

Final Report of the Aircraft Accident Investigation Bureau

concerning the incident (Airprox)

between HB-FLK and DLH8AY

on 15 February 2004

6 NM southwest of Grenchen, near LARDO

FINAL REPORT

AIR TRAFFIC INCIDENT REPORT (ATIR)

AIRPROX (NEAR MISS)

This report serves exclusively to prevent accidents. The legal assessment of accident/incident causes and circumstances is no concern of the incident investigation. (Art. 24 of the Air Navigation Law). The masculine form is used in this report regardless of gender for reasons of data protection.

PLACE/DATE/TIME Berne TWR/APP, 6 NM southwest of Grenchen, near LARDO, 15 February 2004, 14:52 UTC

AIRCRAFT HB-FLK, Pilatus – Porter (PC6T),
Para-Club Grenchen, 2540 Grenchen
Grenchen - Grenchen

DLH8AY, De Havilland DHC-8-314 (DHC-8), D-BHOQ,
Augsburg Airways GmbH (Team Lufthansa)
Munich - Berne

ATC UNIT Berne TWR/APP

AIR TRAFFIC TWR/APP

CONTROLLERS TWR/APP

AIRSPACE D

HISTORY

On Sunday 15 February 2004, a DH8C, flight DLH8AY, was on a scheduled flight from Munich to Berne. The flight was being made by an Augsburg GmbH aircraft on behalf of Lufthansa. The pilots were in radio contact with Berne TWR/APP and had received clearance to fly via BELAR, LARDO and BIRKI for an instrument approach on runway 14. DLH8AY was originally cleared for FL100. At 14:49:21, Berne TWR/APP cleared the aircraft to FL80.

Shortly beforehand, HB-FLK, a Pilatus Porter PC6T of the Grenchen Para-Club, had taken off from Grenchen. It was making a private parachute jumping flight. Immediately after take-off, at 14:49:43, the pilot of HB-FLK made radio contact with Berne TWR/APP. He wanted the parachutists to jump at FL140. At this time, DLH8AY was over 11 NM from HB-FLK and was passing FL110 in its descent towards FL80. At 14:50:30, Berne TWR/APP cleared HB-FLK to fly in the direction of the climb sector and to climb to FL100. Since the pilot of HB-FLK reported that he had first to adopt a heading in the direction of Schnottwil because of cloud, Berne TWR/APP restricted the clearance to 5000 ft. At 14:51:10, DLH8AY received clearance from Berne TWR/APP to descend to 6000 ft.

At 14:52:17, the pilot of HB-FLK informed ATC that he was now able to turn in the direction of the climb sector and climb to FL100. He left 5000 ft and at the same time turned northwest and later north. DLH8AY was now 2 NM west-northwest of HB-FLK, passing 7000 ft in its descent to 6000 ft; it was over 100 KT faster than the Pilatus Porter. During the subsequent 30 seconds, intensive radio communication took place between Berne TWR/APP and HB-FLK. Berne TWR/APP instructed the pilot three times to maintain 5000 ft because another aircraft was above him. At 14:52:50, Berne TWR/APP informed the pilots of DLH8AY that an aircraft was climbing ahead of them (Essential Traffic Information), and instructed them to initiate a left turn to waypoint BIRKI. At 14:53:09 the two aircraft had a lateral separation of 1.8 NM and an altitude difference of 400 ft; and at 14:53:21 these were 1.9 NM and 100 ft, respectively. The pilots of DLH8AY reported visual contact with the Pilatus Porter. In their statements, the pilots stated that the weather was good and that they had the Pilatus Porter in sight the entire time.

At 14:53:58, the pilot of HB-FLK reported in answer to an enquiry from Berne TWR/APP that he was climbing to FL60.

At 14:53:58, Berne TWR/APP cleared DLH8AY for the approach on runway 14.

At 14:54:45, Berne TWR/APP cleared HB-FLK to FL100.

Berne TWR/APP informed the pilot of HB-FLK that they would submit an ATIR.

FINDINGS

- At the time of the incident, the two aircraft, DLH8AY and HB-FLK, were in radio contact with Berne TWR/APP on frequency 127.325 MHz.
- The functions of the TWR (frequency 121.025 MHz) and APP (127.325 MHz) workstations were combined at the time of the incident.
- At the time of the incident, the TWR/APP working position was occupied by a trainee air traffic controller (on-the-job training); he was being supervised in his work by a licensed air traffic controller.
- The two air traffic controllers were in possession of appropriate licences.

All times in this report are in UTC format (Local time -1 hour)

- The radio communication between Berne TWR/APP and DLH8AY and HB-FLK took place using English phraseology.
- According to his statement, the pilot of HB-FLK was monitoring radio communication using his headset.
- On the day of the incident, the two air traffic controllers began work at 08:10; at the time of the incident, they had been at their workstations for just on 3 hours.
- According to their statements, the air traffic controllers assessed the incident as dangerous.
- DLH8AY was flying under instrument flight rules (IFR).
- HB-FLK was flying under visual flight rules (VFR).
- At the time of the incident, the two aircraft were within Berne TMA 1 (Terminal Control Area) in class "D" airspace.
- At 14:50:30, Berne TWR/APP gave the pilot of HB-FLK clearance to fly in the climb sector direction and to climb to FL100.
- The Grenchen climb sector extends along the Jura; it is outside the Berne TMA. It is shown on the Berne APP radar chart.
- At 14:50:36, the pilot acknowledged the clearance and informed ATC that he would initially have to adopt a heading for Schnottwil because of cloud. At 14:50:42, Berne TWR/APP restricted the cleared altitude to 5000 ft.
- Schnottwil is located southwest of Grenchen, below Berne TMA 1.
- At 14:51:10, Berne TWR/APP cleared the crew of DLH8AY to 6000 ft.
- At 14:52:09, Bern TWR/APP repeated the instruction to the pilot of HB-FLK to maintain 5000 ft and to report as soon as he was able to adopt a heading for the climb sector.
- At 14:52:17, the pilot of HB-FLK reported to ATC that he was now heading for the climb sector and climbing to FL100.
- From 14:52:23 to 14:52:42, Berne TWR/APP instructed the pilot of HB-FLK three times to maintain 5000 ft. The first time: "negative five thousand feet, maintain."
- The pilot of HB-FLK responded to the first instruction that he could not remain at 5000 ft because of clouds, "that's impossible due to clouds, five five is OK?"
- Berne TWR/APP informed the pilot of HB-FLK that he had an IFR flight above him, "negative maximum five thousand feet, IFR traffic above".
- At 14:52:42, the pilot then asked ATC whether he could climb in the direction of the climb sector to FL100.
- Berne TWR/APP also refused this request and repeated that an aircraft was above HB-FLK "not yet, maintain maximum five thousand feet, traffic above".
- At 14:52:42, the pilot of HB-FLK again informed ATC that he could not remain at 5000 ft because of clouds, "LK that's negative, proceeding back, a lot of clouds". At this time, HB-FLK was at 5600 ft.
- At 14:52:50, Berne TWR/APP provided the pilots of DLH8AY with essential traffic information and at the same time instructed the pilots to make a left turn to BIRKI, "traffic one o'clock position, range two miles five thousand six hundred feet in climb; he was not authorized, turn now left, I confirm turn left now to BIRKI".

All times in this report are in UTC format (Local time -1 hour)

- According to the radar plot, at 14:53:09 the two aircraft crossed with a lateral separation of 1.8 NM and an altitude difference of 400 ft.
- At 14:53:21, the distances between the two aircraft, according to the radar plot, were a lateral separation of 1.9 NM and an altitude difference of 100 ft.
- DLH8AY had switched on transponder A6670 with Code C and was visible on the Berne TWR/APP bright display.
- HB-FLK had switched on transponder A 5471 with Code C and was visible on the Berne TWR/APP bright display.
- Berne TWR/APP was not informed about parachute jumping operations in Grenchen.
- According to their statements, the pilots of DLH8AY received a Traffic Advisory (TA) from the TCAS, but no Resolution Advisory (RA).
- According to their written comments, the pilots of DLH8AY saw the Pilatus Porter just after this, and then kept it in visual contact.
- According to his statement, the pilot of HB-FLK saw the DH8C passing behind him.
- The weather around Berne was good at the time of the incident: scattered to broken cloud, cloud ceiling at approx. 5500 ft.
- Weather: Grenchen 15.02.2004, 14:50 UTC
Wind: 080°, 8 knots
Ground visibility: 10 KM
Cloud: SCT at 3400 FT GND, BKN at 3900 FT GND
Temperature: 06°C, dewpoint m00°C
QNH 1022 hPa
NOSIG

LSZG 1450Z 08008 kt 9999 sct034 bkn039 06m00 Q1022 nosig
- Berne 15.02.2004, 14:50 UTC
Wind: 050°, 3 knots
Ground visibility: 5 KM
Cloud: SCT at 2000 FT GND, BKN at 3000 FT GND
Temperature: 04°C, dewpoint 00°C
QNH 1021 hPa
NOSIG

LSZB 1450Z 05003 kt 5000 sct020 bkn030 0400 Q1021 nosig

ANALYSIS

HB-FLK

According to his statement, the pilot of HB-FLK arrived at Grenchen airport at 12:00. Owing to the prevailing weather conditions, it was initially decided not to commence jumping operations. This is why Berne TWR/APP only learned of the drop flight at the time of the first radio call, because activation of jumping operations had been omitted. According to his statement, the pilot of HB-FLK was making the second of a total of three flights at the time of the incident. It was his only drop flight on that day.

Later in the afternoon, the weather improved, especially southwest of Grenchen. It was then decided spontaneously to make a drop flight. Aircraft HB-FLK took off from Grenchen at 14:46 with 6 people on board. Shortly afterwards, the pilot made radio contact with Berne TWR/APP. The air traffic controller instructed the pilot to proceed to the climb sector and

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climb to FL100. Since clouds were preventing him from climbing, the pilot of HB-FLK stated that he would first fly in the direction of Schnottwil. Berne TWR/APP thereupon restricted the altitude clearance to 5000 ft. HB-FLK was now flying from Grenchen in a south-westerly direction; the Dash8 was following its approach route from the northeast. Above Schnottwil, the pilot of HB-FLK reported that he was now turning in the direction of the climb sector and climbing to FL100. Despite an immediate and repeated request from ATC to remain at 5000 ft, the aircraft continued its climb. According to radio recordings, the pilot had cloud in front of him on his new, northerly flight path. He could not remain at the cleared altitude: "that is impossible due to clouds". He answered a further request not to climb higher than 5000 ft with the words: "LK that's negative, proceeding back, a lot of clouds". The cloud ceiling was now at 5500 ft. He knew that an IFR flight had received clearance to 6000 ft. Nevertheless, he decided to continue climbing. According to his statement, the pilot then had brief visual contact with the commercial aircraft. The two aircraft crossed with a lateral separation of 1.8 NM and an altitude difference of 400 ft within the Berne TMA in class D airspace. According to his statement, the pilot of HB-FLK would have been able to continue flying for a short time on the original south-westerly heading. This would have enabled him to maintain the cleared altitude of 5000 ft in VMC, and this convergence would not have occurred.

According to his statement, the pilot of HB-FLK knows the Grenchen climb sector. When questioned about procedures in airspaces, he demonstrated incomplete knowledge.

DLH8AY

The DHC-8 made radio contact with Berne TWR/APP at 14:47:24. It received approach clearance for runway 14 in Berne. According to the pilots' statements, they saw HB-FLK on the TCAS and monitored the radio communications. At 14:52:50, Berne APP issued the pilots with essential traffic information; HB-FLK was 2.5 NM west of the DHC-8, at 5600 ft and was flying in a north-westerly direction. The pilots of the commercial aircraft reported that they had visual contact with HB-FLK. They initiated a minor course correction in order to continue to keep the PC6T in sight. DLH8AY then flew in a south-westerly direction to waypoint BIRKI, and HB-FLK turned north. The conflict then quickly resolved itself.

Air traffic control

On that day, the two air traffic controllers came on duty at 08:10. One was a trainee controller; he was being supervised by a licensed air traffic controller. At the time of the incident, the TWR and APP workstations were combined. The two controllers had been at their workstation for almost three hours when the incident occurred. As soon as the pilot of HB-FLK informed TWR/APP that he was leaving the cleared 5000 ft, the air traffic controller reacted immediately. He instructed the pilot of HB-FLK three times to maintain an altitude of 5000 ft, to no avail.

CAUSE

The incident is attributable to non-compliance by the pilot of HB-FLK with the flight level cleared by air traffic control. The flying tactics adopted were inappropriate.

Berne, 12 May 2005

Aircraft Accident Investigation Bureau

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

Investigation into the **incident** that occurred on **15.02.2004**

- Subject of transcript: **HBFLK / DLH8AY**

- Centre concerned: Swiss Radar Area East

- Designation of unit: Bern Tower/Approach

- Frequency / Channel: 121.02/127.32 MHz

- Date and period (UTC) covered by attached extract: 15.02.2004
14:47:24 - 14:55:02 UTC

- Date of transcript: 15 March 2004

- Name of official in charge of transcription: Urs Egger

- Certificate by official in charge of transcription:

I hereby certify:

- That the accompanying transcript of the telephony or radiotelephony communication tape-recordings, retained at the present time in the premises of the Analysis Department, has been made, 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.

Zürich, 15 March 2004



Urs Egger

Abbreviations

Sector Designation of sector

TWR - Bern Tower (frequency coupled with Bern Approach)
 APP - Bern Approach (frequency coupled with Bern Tower)

<u>Aircraft</u>	-	<u>Callsign</u>	<u>Type of acft</u>	<u>Flight rules</u>	<u>ADEP</u>	-	<u>ADES</u>
FLK	-	HBFLK	PC6T	VFR	LSZG	-	LSZG
DLH8AY	-	DLH8AY	DH8C	IFR	EDDM	-	LSZB
REGA3	-	REGA3	EC45	VFR	?	-	LSZB
PLP	-	HBPLP	PA28	VFR	LSZB	-	?
CLT	-	HBCLT	C182	IFR	LSZG	-	LSZG
FDL	-	FGDDL	C182	VFR	?	-	?
PPY	-	HBPPY	PA28	IFR	LSGC	-	LSZG
CLU	-	HBCLU	C182	VFR	?	-	LSZB

OZTB / 15 March 2004

TRANSCRIPT SHEET

Occurrence: HBFLK / DLH8AY of 15.02.2004



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
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Frequency: Bern TWR/APP 121.02/127.32 MHz

APP	DLH8AY	14 :47 :24	Bern Arrival "schön guten Tag", DLH8AY passing flight level one three three descending flight level one one zero, inbound BELAR, information Romeo	
DLH8AY	APP	47 :34	DLH8AY Bern Arrival, continue BELAR, LARDO, BIRKI for ILS approach runway one four descend to flight level one zero zero	
APP	DLH8AY	:42	BELAR, LARDO, BIRKI for ILS approach one four and descending flight level one hundred, DLH8AY	
DLH8AY	APP	:48	DLH8AY, number one, high speed appreciated	
APP	DLH8AY	:52	High speed appreciated, DLH8AY	
APP	DLH8AY	48 :16	DLH8AY, the actual cloud base in Bern ?	
DLH8AY	APP	:23	DLH8AY, broken two thousand seven hundred feet	
APP	DLH8AY	:29	8AY copied, thank you	
TWR	REGA 3	:31	REGA 3, Hotel Echo in descent	
REGA 3	TWR	:35	REGA 3, wind zero three zero degrees two knots cleared to land REGA basis	
TWR	REGA 3	:38	REGA 3	
TWR	PLP	:42	Bern Tower, HBPLP, in front of hangar seven, request taxi for a flight to Grenchen with information Romeo	
HBPLP	TWR	:49	HBPLP Bern Tower, "grüessech", taxi holding point runway one four taxiway Alfa, QNH one zero two one	
TWR	PLP	:55	Holding one four and, äh, taxiway Alfa, one zero two one	
CLT	APP	49 :02	H-LT descend to six thousand feet, Grenchen QNH one zero two two, cleared VOR/DME approach runway two five, circling runway zero seven, report ARVAN inbound	
APP	CLT	:11	Leaving flight level seven zero descending six thousand feet, QNH one zero two two, cleared VOR/DME approach two five visual circling zero seven, wilco, H-LT	
DLH8AY	APP	:21	DLH8AY descend to flight level eight zero	

TRANSCRIPT SHEET

Occurrence: HBFLK / DLH8AY of 15.02.2004



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
APP	DLH8AY	14 :49 :25	Descending flight level eight zero, DLH8AY	
FDL	APP	:29	F-DL squawk seven zero zero zero and frequency change approved	
APP	FLK	:43	Bern Approach HBFLK good afternoon, äh, just airborne from Grenchen, flight level three five climbing, request flight level one four zero, dropping overhead Grenchen, squawk five four seven one	
FLK	APP	50 :00	"Grüessech", HBFLK, Bern Arrival, squawk ident	
APP	FLK	:05	Squawking ident H-LK	
TWR	CLU	:10	Bern Tower, HBCLU Burgdorf three thousand seven hundred feet information Romeo for landing	
CLU	TWR	:16	"Grüessech wohl" HBCLU, Bern Tower, enter CTR via Echo for lefthand downwind runway one four QNH one zero two one	
TWR	CLU	:24	One zero two one via Echo for downwind runway one four, H-LU	
FLK	APP	:30	H-LK identified, proceed to the climb sector, climb initially flight level one zero zero	
APP	FLK	:36	H-LK, the climb sector, initially one zero zero proceeding via Schnottwil due clouds overhead	
FLK	APP	:42	Roger, in this case initially five thousand feet only	
APP	FLK	:44	Only five thousand feet H-LK	
FDL	APP	:50	FGDDL ?	
APP	FDL	:53	DL go ahead	
FDL	APP	:54	F-DL squawk seven zero zero zero, Basle Information available on one two one decimal two five	
APP	FDL	51 :02	DL will contact Basle Information one two one decimal two five, thank you and good bye	
FDL	APP	:09	Good bye	
DLH8AY	APP	:10	DLH8AY descend to six thousand feet, QNH one zero two one	

TRANSCRIPT SHEET

Occurrence: HBFLK / DLH8AY of 15.02.2004



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
APP	DLH8AY	14 :51 :14	Descending altitude six thousand feet on QNH one zero two one, DLH8AY	
FLK	APP	:25	FLK confirm the requested level for dropping is flight level one four zero ?	
FLK	APP	:37	H-LK ?	
FLK	APP	:44	HBFLK from Bern ?	
PPY	TWR	:51	H-PY turn right heading three two zero downwind	
TWR	PPY	:55	Heading three two zero H-PY	
APP	FLK	:59	LK go ahead	
FLK	APP	52 :00	H-LK report requested altitude for your drop	
APP	FLK	:03	H-LK one four zero	
FLK	APP	:05	And confirm just one drop ?	
APP	FLK	:07	Just one drop H-LK	
FLK	APP	:09	Roger, maintain five thousand feet maximum for the time being and report when able ... towards to ... to turn towards the climb sector	
APP	FLK	:17	H-LK now proceeding direction climbing area and climbing to (unreadable) ... one hundred	
FLK	APP	:23	Negative five thousand feet, maintain	
APP	FLK	:26	That's impossible due clouds, five five is OK ?	
FLK	APP	:29	Negative maximum five thousand feet, IFR traffic above	
APP	FLK	:34	And ... (unreadable) ... towards the climb area is it possible to climb up one hundred ?	
FLK	APP	:38	Not yet, maintain maximum five thousand feet traffic above	
APP	FLK	:42	Äh, LK that's negative, proceeding back ... (unreadable) ... a lot of clouds	

TRANSCRIPT SHEET

Occurrence: HBFLK / DLH8AY of 15.02.2004



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
DLH8AY	APP	14 :52 :50	DLH8AY traffic one o'clock position, range two miles, five thousand six hundred feet in climb, I, he was not authorized, turn now left, I confirm left turn now to BIRKI	
APP	DLH8AY	53 :01	Äh, traffic in sight, DLH8AY, turning left and clear of traffic	
DLH8AY	APP	:08	Thank you DLH8AY, I call you back for further descent	
APP	DLH8AY	:12	Roger	
APP	FLK	:16	... (unreadable) ... to climb east direction H-LK	
FLK	APP	:20	H-LK roger, report altitude now ?	
APP	FLK	:23	Climbing to six thousand, flight level six zero, H-LK	
FLK	APP	:27	H-LK maintain flight level six zero and report in the sector	
APP	FLK	:31	H-LK maintaining six zero, next in sector	
APP	CLT	:34	H-LT established track two five seven	
CLT	APP	:37	H-LT radar service terminated, contact Grenchen Tower one two zero decimal one	
APP	CLT	:43	One two zero decimal one, bye-bye H-LT	
TWR	CLU	:46	H-LU approaching Echo at three thousand	
CLU	TWR	:49	H-LU join lefthand downwind runway one four, number one, report turning base	
TWR	CLU	:54	Joining left downwind one four, number one, next turning base H-LU	
DLH8AY	APP	:58	DLH8AY descend to five thousand feet QNH one zero two one, cleared ILS approach runway one four, report established	
APP	DLH8AY	54 :04	Descending five thousand feet, äh, QNH one zero two one and will report established, DLH8AY	
TWR	PLP	:13	H-LP is ready for departure outbound via Echo and November	

TRANSCRIPT SHEET

Occurrence: HBFLK / DLH8AY of 15.02.2004



<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>
PLP	TWR	14 :54 :20	H-LP roger, leave CTR via Echo and November, wind zero four zero degrees five knots, runway one four, cleared for take-off, look out a Cessna Echo inbound	
TWR	PLP	:29	Cleared take-off and looking Cessna inbound, H-LP	
CLU	TWR	:34	H-LU traffic Piper just departing left turn out direction Echo	
TWR	CLU	:39	Looking out for departing traffic, H-LU	
FLK	APP	:45	H-LK climb now to flight level one zero zero	
APP	FLK	:49	Climb to one zero zero, H-LK	
APP	DLH8AY	:53	DLH8AY fully established	
DLH8AY	APP	:56	DLH8AY radar service terminated, report two miles final	
APP	DLH8AY	55 :02	Radar service terminated, we'll report two miles, DLH8AY	

END

Src
ACN

Analysis: HB-FLK / DLH8AY Time [UTC]: 15.02.2004 14:53:50



165
HBCLT
a48 BIR

GRE VOR/DME

5471
a61

a60
14:53:33
a59
14:53:21
a58
14:53:09
a56
14:52:57

a56
14:52:45
a55
14:52:33

a60
14:53:21
a60
14:53:33

220
DLH8AY
a60 BIR110
S

BIRKI

MEGLM
a62
14:52:57
a61
14:52:45

a60
14:53:21
a60
14:53:33

a50
14:52:09
a52
14:52:21
a55
14:52:33

a50
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a48
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a48
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a43
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a71
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a71
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a75
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a78
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a82
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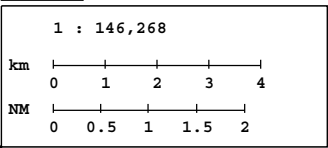
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a87
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a87
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a91
14:50:34
a95
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a112
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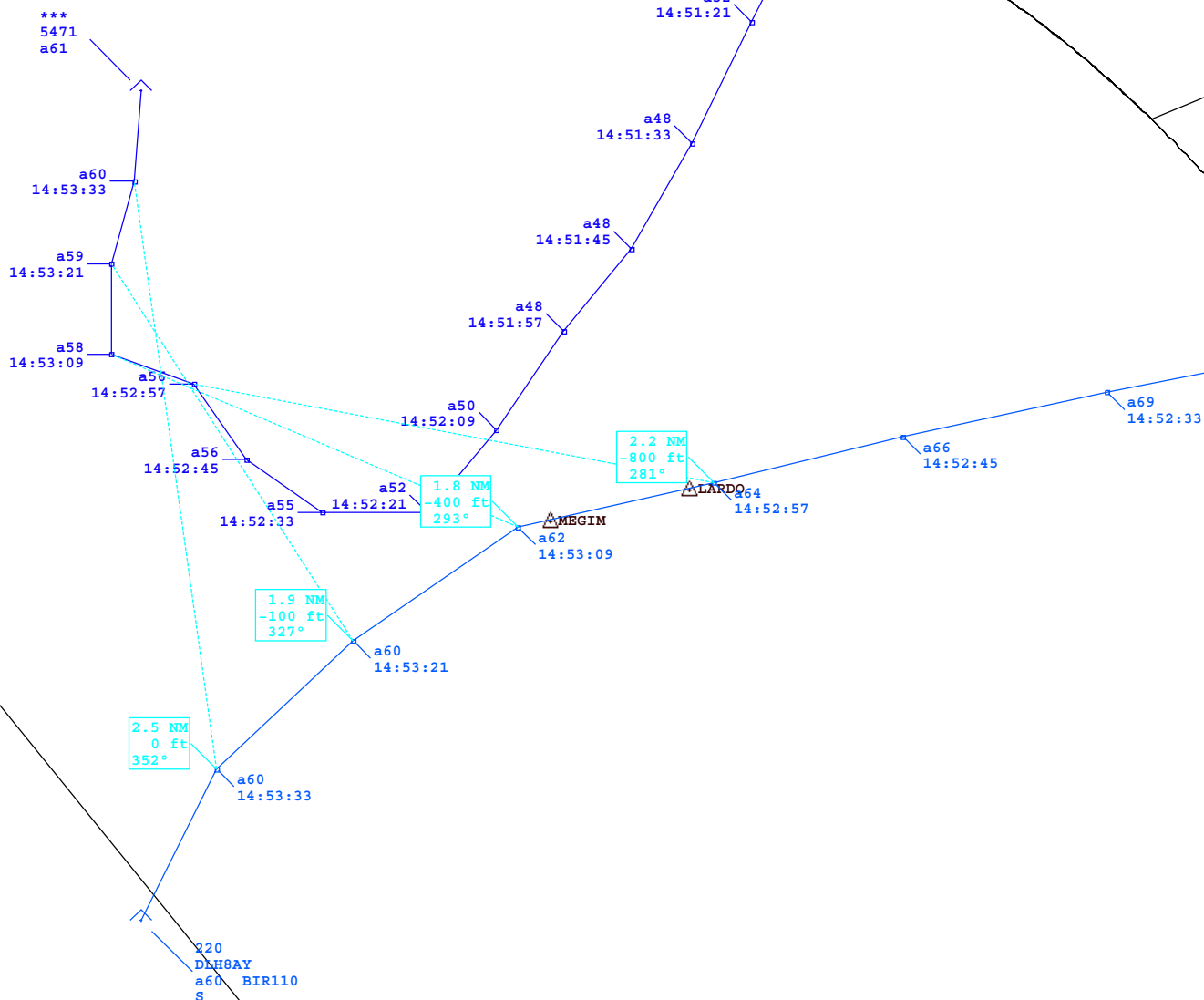
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a87
14:51:09



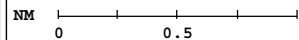
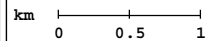
Name: Claudio Di Palma OZEO-dc Eval Date: 17.02.2004

Src
ACN

Analysis: HB-FLK / DLH8AY Time [UTC]: 15.02.2004 14:53:50



1 : 52,927



Name: Claudio Di Palma OZEO-dc Eval Date: 17.02.2004