG503 at FL70.

The diagrams of radar visibility, plotted with the Eurocontrol Sass-C system, shows in the area of GG503 at FL70 that the range is limited by the radar horizon (screening of the Grand Crêt d' Eau). The Skyguide engineering department made the proposal to raise the approach level in this area. Until now, no action has been taken to this proposal.

#### **Comments:**

The plotting of the radar trajectory of flight EZS974 shows that there were 3 lacks of detection. The trajectory of flight CRX609 was followed without lack, but was closer (18 NM instead of 20 Nm).

A lack of detection always results in an extrapolation ("coasting") at the radar sensor which will be amplified by MRT extrapolation, necessary to update the radar position at the time of its presentation on the control screens. If these extrapolations occur during a turn, the resulting position will be erroneous. In this case the jump observed reached as far as 0.3km.

In the approach phase, an aircraft, flying at 250 kts, progresses only 0.5 km per antenna's revolution (4s/rev). If the trajectory makes a jump of 0.3 km, the CCA has the impression of a turn of approximately 30° and he must wait for 2 more antenna's revolutions to ensure itself of the true direction of the movement, which gives 12 seconds of doubt in all.

If an extrapolation, at the time of a lack of detection, was done too much far away (speed vector excessively too large), the following position, which is real, will give the impression that the track moves backward.

Generally speaking, when an aircraft is close to the radar horizon of an SSR interrogator, a small change of bank or pitch will mask SSR antenna of all those which are not equipped with a double antenna mode S transponder.

### **CAUSE**

The incident is due to the approach controller's lapse of attention in applying a radar guidance, in a heavy traffic situation.

Factor influencing the course of the incident:

Malfunction of the approach radar at the time of the incident.

Lack of ATC situational awareness of the pilot of CRX609 in a heavy traffic situation.

Berne, 15 April 2003

Aircraft Accident Investigation Bureau



**TRANSCRIPT OF TELEPHONY  
OR RADIOTELEPHONY COMMUNICATIONS TAPE-RECORDINGS**

Investigation into the **incident** that occurred on **24 June 2002**

- Subject of transcript: **CRX609 / EZS974**

- Centre concerned: Terminal Control Geneva

- Designation of unit: APP

- Frequency: 131.32 MHz

- Date and period covered by attached extract: 24 June 2002  
16:13 - 16:29 UTC

- Date of transcript: 17 July 2002

- Name of official in charge  
of transcription service: Monica Simonet

- Certificate by official in charge of Analysis Department:

I hereby certify:

- That the accompanying transcript of the telephony or radiotelephony communication tape-recording, retained at the present time in the premises of Analysis Department, has been made under my supervision.
- That it was examined and checked by me.
- That no changes have been made to the entries in columns 2, 3 and 4, which contain only clearly understood indications in their original form.

Geneva, 17 July 2002

on behalf of M. Simonet



I. Rochat

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Abbreviations

APP - Geneva Approach Control

<b>974</b>	-	<b>Topswiss 974</b>	<b>B733</b>	<b>IFR flight</b>	<b>EGKK</b>	-	<b>LSGG</b>
447	-	Swiss 447	SB20	IFR flight	EGLC	-	LSGG
1823	-	Swiss 1823	RJ1H	IFR flight	LGAV	-	LSGG
3486	-	Iberia 3486	MD87	IFR flight	LEMD	-	LSGG
HMV	-	HB-VMV	C560	IFR flight	LFPB	-	LSGG
<b>609</b>	-	<b>Swiss 609</b>	<b>E145</b>	<b>IFR flight</b>	<b>LFPG</b>	-	<b>LSGG</b>
615	-	Scandinavian 615	E145	IFR flight	ESSA	-	LSGG
2542	-	Air France 2542	A319	IFR flight	LFPG	-	LSGG
906	-	Topswiss 906	B733	IFR flight	EGGW	-	LSGG

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## TRANSCRIPT SHEET

To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
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**Frequency 131.32 MHz: Geneva Approach**

APP	974	16:13:08	Geneva bonsoir, Topswiss ni... nine seven four, descending flight level one six zero, passing one eight eight, on course to LIRKO, speed is two five zero knots.	
974	APP	15	Topswiss nine seven four, good afternoon, roger, DINIG two November, runway zero five, QNH one zero two two, descend flight level one three zero.	
APP	974	23	Descending flight level one three zero, DINIG two November, QNH one zero two two, Topswiss nine seven four.	
447	APP	29	Swiss four four seven, descend flight level eight zero.	
APP	447	31	Descend to eight zero, Swiss four four seven.	
APP	1823	34	Geneva Arrival, bonsoir, Swiss zero nine two three, descending one six zero, passing one eight zero, on a BANKO arrival, information Sierra, Jumbolino.	
1823	APP	42	Swiss one eight two three, bonsoir, GOLEB one November transition, runway zero five, QNH one zero two two, descend flight level one four zero, and confirm speed two fifty ?	
APP	1823	51	Roger, GOLEB... XXXXX transition, level one four zero, speed two fifty, <i>Swiss one eight two four.</i>	Probably "one" ; Should be " <i>Swiss one eight two three</i> "
3486	APP	59	Iberia three four eight six, contact Tower, one one eight seven, bye.	
APP	3486	16:14:02	One one eight seven, bonne journée.	
1823	APP	58	Swiss one eight two three, descend flight level one two zero.	
APP	1823	16:15:01	Descend level one two zero, Swiss one eight two three.	
HMV	APP	03	Hotel Mike Victor, descend flight level niner zero, reduce speed two twenty.	
APP	HMV	07	Descend to level nine zero and reducing speed.. two five zero, Hotel Mike Victor.	
HMV	APP	12	Two two zero knots the speed.	

Signature of  
person in charge:



TRANSCRIPT SHEET

<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
HMV	APP	16:15:17	Hotel Mike Victor, I confirm the speed, two two zero knots.	
HMV	APP	27	Hotel Bravo Victor Mike Victor, for the third time, I confirm, the s, correct speed is two two zero knots, requested.	
APP	HMV	35	Two two zero knots, affirm, Hotel Mike Victor.	
447	APP	46	Swiss four four seven, descend seven thousand feet, QNH one zero two two.	
APP	447	50	Descend to seven thousand feet, one zero two two, Swiss four four seven.	
<b>APP</b>	<b>609</b>	<b>58</b>	<b><i>Geneva bonsoir, Swiss six zero nine, flight level one six zero, with information Sierra.</i></b>	
<b>609</b>	<b>APP</b>	<b>16:16:03</b>	<b><i>Swiss six zero nine, bonsoir, speed two fifty, DINIG two November transition, runway zero five, QNH one zero two two, and descend flight level one three zero.</i></b>	
<b>APP</b>	<b>609</b>	<b>14</b>	<b><i>Two fifty knots,????? descend flight level one three zero on a DINI, DINIG two November transition, Swiss six zero nine.</i></b>	<b>Unreadable</b>
974	APP	20	Topswiss nine seven four, descend flight level one hundred.	
APP	974	23	Descending flight level one hundred, Topswiss heu... nine seven four.	
1823	APP	26	Swiss one eight two three, descend seven thousand feet, QNH one zero two two.	
APP	1823	30	Descend seven thousand feet, QNH one zero two two, Swiss one eight two three.	
615	APP	38	Scandinavian six one five, descend six thousand feet, QNH one zero two two.	
APP	615	43	Six thousand feet one the QNH one zero two two, Scandinavian six one five.	
447	APP	52	Swiss four four seven, maintain heading, reduce speed two ten.	
APP	447	56	Speed two ten, maintaining heading, Swiss four four seven.	

Signature of  
person in charge:



## TRANSCRIPT SHEET

<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
1823	APP	16:17:09	Swiss one eight two three, reduce speed two ten.	
APP	1823	12	Speed back two ten, Swiss one eight two three.	
<b>609</b>	<b>APP</b>	<b>16</b>	<b>Swiss six zero nine, reduce speed two twenty.</b>	
<b>APP</b>	<b>609</b>	<b>19</b>	<b>Two twenty, Swiss six zero nine.</b>	
615	APP	22	Scandinavian six one five, flight conditions, would you have the runway in sight for visual approach?	
APP	615	27	Heu, negative... Scandinavian six one five, we are still in clouds.	
615	APP	31	Roger.	
615	APP	36	Scandinavian six one five, fly heading two eight zero for base.	
APP	615	40	Heading two eight zero for base, Scandinavian six one five.	
HMV	APP	44	Hotel Mike Victor, descend seven thousand feet, QNH one zero two two, speed two ten, maintain heading.	
APP	HMV	50	Descending to seven thousand feet, QNH one zero two two, ... Hotel Mike Victor.	
<b>974</b>	<b>APP</b>	<b>16:18:10</b>	<b>Topswiss nine seven four, descend flight level eight zero.</b>	
<b>APP</b>	<b>974</b>	<b>12</b>	<b>Descending flight level eight zero, Topswiss nine seven four.</b>	
<b>609</b>	<b>APP</b>	<b>17</b>	<b>Swiss six zero nine, descend flight level one one zero.</b>	
<b>APP</b>	<b>609</b>	<b>20</b>	<b>Flight level one one zero, Swiss six zero nine.</b>	
447	APP	43	Swiss four four seven, heading one six zero, base.	
APP	447	46	Heading one six zero, Swiss four four seven.	
APP	2542	49	Genève, Air France vingt-cinq quarante-deux, bonjour, on est Sierra.	
615	APP	52	Scandinavian six one five, right heading zero one zero, intercept the localizer, cleared ILS approach.	

Signature of  
person in charge:



## TRANSCRIPT SHEET

<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
APP	615	16:18:56	Heading zero one zero, and cleared ILS approach ... zero five, Scandinavian six one five.	
2542	APP	16:19:02	Air France vingt-cinq quarante-deux, bonsoir, vitesse deux cent trente nœuds, descendez niveau de vol cent trente, DINIG deux Novembre, piste zéro cinq.	
APP	2542	09	Donc, deux cent trente nœuds, niveau cent trente, DINIG deux Novembre pour la zéro cinq, vint-cinq quarante-deux.	
447	APP	28	Swiss four four seven, reduce now speed one sixty, maintain to four.	
APP	447	32	One sixty to four, Swiss four four seven, still heading one six zero.	
447	APP	36	XXXXX.	Probably "Affirm"
615	APP	37	Scandinavian six one five, maintain at least one eight zero knots to Passeiry.	
APP	615	41	One eighty to Passeiry, Scandinavian six one five, and fully established ILS.	
615	APP	46	Roger, contact Tower, one eighteen seven, good day Ma'am.	
APP	615	48	Eighteen seven, Tower, Scandinavian six one five, bye.	
447	APP	55	Swiss four four seven, heading zero eight zero, descend six thousand feet, intercept the localizer, cleared ILS approach.	
APP	447	59	Heading zero eight zero, descend to six thousand, we are cleared for ILS approach zero five, Swiss four four seven.	
1823	APP	16:20:05	Swiss one eight two three, reduce speed one eighty.	
APP	1823	08	Speed back one eighty, Swiss one eight two three.	
<b>974</b>	<b>APP</b>	<b>10</b>	<b>Swiss nine seven four, reduce speed two ten.</b>	Should be "Topswiss"
<b>APP</b>	<b>974</b>	<b>14</b>	<b>Two ten ??????, nine seven four.</b>	Unreadable
<b>609</b>	<b>APP</b>	<b>19</b>	<b>Swiss six zero nine, descend seven thousand feet, QNH one zero two two.</b>	

Signature of  
person in charge:



## TRANSCRIPT SHEET

<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
<b>APP</b>	<b>609</b>	<b>16:20:23</b>	<b>Seven thousand feet, one zero two two, the Swiss six zero nine.</b>	
HMV	APP	26	Hotel Mike Victor, heading one six zero, base.	
APP	HMV	29	Heading... zero six zero, for base, Hotel... Mike Victor, one six zero.	
HMV	APP	35	One six zero is correct, affirm.	
<b>974</b>	<b>APP</b>	<b>39</b>	<b>Topswiss nine seven four, descend seven thousand feet, QNH one zero two two, maintain heading.</b>	
<b>APP</b>	<b>974</b>	<b>43</b>	<b>Descending altitude seven thousand feet on QNH one zero two two, maintaining heading two two six, Topswiss nine seven four.</b>	
2542	APP	51	Air France vingt-cinq quarante-deux, faites route direct Golf Golf cinq cent trois.	
APP	2542	55	Golf Golf... cinq cent... trois de la position..., vingt-cinq quarante-deux.	
<b>974</b>	<b>APP</b>	<b>16:21:18</b>	<b>Topswiss nine seven four, speed now one eighty.</b>	
<b>APP</b>	<b>974</b>	<b>11</b>	<b>Reducing one eighty, Topswiss nine seven four.</b>	
HMV	APP	13	Hotel Mike Victor, descend six thousand feet, QNH one zero two two, shortly turning in.	
APP	HMV	18	Descending to six thousand feet, QNH... one zero two two, Hotel Mike Victor.	
447	APP	23	Swiss four four seven, Tower, one eighteen seven, au revoir.	
APP	447	26	Eighteen seven, ????? merci, Swiss four four seven.	Unreadable
1823	APP	28	One eight two three, maintain heading.	
1823	APP	32	Swiss one eight two three, maintain heading.	
APP	1823	34	Maintain heading, Swiss one eight two three.	
HMV	APP	39	Hotel Mike Victor, heading zero eight zero, intercept the localizer, cleared ILS approach, speed one sixty to four.	

Signature of  
person in charge:



## TRANSCRIPT SHEET

<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
APP	HMV	16:21:46	Cleared... I, I...cleared ILS zero five, heading zero eight zero. . ., speed... one sixty, Hotel Mike Victor.	
2542	APP	16:22:02	Air France vingt-cinq quarante-deux, réduisez la vitesse deux cent dix nœuds.	
APP	2542	05	Vers deux cent dix nœuds, vingt-cinq quarante-deux.	
1823	APP	16	Swiss one eight two three, right heading three hundred, base.	
APP	1823	19	Right heading three zero zero, base, Swiss one eight two three.	
2542	APP	26	Air France vingt-cinq quarante-deux, descendez niveau de vol cent.	
APP	2542	29	Vers le niveau cent, vingt-cinq quarante-deux.	
<b>974</b>	<b>APP</b>	<b>44</b>	<b>Topswiss nine seven four, further... left heading one four zero.</b>	
<b>APP</b>	<b>974</b>	<b>49</b>	<b>Left heading one four zero, Topswiss nine seven four.</b>	
<b>974</b>	<b>APP</b>	<b>51</b>	<b>Heu, nine seven four, sorry, heading one eight zero, initially, my mistake.</b>	
<b>APP</b>	<b>974</b>	<b>55</b>	<b>No problem, heading one eight zero, Topswiss nine seven four.</b>	
1823	APP	59	Swiss one eight two three, heading zero one zero, intercept the localizer, cleared ILS approach.	
APP	1823	16:23:04	Right heading zero one zero, cleared ILS zero five, Swiss one eight two three.	
<b>974</b>	<b>APP</b>	<b>07</b>	<b>Topswiss nine seven four, reduce now speed one sixty, maintain to four miles.</b>	
<b>APP</b>	<b>974</b>	<b>11</b>	<b>One sixty to four, Topswiss nine seven four.</b>	
1823	APP	15	Swiss one eight two three, speed one six zero knots, maintain to four miles. Call you back shortly for lower.	
APP	1823	20	One sixty to four, Swiss one eight two three.	
2542	APP	30	Air France vingt-cinq quarante-deux, descendez niveau de vol quatre-vingts, huit zéro.	

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<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
APP	2542	16:23:34	Vers le niveau quatre-vingts, huit zéro, vingt-cinq quarante-deux.	
1823	APP	38	Swiss one eight two three, heading zero two zero to join.	
APP	1823	40	Heading zero two zero, Swiss one eight two three, to join ILS zero five.	
<b>974</b>	<b>APP</b>	<b>43</b>	<b>Topswiss nine seven four, take you... shortly through the centre line for spacing with preceding.</b>	
<b>APP</b>	<b>974</b>	<b>49</b>	<b>Nine seven four.</b>	
1823	APP	16:24:02	Swiss one eight two three, descend six thousand feet, further descent on the ILS.	
APP	1823	07	Descend six thousand feet, further descend on the glide, Swiss one eight two three.	
APP	HMV	10	Hotel Mike Victor, we are established on localizer zero five.	
HMV	APP	14	Hotel Mike Victor, roger, Tower, one eighteen seven, au revoir.	
<b>974</b>	<b>APP</b>	<b>19</b>	<b>Topswiss nine seven four, left heading zero five zero, intercept the localizer, cleared ILS approach.</b>	
<b>APP</b>	<b>974</b>	<b>25</b>	<b>Left heading zero five zero, cleared ... to intercept... the localizer zero five, Topswiss nine seven four.</b>	
<b>609</b>	<b>APP</b>	<b>31</b>	<b><i>Six zero nine, heu..., heading two three zero immediately, you have been clea... cleared to continue on heading, didn't you make the read-back. Climb initially, immediately to eight thousand feet please.</i></b>	
<b>APP</b>	<b>609</b>	<b>41</b>	<b><i>Eight thousand, Swiss six zero nine.</i></b>	
<b>609</b>	<b>APP</b>	<b>43</b>	<b><i>Six zero nine, I confirm, immediately eight thousand feet, and continue one the heading one four zero for positioning from the south.</i></b>	
<b>APP</b>	<b>609</b>	<b>50</b>	<b><i>We have that traffic in sight, and we are turning right to... get away from him. We have in sight XXXXX.</i></b>	Could be "Sir" or "there"

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<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
<b>609</b>	<b>APP</b>	<b>16:24:56</b>	<b>Okay.</b>	
APP	906	57	Bien le bonjour, Topswiss nine zero six, flight level one six zero, to DINIG with Tango.	Unreadable
906	APP	16:25:02	Topswiss nine zero six, bonsoir, speed two fifty, continue as cleared.	
APP	906	06	We have two fifty, nine zero six.	
<b>609</b>	<b>APP</b>	<b>08</b>	<b><i>Six zero nine, there is another traffic just overhead INDIS, passing... reaching eight thousand feet, confirm ?</i></b>	
<b>APP</b>	<b>609</b>	<b>14</b>	<b><i>Affirm, we have the traffic in sight, ??????</i></b>	Unreadable
<b>609</b>	<b>APP</b>	<b>17</b>	<b><i>Roger, then... heading two three zero will be fine, will line up from left heu... from right to left, take you to centreline shortly.</i></b>	
<b>APP</b>	<b>609</b>	<b>24</b>	<b><i>Roger.</i></b>	
<b>609</b>	<b>APP</b>	<b>28</b>	<b><i>And could you just... check about the instructions to keep heading, heu... when on the transition please ?</i></b>	
APP	974	37	Heu, Topswiss... niner seven four..., TCAS... descending and we are clea... localizer.	
974	APP	43	Nine seven four, the traffic is anyway one thousand feet above you, position no problem, cleared ILS approach, speed one sixty to four.	
APP	974	50	Cleared ILS, one sixty to four, Topswiss nine seven four.	
<b>609</b>	<b>APP</b>	<b>53</b>	<b><i>Swiss six zero nine, turn now left, I say again, left heading zero two zero, to join right left, report established on the localizer.</i></b>	
<b>APP</b>	<b>609</b>	<b>16:26:00</b>	<b><i>Left zero two zero, Swiss six zero nine.</i></b>	
1823	APP	03	Swiss one eight two three, contact now Tower, one one eight seven, au revoir.	
APP	1823	07	Eighteen seven, au revoir, Swiss one eight two three.	
<b>609</b>	<b>APP</b>	<b>21</b>	<b><i>Swiss six zero nine, descend again to seven thousand feet, QNH one zero two two.</i></b>	

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<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
<b>APP</b>	<b>609</b>	<b>16:26:26</b>	<b>Seven thousand, one zero two two, Swiss six zero nine.</b>	
2542	APP	29	France vingt-cinq quarante-deux, au cap actuel, qui est ?	Should be "Air France"
APP	2542	33	On... maintient le cap deux cent huit, vingt-cinq quarante-deux.	
2542	APP	36	Reçu, réduisez la vitesse, cent quatre-vingts nœuds, je vous rappelle pour réduire plus.	
APP	2542	39	D'accord, vers cent quatre-vingts nœuds, vingt-cinq quarante-deux.	
<b>974</b>	<b>APP</b>	<b>41</b>	<b>Topswiss nine seven four, reduce now speed one <u>five</u> zero knots, maintain to four miles final.</b>	
<b>APP</b>	<b>974</b>	<b>46</b>	<b>One fifty to four, Topswiss nine seven four.</b>	
<b>974</b>	<b>APP</b>	<b>49</b>	<b>You are two and a half miles from preceding, contact Tower, one one eight seven, au revoir.</b>	
<b>APP</b>	<b>974</b>	<b>53</b>	<b>Eighteen seven, Topswiss nine seven four, au revoir, merci.</b>	
<b>609</b>	<b>APP</b>	<b>56</b>	<b>Swiss six zero nine, speed one eighty to... six miles now.</b>	
<b>APP</b>	<b>609</b>	<b>16:27:00</b>	<b>One eighty to six miles, Swiss six zero nine.</b>	
<b>APP</b>	<b>609</b>	<b>06</b>	<b>And confirmed cleared ILS, Swiss six zero nine.</b>	
<b>609</b>	<b>APP</b>	<b>08</b>	<b>When established, you will be cleared ILS approach, affirm.</b>	
<b>APP</b>	<b>609</b>	<b>11</b>	<b>Roger.</b>	
906	APP	23	Topswiss nine O six, descend flight level one zero zero, and continue DINIG two November transition.	
APP	906	27	DINIG two November, leaving one six zero descending flight level one hundred, Topswiss nine zero six.	
2542	APP	37	Air France vingt-cinq quarante-deux, cap cent soixante pour la base.	
APP	2542	40	Cap cent soixante, vingt-cinq quarante-deux.	
<b>APP</b>	<b>609</b>	<b>16:28:08</b>	<b>Swiss six zero nine, established localizer.</b>	

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<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
609	APP	16:28:10	<b>Swiss six zero nine, roger, cleared ILS approach.</b>	
APP	609	13	<b>Cleared ILS, Swiss six zero nine.</b>	
2542	APP	26	Air France vingt-cinq quarante-deux, ... virez à gauche au cap zéro quatre-vingts, interceptez le loc zéro cinq, autorisé à l'approche ILS, et vous pouvez descendre sept mille pieds, mille vingt-deux, maintenant.	
2542	APP	34	Donc..., gauche cap zéro quatre-vingts, on intercepte l'ILS zéro cinq, vers sept mille pieds, mille vingt-deux, Air France... vingt-cinq quarante-deux.	
APP	609	16:29:01	<b>Swiss six zero nine, established on the ILS.</b>	
609	APP	09	<b>Swiss six zero nine, roger, contact now Tower, one one eight seven, I confirm, speed one eighty to six.</b>	
APP	609	13	<b>One eighty to six, Swiss six zero nine. Do you have a number for us to call.</b>	
609	APP	21	<b>Heu... just phone the control Tower and say we'll relay here, to the approach.</b>	
APP	609	26	<b>Okay.</b>	
609	APP	27	<b>Thank you.</b>	

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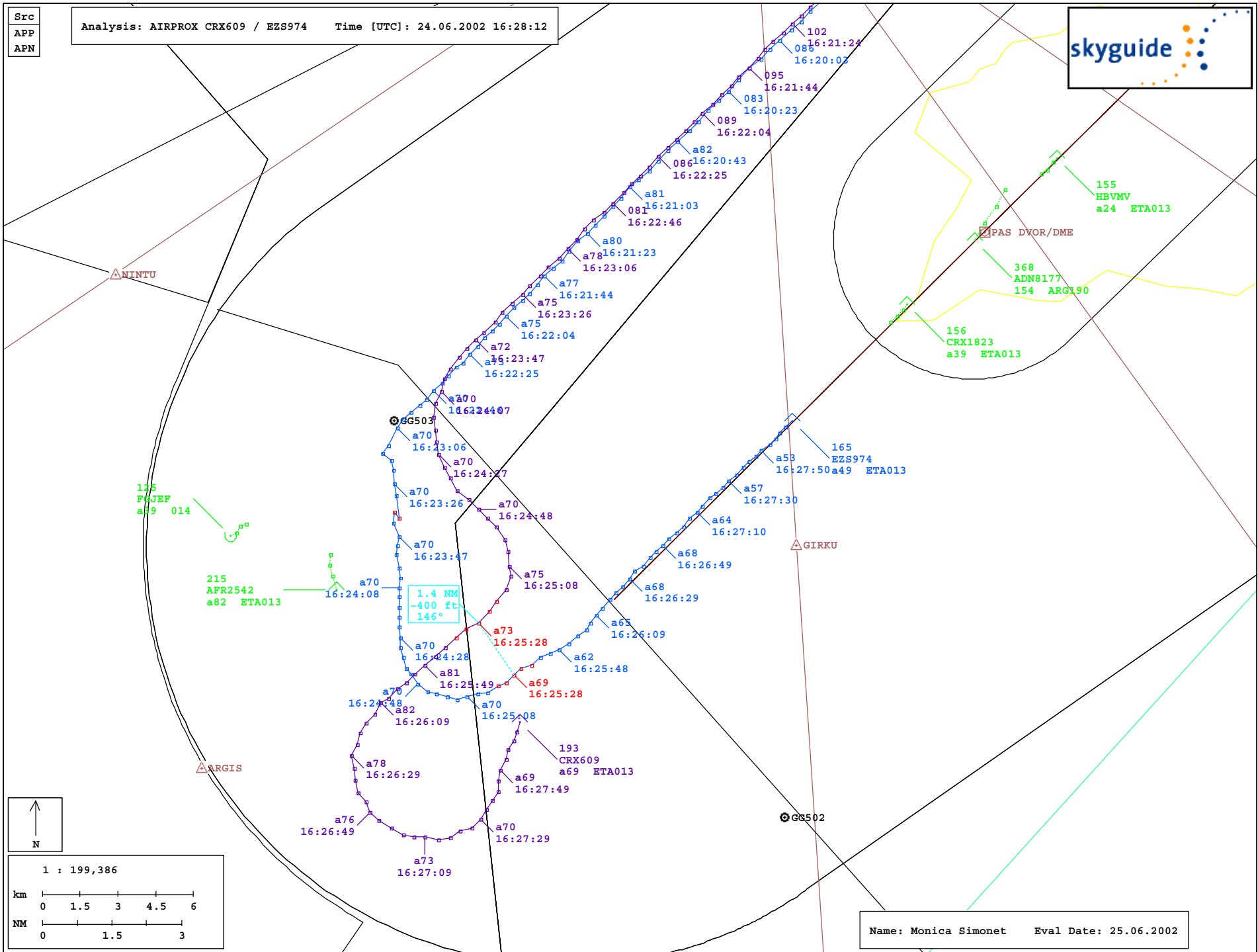
Signature of  
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Src  
APP  
APN

Analysis: AIRPROX CRX609 / EZS974 Time [UTC]: 24.06.2002 16:28:12



NINTU

125  
F6JEF  
a89 014

215  
AFR2542  
a82 ETA013

1.4 NM  
400 ft  
146°

ARGIS

GIRKU

155  
HBVMV  
a24 ETA013

368  
ADN8177  
154 ARG190

156  
CRX1823  
a39 ETA013

165  
EZS974  
16:27:50 a49 ETA013

a75  
16:25:08

a73  
16:25:28

a69  
16:25:28

193  
CRX609  
a69 ETA013

GG502

Name: Monica Simonet Eval Date: 25.06.2002

